



**MAINSTREAMING BIODIVERSITY INTO TOURISM DEVELOPMENT
IN JORDAN / PRELEMINARY PHASE/ NOVEMBER 2014
COMPREHENSIVE TECHNICAL FINAL REPORT**



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Acronyms

ASEZ	Aqaba Special Economic Zone
ASEZA	Aqaba Special Economic Zone Authority
BI'A	Petra Ecotourism Network
BIMS	Biodiversity Information Management System
EIA	Environmental Impact Assessment
GDP	Gross Domestic Product
GEF	Global Environment Facility
GIS	Geographic Information System
IUCN	International Union for the Conservation of Nature
JDC	Jordan Dubai Capital
JTB	Jordan Tourism Board
JVA	Jordan Valley Authority
LPD	Local Project Director
LPO	Local Project Officer
LUP	Land Use Plan
MoE	Ministry of the Environment
MOTA	Ministry of Tourism and Antiquities
MOMA	Ministry of Municipal Affairs
MOPIC	Ministry of Planning and International Cooperation
NBT	Nature-Based Tourism
NGOs	Non-Government Organizations
NR	Nature Reserve
PA	Protected Area
PAP	Petra Archaeological Park
PCU	Project Coordination Unit
PDTRA	Petra Development and Tourism Region Authority
RSCN	Royal Society for the Conservation of Nature
SCA	Special Conservation Area
SEA	Strategic Environmental Assessment
TAC	Technical Advisory Committee
TOR	Terms of Reference
ToT	Training of Trainers
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development



INTRODUCTION

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1. Introduction

1.1 Project background

In Jordan, the tourism sector has posed a major threat to biodiversity already. Yet, and in certain sites and locations, tourism in general, and nature tourism in particular had provoked interest and awareness regarding sustainable tourism and its links to sustaining biodiversity in the Kingdom, one could mention the various nature reserves of the Royal Scientific Society or other sites as well such as the Baptism Site and the Dead Sea eastern shores. Considering the planned exponential growth of the sector, this threat is expected to grow significantly. The Government actively markets Jordan as a destination for tourism and seeks to expand the tourism marketing to a wide range of products related to tourism, such as nature-based tourism, agro-tourism, eco-tourism, and health-tourism. Hereby, the wild beauty of Jordan has been acknowledged as a key attraction offering opportunities for hiking, camping and other activities. The visitation of PAs is therefore expected to grow over time.

In order to meet this increasing demand, a new orientation has emerged within the tourism sector planning by expanding the tourism product of Jordan to include the nature-based attractions which embrace biodiversity values, whilst, focusing on developing family tourism. On the other hand, these measures do not focus on preparing the stage where most of the activities of the Gulf tourists will take place, such as in the forests of the high mountains of Jordan, especially in Jerash and Ajloun. The anticipated effects on agricultural and forest lands through new buildings (villas, resorts, guest houses, etc.) especially on private land adjacent to important biodiversity areas, must be carefully managed through land use and tourism product development planning, so as to ensure sustainable tourism that can conserve nature and involve and benefit the wider local community.

The Integrating Biodiversity in the Tourism Sector Project is a GEF/UNDP four years project commenced in January 2014. The project aims to promote the consideration of biodiversity a fundamental part of national planning and development efforts, especially for areas affected by tourism in Jordan.

The Main expected accomplishment of the project being:

((Biodiversity conservation objectives are effectively mainstreamed and advanced into and through tourism sector development in Jordan)).

The project aims to reduce the impact of tourism on biodiversity in Jordan and it will intervene at three levels. At the national level, it will develop a regulatory and enforcement framework in order to reduce the impact of tourism on biodiversity centrally (upstream). Components will be piloted at the local level, assessed and refined before being adopted nationally and made available for replication and up-scaling. At the regional level, the project will create public awareness about the sensitivity and value of biodiversity as an asset for tourism promotion in addition to institutional capacity for planning, monitoring and enforcement so as to manage the impacts of tourism development inside and outside formally protected areas. At the Protected Area (PA) level, the project will work to enhance capacity and manage effectiveness of PAs (including revenue generation, tourism planning and management as well as community relations) with the aim to reduce the impact of visitors on protected biodiversity in addition to benefit from nature-based tourism and ecotourism.

In addition to reducing the impact of tourism on biodiversity in Jordan by means of land use planning, capacity building, and other means; the project has another dimension where it attempts to find potentials for the integration of eco and biodiversity tourism within the tourism industry in general. Three project outcomes will be fulfilled at the end of the project...targeting the national, regional and local levels.

Outcome 1: Key stakeholders at national, regional and local levels apply an enhanced regulatory and enforcement framework in order to avoid, reduce, mitigate and offset adverse impacts of tourism on biodiversity.

Outcome 2: Institutional capacities for planning, monitoring and enforcement strengthened in Jerash, Petra and Wadi Rum areas so as to manage the impacts of tourism development on biodiversity within ecologically valuable and sensitive areas.

Outcome 3: Improved management effectiveness particularly in community relations, tourism planning and management as well as revenue generation in Dibeen, Shoubak and Wadi Rum Protected Areas.

UN-Habitat has been tasked to implement the land use planning component relating to Outcome 2 of the project specifically, (Output 2.2/2.4) (described below).It addresses the implementation and achievement of the following outputs:

Output 2.2: Comprehensive land-use plans based on Biodiversity Information Management System (BIMS) and covering Jerash Governorate, PDTRA territory, the Shoubak proposed PA and its buffer zone, and the Greater Wadi Rum Landscapes/Development Zones to set development limits so as to protect biodiversity.

Output 2.4: Improved enforcement of land use development constraints geared to protecting biodiversity.

UN-Habitat is to provide technical and management consulting services to assist UNDP in the implementation of the planning component of the project, besides building the institutional and technical capacities of the deferent enforcement agencies required for planning, implementing, monitoring and enforcement so as to manage the impacts of development with emphasis of tourism development inside and outside formally Protected Areas.

The joint activity will be executed through two distinctive phases. Phase I is considered an introductory/ preparatory phase and is to be implemented over a period of around 5 months. Phase II will follow and be the primary intervention phase under the component. It will adopt its results as they are achieved. Phase II will extend over a period not less than one full calendar year, but no more than two years as a whole. It is expected to commence early 2015.

1.2 Project localities/ context

The project will also have three sites, namely, the Jerash Governorate to be led by MoMA for land-use planning and RSCN for the Dibeen PA; the greater Petra region which will be led by the Environment Directorate of PDTRA, and the greater Wadi Rum locality led by ASEZA and its PA management team. A description of the tourism regions/zones, and the protected areas within or adjacent to the regions/zones that the project will target, together with their biodiversity fundamentals are discussed below:

1.2.1 Jerash Governorate

Locality and Administration:

Jerash Governorate lies in the north-west of Jordan, with a total area of 40,980 hectares (0.46% of the total area of Jordan). The Governorate is located between Irbid and Ajloun Governorates in the north, Ajloun Governorate in the west, Zarqa and Marfaq Governorates in the east and Balqa Governorate in the south (see Figure 1). The Governorate has five municipalities: (1) The Greater Jerash Municipality comprising Jerash City, Souf and Al-Kefir towns; (2) **Me'raad Municipality comprising Rimon, Nahleh, Kiteh and Sakeb towns;** (3) **Bab Amman Municipality comprising Marsa', Mestaba and Jebbah towns;** (4) Al Naseem Municipality comprising Qafqafa, Al Rabwa, Kofor Khal and Belila towns; (5) Burma Municipality comprising Burma town.

The Governorate has one protected area within its borders, namely the Dibeem Forest Reserve (see Figure 2) which is situated within the Dibeem Forest. It was officially established in 2004, with a size of 849ha and it is managed by RSCN. In addition to its intrinsic and biodiversity values, the Dibeem Forest Reserve is a very important site for day tourists from surrounding cities and towns, mainly from Amman, Jerash, Zarqa and Mafraq. There is also the Kheyouf Special Conservation Area⁶, which spans the border with Balqa Governorate and is part of the Zarqa River lower catchment, located to the west of the King Talal Dam. This SCA was selected due to its ecological significance and the need for integration of nature protection with development.

Key threats/barriers to biodiversity from tourism and related activities in Jerash Governorate

- 1- Catastrophic events such as fire and alien species introduction could affect regeneration and the composition of the forests.
- 2- Uncontrolled visitor activities (random hiking, firewood cutting, etc),
- 3- The excessive expansion of roads and tourist facilities in important and sensitive wild habitats as well as important water catchment areas.
- 4- Planning and management without the inclusion of primary stakeholders, particularly those are close to the biodiversity resources and incur the cost of any planning and management interventions.
- 5- The strict protection approach with insufficient resources exposes biodiversity to opportunistic abuse and risks.
- 6- Lack of sound pricing and valuation mechanisms of the ecosystem services and biodiversity resources. Failure to adequately value natural resources within a market economy will result in unsustainable use or resource replacement with other land use options.
- 7- Inadequate financing for the management programs of Dibeem PA. A functionally and effective Dibeem PA management requires sufficient core funding at both the site level and the national level

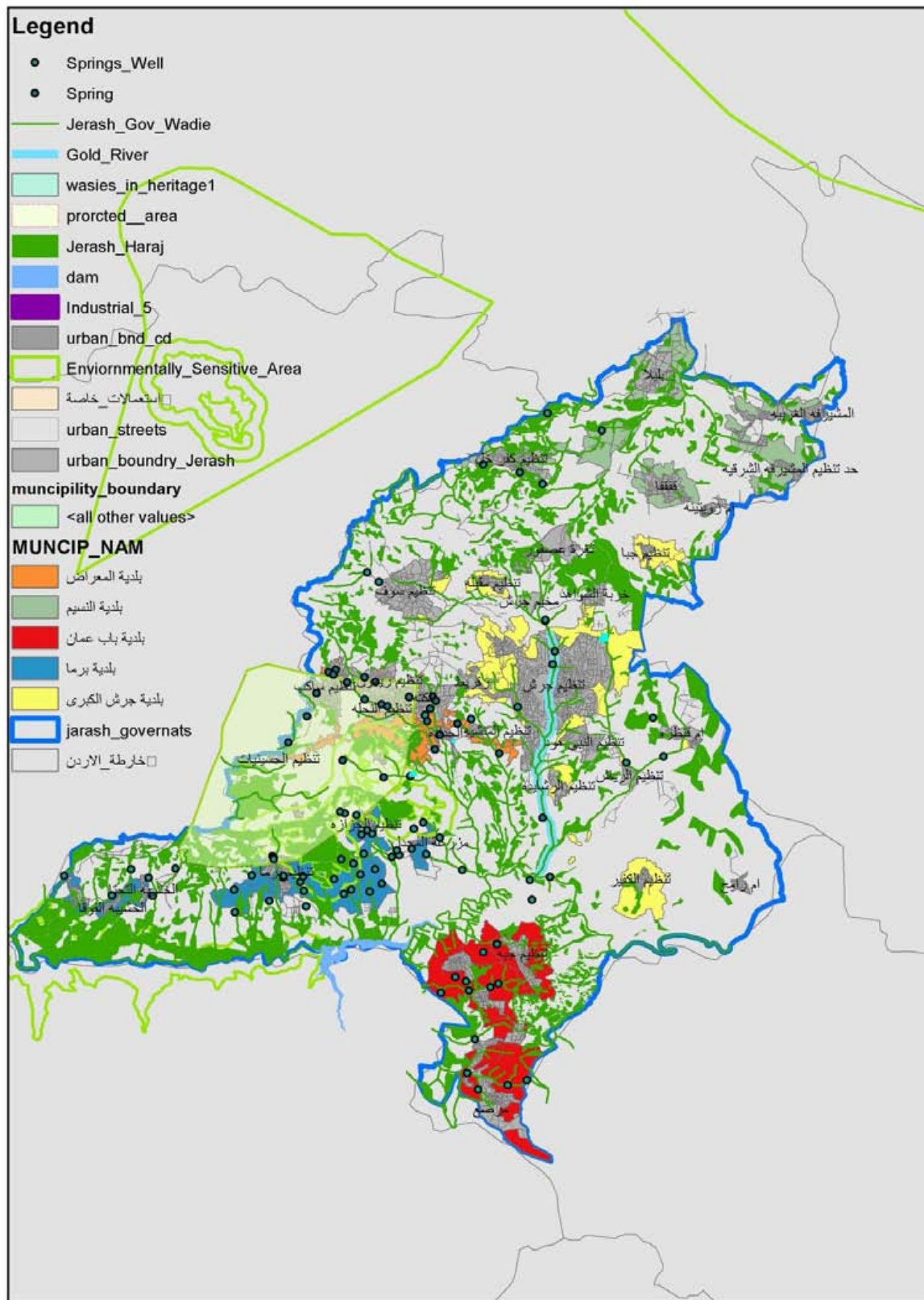


Figure 1: Jerash Governorate Municipalities

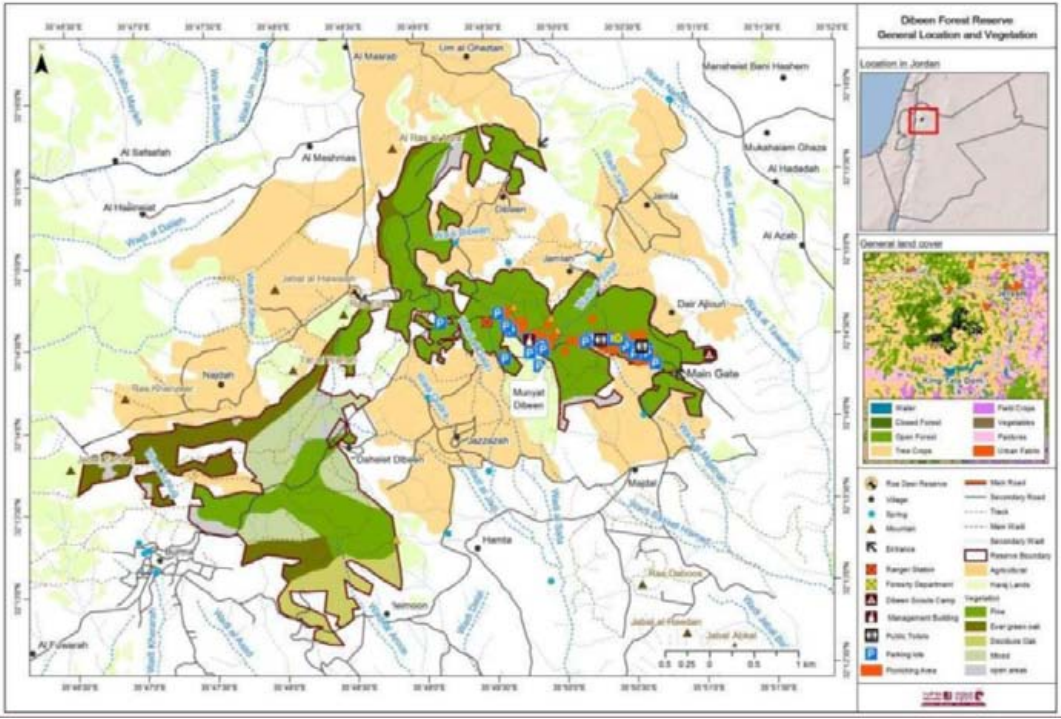


Figure 2: Dibe'en Nature reserve

1.2.2 Petra Development and Tourism Region

Locality and Administration: The Petra Development and Tourism Region is administratively mainly **located within Ma'an** Governorate in the south of Jordan. However, the Petra Development and Tourism Region Authority (PDTRA) is an administratively autonomous body established in 2009 and it administers an area of 79,641 ha⁷ (see Figure 3). The region is best known for the renowned World Heritage Site – the Petra Archaeological Park (PAP) which attracts some 900,000 visitors a year. The PDTRA enjoys a legal personality with financial and administrative independence, it is affiliated with **the Prime Minister's Office and its head office** is located in Wadi Musa town. Five ministerial-level commissioners, each responsible for a major area of regulatory or operational activity, govern the zone. **According to Law No. (15) of the year 2009, –Petra Tourism Development Zone Authority Law**, PDTRA is meant to develop and improve the Petra Development and Tourism Region touristically, economically, socially and culturally.

Zoning and land use and environment protection are considered as a responsibility within the scope of the PDTRA mandate. The Department of Antiquities plays an important role in PAP in legislation of Archeological work and studies according to Jordanian Antiquities Law

Number 21 for the year 1988 as amended and Regulations for Archeological Excavations and Surveys in Jordan Number 21 for the year 1988 as amended.

While they do not have administrative responsibilities strictly speaking, three important institutional stakeholders do exert a degree of influence. These are UNESCO, USAID/Siyaha and the Petra National Trust (PNT):

UNESCO, as administrator of the World Heritage List, is involved in any major (and many minor) decisions about the Petra Archaeological Park.

The Petra National Trust is a Jordanian NGO is more or less a watchdog organization which has largely supported UNESCO and the Department of Antiquities, with an emphasis on conservation of the antiquities sites within the park.

USAID has been involved in the Petra Region since the founding of the Archaeological Park in 1968, funding planning exercises and management plans. Since 2006 its Siyaha initiative has been involved in the development of handicrafts projects and, more recently, in a site planning exercise within the Park. The multiplicity of institutions wielding authority over the Petra Archaeological Park (PAP) has historically made planning, development and even conservation complicated within the Park and often difficult outside the Park boundaries. The boundary of the protected area itself has only recently been digitally geo-referenced and physically marked on the ground. The vagueness of the putative buffer zone has made Region officials reluctant to permit private sector and often public sector projects. Though the Strategic Master Plan (SMP) for Petra Region (PDTRA 2011) was specifically tasked with, among other things, creating a rational basis for zoning codes, these have yet even to be ratified, much less implemented.

Tourism sector is the most important ingredient for economic as well as social development. The dramatic rock-cut temples and tombs as well as the water collection, distribution and storage system of the Nabataeans represent unique artistic and technical achievements. This outstanding universal value was recognized when in Petra was declared a UNESCO World Heritage site in 1985. The Cultural Space of the Bedu was also inscribed on the UNESCO Intangible Cultural Heritage List of Humanity in 2008.

The direct and indirect impacts of tourism on biodiversity in the Petra Region are considerable. Even though there have been no recent detailed studies, many impacts are readily visible, and these include:

- **The disappearance of many wildlife species (such as Bonelli's Eagle, *Hieraetus fasciatus*);**
- Habitat loss and wildlife disturbance through new infrastructure serving tourists, such as new roads and hotels in ecologically sensitive areas, especially along the Wadi Musa-Taybeh road;
- Destruction of natural vegetation through trampling and collection of flowers, mainly in the Petra Archaeological Park (PAP), and recently also in areas frequented by picnickers;
- Increase in waste production including solid and liquid waste as well as aerial emissions from the increasing number of vehicles.

Research conducted during the project formulation phase found that while the Petra Region has been the subject of a number of planning exercises, the most recent being the Strategic Master Plan for Petra Region, and while all of the planning exercises have acknowledged the importance of the natural landscape context of Petra, none have included any specific biodiversity conservation planning. There is no projection at all beyond the discussion of infrastructure needs, and no consideration of the environmental impacts that mass tourism will entail – this is a crucial barrier to resolving the impacts of tourism on biodiversity in the Petra Region. Following is a summary of this and other key barriers:

Key threats/barriers to biodiversity from tourism and related activities:

- 1- Weak institutional framework for integrated planning and management of the natural and archaeological values. This leads to tension between stakeholders.
- 2- Weak involvement of local community in the planning and decision-making process. This contributes to lack of equity between community groups in Petra
- 3- Weak monitoring and enforcement of the Strategic Master Plan.
- 4- Lack of standards, guidance and incentives for eco-friendly tourism development
- 5- High pressure on natural resources, particularly biodiversity, from domestic use, but even more significant, from mass tourism.

6 -Lack of effective spatial planning approach to accommodate people and their activities, whilst considering the fragile environment.

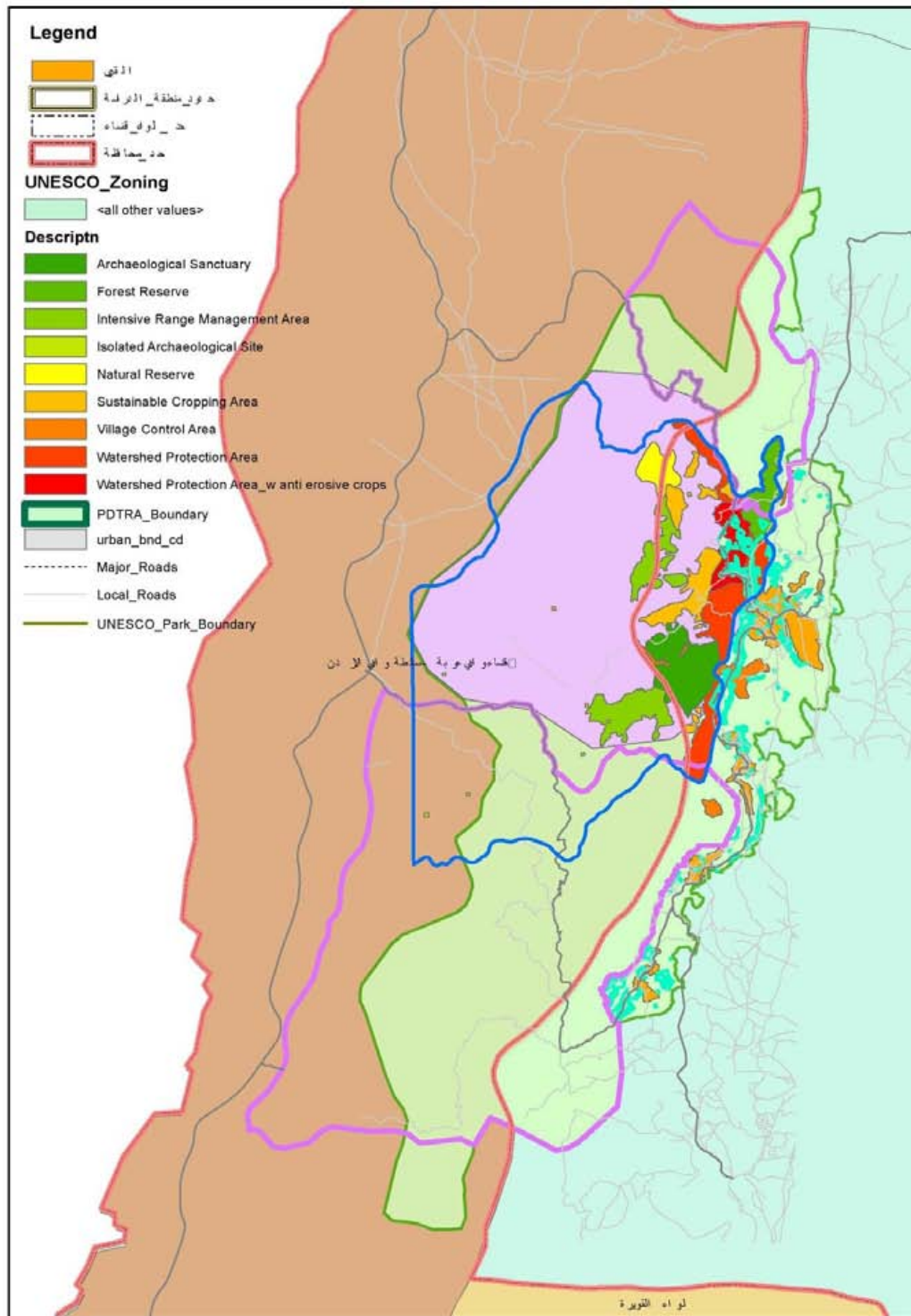


Figure 3: PDTRA boundary and archaeological Park

1.2.3 Greater Wadi Rum Landscape

Locality and Administration:

The project has identified the Greater Wadi Rum locality as a landscape of 133,180 ha within the Hizma Basin of which the Wadi Rum Protected Area forms an integral part (see Figure 4). The locality is to be found within the administrative territory of the Aqaba Special Economic Zone Authority (ASEZA) which is a financially and administratively autonomous institution responsible for the management, regulation, and the development of the Aqaba Special Economic Zone. ASEZA was inaugurated in 2001 **as an initiative by the government to ensure that Aqaba's commercial and cultural prominence** develops to be a regional hub for trade, tourism, and culture. Six ministerial-level commissioners, each responsible for a major area of regulatory or operational activity, govern the zone. The mandate of ASEZA in terms of land management covers the following administrative districts and sub-districts; Qasabat Aqaba District, Quairah District which includes, in addition to the other communities, the villages of Rum, Salhiyyeh, Shakriyyeh under its jurisdiction and Diseh Sub-District, which includes the villages of Diseh, Twaiseh, Mnaisheer, Al-Twail and Al-Ghal.

The project is focusing on the Wadi Rum Protected Area (74,180 hectares) which was declared a World Heritage Site by UNESCO in 2011. At over 74,000ha, the Wadi Rum PA is currently the largest in Jordan **and its —solid configuration makes it possible for Rum to maintain viable populations of most species.** It is also among the few PAs in Jordan whose financial situation is comparatively almost secure, but not quite.

Wadi Rum has globally significant biodiversity which is threatened by the increasing number of tourists, but enigmatically, tourism is the mainstay of the local economy providing communities with a source of support and income which in turn relies on the natural environment. At the present rate, the situation is unsustainable. ASEZA and the management of the Protected Area have recognized this dilemma and have sought the assistance of the project to address this and other problem areas (including the need for capacity enhancement). The project is being seen as a source of expertise and advice in addressing threats arising from within the Greater Wadi Rum Landscape (outside the PA). The project is also being looked to for advice on how to harness the dynamism of the local communities (which in Rum comprise the private sector element), and especially the youth (almost 50% of the population is under 20 years of age) so as to collaborate on protecting the natural environment.

Threats/barriers to biodiversity from tourism and related activities:

- 1- Camping along with its high impact activities such as huge bonfires using native plant species, construction of accessory facilities for camps and disturbance to wildlife
- 2- Hunting, specifically hunting tourism, in and outside the protected area. ¹
- 3- Off-road driving
- 4- Uncontrolled and excessive grazing due to the increased number of camels that are used for tourism Camel trips
- 5- The competition between the different cooperatives among each other and in competition with **illegal tour operators and 'outsiders'**
- 6- Weak participation of local community groups in the planning and decision-making process due to insufficient representation of all stakeholders.

¹ Source project document. Local Authority specified that Hunting within rum protected area (the reserve) is not allowed and it was traditional hunting by the local before the reserve now the people hunt in Wadi Araba not in Wadi Rum

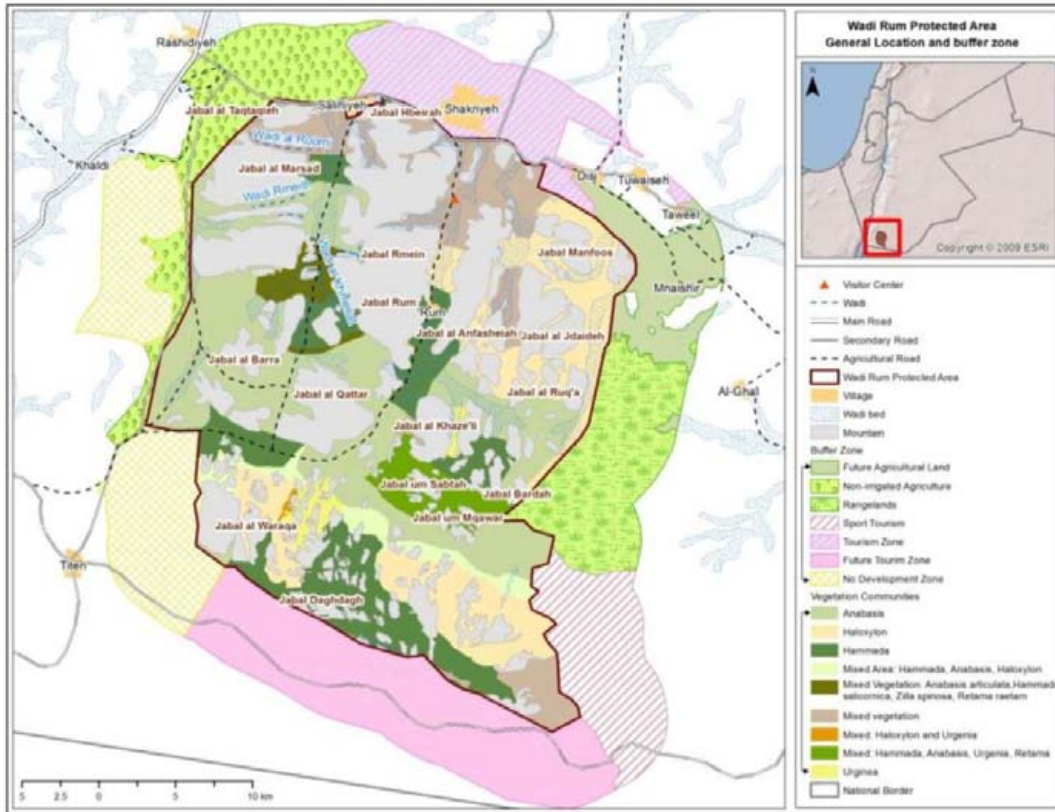


Figure 4: Wadi Rum Landscape

1.3 Objectives, Deliverables, Outputs /Activities

As per the Terms of Reference (ToR) drafted by UNDP, described below are the specific objective /required deliverables, expected outputs ,and activities to be performed by UN-Habitat throughout Phase I:

Main Objective:

Validation of the precise and up to date scope, activities and expected results of the full Planning component so as to ensure the best incremental effect of the project at the time of its effectiveness.

Required Deliverables /Outputs/Activities :

UN-habitat is required to submit the following three key deliverables:

Deliverable 1 : A comprehensive technical report on the legal and institutional frameworks related to land use planning within the project scope focusing on biodiversity integration in tourism planning and management. This shall include a gap analysis report based on comprehensive stakeholders' consultation process defining the phase two scope, results, modality of delivery.

Expected outputs and related activities:

Output 1.1: An evidence-based desktop review of all the legislative and institutional frameworks and baselines in regard to the biodiversity and tourism oriented land use planning exercise in the three target regions.

Output 1.2: A gap analysis of the best possible project incremental impact in each of the three target regions based on the review and analysis of existing/planned plans and initiatives and institutional priorities identified by relevant agencies and stakeholders.

The UN-habitat is responsible for assessing the adequacy of the existing information, identifying the gaps in ecological information for collecting and /or modifying it in Phase II to be utilized for the decision making process in addition to ensure the availability of the required information guiding the planning decisions and designations for the various development areas.

Deliverable 2: A Gap Analysis of the ecological and socio-economic information to be adopted by the BIMS component, in coordination with relevant partners, stakeholders and interest groups.

The planning component is a multidisciplinary integrating the various components for the optimum decision making. The specific types of information required based on the Gap analysis assessment and existing data suitability is identified to be further collected through the surveys conducted in phase 2. GIS is a very important tool to facilitate the interaction between the various disciplines and thus wherever applicable, data is required in GIS format to be part of the Biodiversity Information Management System (BIMS) forming the basis for Land use plans.

Expected outputs:

Output 2.1: Identification of the required socio-economic and ecological information in GIS format to be adopted by the BIMS

Deliverable 3: An agreed protocol and action plan on how to approach the task discusses and agreed upon with the relevant planning authorities defining leadership, roles, roles and responsibilities and cooperation/coordination arrangements for the component delivery.

Expected outputs:

Output 3.1: An up to date comprehensive stakeholders mapping exercise, clarifying mandates, roles and responsibilities, rights and duties, existing and potential institutional cooperation, and technical and logistics capacities for the three target regions.

Output 3.2: A framework and action plan for a community consultation process with specific focus on rights based approaches.

Output 3.3: A framework and action plan for the law enforcement modalities of the land use plans at the local and national levels.

UN-habitat will undertake the necessary tasks to transform the proposed land use plans, into an Action Plan that can be endorsed officially and legally, UN-Habitat will establish an effective Urban Planning operational framework for targeted study areas through suggestions of law enforcement modalities & schematic implementation framework of new tourism development in relation to biodiversity.

2. Work methodology

2.1. Stakeholders

Some stakeholders have been associated with the project from very early on and have contributed to the project concept. These form the core of implementation partners and their interest has been confirmed through various consultation meetings during project formulation.

Below is the list of the key stakeholders in the project areas highlighting their type of partnership. Suggested detailed stakeholders that have influence on the project areas or the required technical expertise are highlighted

STAKEHOLDER AGENCY	TYPE OF PARTNERSHIP
Ministry of Tourism and Antiquities (MoTA, Amman)	The Ministry of Tourism and Antiquities is the lead government agency for tourism development and management. Where it does not have a direct operational role (as in the Special Development Zones, it still functions in an advisory capacity, and more specifically in PAP). It is an Implementing Partner for a number of project activities and a collaborating/advisory partner essential to ensure that the project's products and services are of practical and applicable value and sustainable beyond the life of the project.
Royal Society for the Conservation of Nature (RSCN, Amman)	The RSCN is entrusted with the establishment and management of Protected Areas in Jordan, with minor exceptions. It is also the acknowledged source of expertise and advice on biodiversity. RSCN is a Key Implementing Partner for the project through its responsibility for Dibeen Protected Area. It will also serve as a collaborating/advisory partner for the project with those Activities requiring its expertise.
Ministry of Municipal Affairs (MoMA)	The Ministry has been assigned responsible for land use planning in Jordan, according to the zoning law ,MOMA is responsible for developing the different Regional, structural and detailed plans for all municipalities in Jordan ,with an exception of GAM, development zones' commissions, PDTRA, ASEZA. Therefore will be a crucial partner for the project's LUP activities in the Jerash Governorate.
Petra Development and Tourism Region Authority (PDTRA, Wadi Musa), the Environment Department	The PDTRA is a Key Implementing Partner and Petra is the locality with the greatest influx of tourists in Jordan and as such it has the highest potential impact on biodiversity. Although the aim of the World Heritage Site Protected Area is its archaeological value, its biodiversity values are acknowledged and responsibility for their protection and management lies with the PDTRA Environment Department.
Aqaba Special Economic Zone Authority (ASEZA, Aqaba)	The ASEZA is responsible for two major PAs outside the RSCN area of responsibility, namely, Wadi Rum PA and the Aqaba Marine Park. Of interest to the project is the Wadi Rum PA which is discussed below, and because of this, ASEZA is considered as one of the Key Implementing Partners for the project.
Dibeen Forest Reserve Protected Area	Dibeen PA Management is considered as one of the project's Implementing Partners with RSCN as the responsible organization for activities which will be carried out within

	the PA.
Wadi Rum Protected Area	<p>The Wadi Rum Protected Area is also a UNESCO World Heritage Site recognizing its natural as well as its cultural values and their close interaction. The PA Management has welcomed the assistance of the project in addressing some of the threats arising from tourism and as such it is considered as a Key Implementing Partner for the project which, while focussing its activities on the PA itself , will also extend beyond the boundaries to the wider –buffer zone which has intrinsic biodiversity values and from where some of the threats arise.</p>

2.2. Field work

During this phase of the project the field work concentrated on meetings with the relevant authorities within the study area, their specialized teams and concerned institutes. In that regard the field work was in two different formats; site visit and tour and technical meetings with the different directorates and divisions involved in the project.

Jerash Governorate: The team conducted visits to the five different municipalities:

- Greater Jerash Municipality,
- Bab Amman Municipality,
- Al Naseem Municipality,
- Burma Municipality
- **Mi'rad Municipalities**

Burma and Mi'rad are the Municipalities influenced and influencing Dibeem reserve within Jerash Governorate. During these meetings the team discussed the Municipalities achievements; finished projects and proposed initiatives ranging from small projects to major infrastructure proposals and concepts. In addition to Municipal boundaries, history of Municipal expansion, environmental concerns and threats, social issues and tourism influence and vision.

These aspects varied between the different municipalities, as the major tourism activities concentrated in **Greater Jerash municipality, while environmental tourism in Burma and Mi'rad associated with the** Dibeem reserve, as for the other Municipalities, there were no established tourism projects and the major investments were either restaurants or specific individual projects.

The same for major investments that concentrated within and around Greater Jerash Municipality, and the smaller investments i.e. olive press, sewing workshops or dairy products were in the more rural parts of Jerash governorate.

In addition the team visited the RSCN office within Dibeem reserve discussing the different zones within the reserve, threats (**visitors, wood cutting, development encroaching, legal authority and enforcement ...etc.**) developments; especially major developments that have negative influence over the green cover.

Petra Development and Tourism Region Authority: There were two formal field visits to the region touring the area highlighting major problems and potentials, and meetings with the authority different directorates' team:

- Planning and zoning,
- Legal department,
- Investement,
- Tourism and recreation,
- Activities and site protection,
- Cultural resources management and protection,
- Studies and public works,
- Human resources and institutional development,
- Environment,

- Local community development.
Discussions included Planning and legal systems, application procedures, development trends and monitoring, management plans, UNESCO nomination and social concerns and behaviors influencing law enforcement and planning in the region ...etc.

Aqaba Special Economic Zone Authority: There were two formal visits to the authority within this phase of the project, site visits concentrated on Wadi Rum; the reserve and surrounding, checking the different camps within the area, projects and villages.

In addition to the site tours several meetings were conducted with Wadi Rum Directorate team and the other directorates within ASEZA:

- Environment Directorate
- Wadi Rum area Directorate
- Regional affairs Directorate
- Architecture and planning Directorate
- Land and Real Estate Directorate
- Engineering studies and tenders Directorate
- Geographic Information System Directorate
- Human Resources Directorate
- Local Community Development Directorate

Discussions ranged from planning and legal authorities of the different villages, integration of the different directorates, development procedures, roles and responsibilities, institutional set up and capacity building.

Social matters were discussed elaborately as they tend to influence types of development and their success, decision making and Biodiversity preservation in both PDTRA and Rum area.

RSCN: The team also visited RSCN and discussed the different available data, studies and surveys conducted by RSCN in Dibeen and Wadi Rum, also discussed concerns and development projects influence on these sensitive areas. The different topics mentioned above within each locality will be elaborated within the detailed sections; Land use, tourism, socio-economic, legal and institutional.

2.3. Data Collection

The data collection process was a very intensive task during the short timeframe of the current phase of the projects. The process was conducted in different formats to ensure proper collection of available data and information through research, Master Plans, detailed plans, studies, projects, surveys and interviews.

Interviews: were the main source of local knowledge and relevant studies and plans; they were conducted with directors from the different authorities of the project localities and with the local experts of the community in relation to socio-economic aspects and Environment. The team also conducted interviews with consultants currently working on some of the localities, RSCN team in general and specifically in Dibeen, USAID team ... etc.

Research: Desktop research of relevant studies and historic information and analysis of the project localities related to Biodiversity, land use and tourism.

Master Plans: The various master plans that were prepared for the localities were collected from the concerned authorities and consultants for studying the planning approach and methodology and its consideration of biodiversity and direction/vision towards tourism and their associated social impacts.

Detailed plans: are the plans that were prepared for specific task either tourism land use plans or special zoning of reserves, as well as the endorsed structural land use plans for different localities.

There were several challenges for the data/information collection throughout this phase, as the timeframe was very pressed data had to be acquired in a timely and comprehensive manner, despite this there are still some missing data or information due to several reasons, the challenges were administrative and technical in nature as the following:

Administrative challenges:

- Institutional information in many incidents was not ready and needed preparation, and in some cases it was not fully submitted either due to not fully understanding the relevance of information or its unavailability and need for preparation.
- Management plans were not fully acquired due to managerial decisions.
- Some entities required efforts in convincing of the relevance of the data/information required and thus delayed the data acquiring process
- GIS Layers or MXDs related to Master plans that were finalized and endorsed or under preparation were not fully acquired due to some consultant's policies or unavailability of the required data in the required proper format.
- Institutional capacity affected the quality and availability of data, some Municipalities did not have the technical team to produce or provide the required data and thus either delayed the data or still did not provide (i.e. Jerash Municipality)
- The lack of proper coordination between authorities affected the availability of the most updated data and required additional work to ensure proper updating.
- The team had to coordinate with multiple personnel within one authority and with their consultants to ensure proper data acquisition the issue that consumed time and effort and fragmentation of data received.

Technical challenges:

- Some of the data received was not properly organized the issue that might affect the comprehensive review of the associated information.
- Data varied in its format from AutoCAD, GIS, Word, Power point and PDF the issue that affected the possibility to compare the information to other spatial data and define its accuracy.
- Data provided was in some cases in different coordinate systems that did not allow for spatial comparison of different fields.

- Some of the GIS data had no define database inside the layers which resulted in un-useful lines on maps that could not be analyzed
- Multiple layers with similar names from the same source the issue that created confusion regarding the latest version to be utilized and its analysis.
- Some of the required studies/plans were not available in full format as submitted by consultants and thus were not analyzed in this report (i.e. Consolidated Consultant land use plans for 6 localities/ villages in 2011)
- Aerial images was a big concern as the team faced difficulty in acquiring the most updated available images, some only provided partial Aerial images that were in a non defined coordinate system the issue that affected the possibility to check the images coverage (i.e. Jerash)
- Landownership was a big challenge; ASEZA needed to update their access to land ownership within their area and thus were not able to provide it, as well as Petra Land ownership.
- Some of the GIS Layers had different symbols and types that were not accompanied with explanatory text to understand their different types and the basis they were classified accordingly.

2.4. Data Inventory

The Project team compiled a list of the acquired information, studies, projects and master plans through the different methods. Also the team identified the required data that is still not obtained. Table 1 below lists the already available information, their source, and a brief about the content, the year, type and format. They are classified according to the localities as the following:

- 1- Jerash: A1- A15
- 2- ASEZA/Wadi Rum: B1 – B14
- 3- PDTRA : C1 – C29

Table 1: Inventory of studies and data

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area
MOMA Jerash	A1	Jerash GIS	Jerash situation Geodatabase	Layers		√	GIS	MOMA	2010		Land use
			Jerash Growth database						2010		
			Land use 2007						2007		
			حدود التنظيم النهائية						NA		
			Environmentally sensitive area						NA		
			Industrial						NA		
			Municipality Parcels boundary						NA		
	A2	Introduction to Dibeen	General information regarding the Reserve of	Docum ent/ Report		√	DOC	RSCN	NA.		Land use/ Socio- economist

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area
			Dibbeen								
	A3	مشروع دعم وتطوير سياحة بيئية محلية في محمية غابات دببين							NA.		Land use/ Tourism/ Socio-economist/ Legal
	A4	تقرير الحوكمة التشاركية لمحمية غابات دببين							2014		Land use/ Legal/ Socio-economist
	A5	محمية غابات دببين: تقرير المستفيدين 2013	إستفادة المجتمعات المحليه من وجود المحميات الطبيعية						2013		Land use/ Legal/ Socio-economist/ Tourism
	A6	محمية غابات دببين: تقرير المستفيدين 2010	إستفادة المجتمعات المحليه من وجود المحميات الطبيعية						2010		Land use/ Legal/ Socio-economist/ Tourism
	A7	الخطة الإدارية لمحمية غابات دببين 2012-2008							2008		Land use/ Legal
	A8	محمية غابات دببين: نتائج استبيان السياحة والارشاد	السنوات 2009 و 2010 و 2011 و 2012						2012	تحليل اولي. اعداد حسام الزعبي	Land use/ Tourism/ Socio Economist
	A9	The Socio-Economic Programme for the Local Communities of the Dibeen Reserve Area							2005		Socio-Economist/ Land use

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area
	A10	استخدامات أراضي محمية غابات ديبين							NA.		Land use
	A11	RSCN GIS Data	Baselayers, Birds, Fauna, Flora, Reserve Zoning, Threats Dibeen Dibeen RJGC Topo Maps Jordan	Layers		√	GIS	RSCN	NA.		Land use/ Tourism/ Socio-economist
	A12	معلومات عن بلدية المعراض	مشروع المحطة التحويلية لمحافظة جرش مخاطبات مع دائرة الأراضي مخاطبات مع الشؤون البلدية مخاطبات طلب ضم مناطق مناطق الاستثمار في بلدية المعراض انجازات البلدية الهيكل الوظيفي لبلدية المعراض الاحتياجات التدريبية لبلدية المعراض	Document/ Report		√	PDF	بلدية المعراض	NA. 2014 2014 2014 NA. NA. 2014 2014	برقم القطعه والحوض	Land use Land use Land use land use Land use/ Socio-economist/ tourism Land use/ Socio-economist Land use Land use
	A13	معلومات عن بلدية برما	قرار ادخال أراضي بلدية برما الى حدود			√	PDF	بلدية برما	NA.		Land use

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area
			البلدية								
			متطلبات بلدية برما				DOC		NA.	مواقع مشاريع مقترحة و موجودة بالحوض و القطعة	Land use/ Socio-economist
			الهيكل الوظيفي لبلدية برما						2014		Land use
ASEZA Wadi Rum	B1	Dar Al Omran Experts report	تقرير دار العمران 2007: الموقع و المساحة و المناخ و التقسيمات الادارية؛ خطة التنمية الاقتصادية؛ الاتصالات و البيئة و الجيولوجيا و الصناعة و الخدمات و الزراعة و السكان و السياحة و الطاقة و النقل و مخطط استخدامات الاراضي و غيره	Reports		√	DOC	Dar Al Omran	2007		Socio-economist/ Land use/ Tourism
			دراسات قطاع المياه: Wastewater generation and water consumption scenarios	Tables		XLS/ DOC					
			ملفات مساندة لتقرير العقبة 2007								
	B2	مشروع منطقة العقبة 2007	Basemap	Layer/ aerial images		√	GIS	Dar Al Omran	2007		Land use, Tourism, socio-economist
		Landuse									
		Village Layout									

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area
			الاتصالات								
			الأثار								
			الأقطاب								
			التصورات الأولية							Final master plan	
			الجيولوجيا							scale 1-10	
			الحساسية البيئية								
			الخدمات								
			الزراعة								
			السكان								
			السياحة								
			الصناعة و التعدين								
			الكهرباء و الطاقة								
			المحاور								
			المحددات و الجبال								
			المشاريع الاستثمارية								
			المياه								
			النقل و المواصلات								
			صور فضائية								
			مجمع الشاحنات								
	B3	مشروع اقليم منطقة العقبة 2007	Landuse			√		Dar Al Omran	2007	Final master plan	Land use
			tin								
			التصورات الأولية								
			الحميمة الجديدة								
			الحميمة القديمة								

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area		
			الخالدي	Layers/ aerial images			GIS						
			الديسة										
			الراشدية										
			الشاكرية										
			الصالحية										
			الصور الفضائية للقرى										
			الطويسة										
			الطويل										
			العسييلة										
			الغال										
			القرى										
			تتن										
			خارطة الأساس التقسيمات الادارية										
			دبة حانوت										
			رم										
			صور فضائية										
			مخطط المحاور										
			مزفر										
			منيشير										
			Villages - Aerial Photos	Aerial Images			PDF, JPEG, EPS, PSD						

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area
			مخططات الكثافة	Layers			GIS				
	B4	Second Tourism Development Project	Review of the Archaeology of the Wadi Rum Protected Area	Report		√	DOC	World Bank	1999		Land use, Tourism
	B5	A Proposal for Inclusion in the World Heritage List UNESCO		Docum ent		√	DOC	UNESCO	2010		Land use, Socio-economist
	B6	Wadi Rum Maps	Jordan in the world/ Wadi Rum and Hisma in Jordan/ Rum in ASEZA/ Topography/Top ography nominated map/ Access points/ Zoning Jan 2010/ Buffer zone general/ Buffer zone classified/ Geology/ Geology Classes/ Total protection overlay/ Protection minus land use/ Land use weighted sum	Images		√	JPEG	ASEZA	2009		Land use

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area
	B7	Flora Baseline survey		Report		√	DOC	RSCN	1999	Not a final report.	Land use
	B8	Ecological Baseline Survey		Report		√	DOC	RSCN	1999	Not a final report, misses maps.	Land use
	B9	A baseline bird survey of Wadi Rum Protected Area		Report		√	DOC	RSCN	1999		Land use
	B10	خدمات الدراسة و التصميم لاعداد مخطط تنظيمي تفصيلي للمنطقة السياحية في الاقليم	التقرير النهائي للدراسة	Docum ent	√			SIGMA	2009		Land use, Socio-economist, Legal, Tourism
ملحق (1)			Docum ent	2009							
مخطط استعمالات الأراضي الشمولي لاقليم العقبة			Map	2001							
	B11	القرى في مخطط اتحاد المستشارين	قرى بلدية القويرة و الديسة	Map		√	CAD	CC	2011		Land use
	B12	المخطط النهائي للقرى	مخططات الاستعمالات المقترحة للقرى أم البساتين و الصالحية و الغال و المنيشر و الطويل و الديسة	Map		√	PDF/ CAD	CC	2011		Socio-economist/land use
	B13	Aqaba Data	خط الديسي	Layers		√	GIS		NA.		Land use/ Socio-economist
Private ownership			2012								
High voltage lines			NA.								
Gaz lines			NA.								

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area
PDTRA Petra	C1	Final Strategic Comprehensive Master Plan 2012 for all region	Strategic Master Plan for Petra Region (final report & Initial diagnostic report), Strategic Master Plan for Petra Region (Maps), proposed investments projects in Petra region.	Maps and documents		√	PDF	PTDRA	2011	NRA: Copper mining (existing and permissions) , look at wadi Finan Example . Land sensitivity; Growth efficiency and development priorities.	Socio-economist/ Tourism/ Environment/ Legal
	C2	Final Strategic Comprehensive Master Plan 2012 for communities	Baidha Strategy; Dlagha Strategy; Rajif Strategy; Taybeh Strategy; Umm Sayhoun Strategy; Wadi Musa Strategy.	Maps and documents		√	PDF		2011	Topography, Settlements, infrastructure, archaeological sites ...	Land Use/ Tourism/ Socio-economist
	C3	Delivery stage of Final Strategic Comprehensive Master Plan 2012	Community presentation Petra; GIS knowledge transfer; Strategic Master Plan for Petra Region.	Maps and documents		√	PDF		2011		Land Use/ Tourism/ Socio-economist
	C4	Final Strategic Comprehensive Master Plan 2012 related documents	تجهيزات اطلاق المخطط الشمولي ٢٠١٣ عرض المخطط للمجتمع ٢٠١٤ عرض المخطط منطقة الطيبة و راجف و دلاغة	Presentations		√	PPT		2013 - 2014		Land Use/ Tourism/ Socio-economist

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area
	C5	Existing Zoning	Bayda; Dlagha; Rajif; Taybeh; UmSayhoun & Wadi Musa.	Layers		√	GIS		NA.		Land Use/ Tourism/ Socio-economist
	C6	Final Strategic Comprehensive Master Plan 2012 Land use at 1-2500 & 1-5000 per contract	Bayda; Dlagha; Rajif; Taybeh; UmSayhoun; Wadi Musa. Concept land use sheets.	Maps		√	PDF		2011		Land Use/ Tourism/ Socio-economist
	C7	Maps and GIS Data	Agricultural suitable soils, archaeological sites, areas served by schools, bare rocks, concept town districts, development priorities, electricity network, fault lines, forest suitable soils, growth efficiency, hydrology, hydrology country scale, land sensitivity, landmarks, local context, mineral resources, national context map, PAP concept zoning, past mapping,	Maps / layers		√	GIS	PTDRA	NA.		Socio-economist/ Tourism/ Environment/ Legal

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area
			proposed PTDR and PAP, public-private land ownership, regional conceptual land use, regional conservation, satellites images, sewer network, slope analysis, transportation, UNESCO zoning, vegetation types, vegetation zones, views from PAP, views from scenic road.								
	C8	Aqaba Tourism report	Aqaba Tourism Report 2008-2009	Report		√	DOC	ASEZA	2008 - 2009	Aqaba related not Petra	Tourism
			Aqaba Marketing Strategy 2011-2016	Presentatio-n			PPT		2011 - 2016		

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area
	C9	Petra Priority Action Plan Study; Phase 1 report "Outline Development & Growth Scenario Petra Region" Volume 1 : Existing Conditions		Report		√	PDF/DOC	Dar Al-Handasah	1996	Must refer to original document, no summary is available. Old report, data needs validation. Provides information on distribution of agriculture; that needs to be validated. 2 active landfills exist within area. Wadi Musa and surroundings depend on a water network from Qa`a Ma`an, smaller settlements rely on local resources. Describes regional settlement hierarchy.	Socio-economist/ Environment/ Tourism/ Legal
	C10	No. of Petra population 2009		Table		√	XLS	DOCS	2009		Socio-economist/

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area
	C11	Department of Statistics data	Census tables 2004	Tables				DOS	2004		
			Agricultural statistics 2008	Tables					2008		
			Annual average family income	Tables					2008		
			Birth no. by sex in Ma'an 2005-2009	Tables					2005 - 2009		
			Census info. 2006	Tables					2006		
			Climate-rainfall in Wadi Musa 2003-2009	Tables					2003 - 2009		
			Construction Ma'an 2009	Tables		√			2009		
			Education Petra 2009	Tables					2009		
			Electricity EDC Ma'an 2009	Tables					2009		
			Population and family health survey 2009	Report					2009		
			Job creation survey annual report 2008	Tables					2008		
			Labour and sewage Ma'an 2009	Tables					2009		

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area
			Main findings of employment and unemployment survey annual report 2009	Report			PDF		2009		
			Population projection-Petra communities	Tables					2009		
			Population-main indicators	Tables					1952 - 2009		
			Poverty pockets-districts 2008	Tables					2008		
			Summary of main results of employment survey 2008	Tables					2008		
			Transportation and communication Ma`an 2009	Tables					2009		
			Travel, tourism and services-Petra 2009	Tables					2009		
			العدد حسب الجنس	Tables			XLS		NA.		
			العدد حسب الفئة العمرية	Tables			XLS		NA.		
			العدد حسب المستوى التعليمي	Tables			XLS		NA.		
			العدد حسب حيابة المسكن	Tables			XLS		NA.		
			العدد حسب نوع المسكن	Tables			XLS		NA.		

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area
			عدد المباني حسب النوع	Tables			XLS		NA.		
	C12	ICOMOS Heritage reports	Charter for the protection and mnagement of the archaeological heritag 1990	Report		√	PDF	ICOMOS	1990		Tourism/ legal
Intrnational Charter for the conservation and restoration of monuments and sites			1965							Tourism/ legal	
International Cultural Tourism Charter 1999			1999							Tourism/ socio-economist/ Legal	
Petra Management Analysis & Recommendation s for the Petra World Heritage Site			1996						Suggests specific recommenda tions for Turkmaniyy ah road that contradict with the USAID plan	Tourism/ Transportation / Legal	
	C13	Jordan Tourism Board tourism data	Petra survey annual reports years 2007, 2008, 2009	Report		√	DOC	JTB	2007 , 2008 , 2009		Socio-economist/ tourism
International visit exit survey			Present atio-n	PPTX			2010			Socio-economist/ tourism	
Tourism complaints			Letters	PDF			2008			Socio-economist/	

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area
											tourism
	C14	Educational system data	Schools in Petra Region	Table		√	PDF	Ministry of Education Data	2010 - 2019		Socio-economist/ Land use
	C15	Ministry of Environment	Convention on Biological Diversity 2009	Report		√	PDF	Ministry of Environment	2009	Mentions The National Biodiversity Strategy and Action Plan & The National Environment Strategy (look them up), also the management plan of Rum by RSCN and ASEZA.	Land use
Jordan`s Second National communication to the United Nations Framework Convention on Climate Change 2009			2009						General and on a national level. Mentions the national agenda; an action plan for achieving sustainable development 2005 (look it up). Projects oil shale extraction (exists in	Land use	

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area
										Ma'an and near Petra).	
			Biodiversity Strategy; Conservation and Sustainable Use of Biological Diversity in Jordan						2011	This document was the first strategy and action plan for implementing and mainstreaming CBD in Jordan.	
	C16	Ministry of Health data	List of hospitals and health clinics in Petra region	Table		√	XLS	Ministry of Health	NA.		Socio-economist/ Land use
	C17	MOTA Jordan data	Hotel Statistics.	Tables			XLS		NA.		Socio-economist/ Tourism
			Jordan National Tourism Strategy 2004-2010.	Report		√	PDF	MOTA	2004 - 2010	On a national level	Tourism/ Land use/ Socio-economist
			Annual report دائرة مراقبة الشركات 2008	Report			PDF		2008	Not relevant/ on a national scale	Legal
			National Tourism Strategy Challenges	Presentatio-n			PPT		2004 - 2010		Tourism

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area
	C18	National Park Service data	Petra Archaeological Park Operating Plan	Report		√	PDF	National Park Service	2000	The report is highly technical	Land use, legal
	C19	PTDRA data	Local community data	Report		√	DOC	PTDRA	NA.		Socio-economist
No. and area of certified buildings 2002			Tables		PDF		2002			Land use	
Environment data (quality of water)			Tables		XLS		NA.			Land use	
PAP data							NA.			Socio-economist/ Tourism	
	C20	Scientific articles	Paleoseismology and archaeoseismology of sites in Aqaba and Petra, Jordan 2009	Article		√	PDF	Scientific Articles	2009	Not highly related, must refer to original document.	Land use
Flood analysis and mitigation for Petra area in Jordan 1999			1999								
Vulnerability of the Drinking Water Resources of the Nabataeans of Petra – Jordan 2010.			2010								

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area
	C21	Analysis studies, detailed land use plan & special regulation for the protection of the area along Taybeh - Wadi Musa scenic way, 2000		Report		√	PDF	SIGMA	2000	Must refer to original document, no summary is available.	
	C22	UNESCO Reports	Managing tourism at world heritage sites 2002	Manuals, reports & papers		√	PDF	UNESCO	2002		Tourism/ Legal/ Socio-economist
		World heritage & buffer zones 2008							2008		Land use/ Socio-economist/ Legal
		Operational guidelines for the implementation of the world heritage convention 2008							2008		Legal
		Convention for the safeguarding of the intangible cultural heritage 2003							2003		Legal/ Tourism
		Periodic reporting exercise on the application of the world heritage convention in the Arab region							NA.		Land use/ Legal

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area
			Petra national park management plan						1994	Is the same as Petra Archaeological Management plan 1994	Socio-economist/ Tourism/ Legal/ Land use
			Tourism, culture and development in the Arab region 1999						1999		Tourism/ Socio-economist
			Periodic report & regional programme 2000-2003						2002 - 2003		
	C23	USAID Jordan Tourism Development Project II 2010	Turkmaniyya road 2010	Report & plans		√	PDF	USAID	2010	Discusses transportation alternatives inside PAP. Suggests specific recommendations for Turkmaniyyah road that contradict with The ICOMOS plan. Route map is unclear.	Socio-economist/ Tourism
			Petra visitor center upgrade	plans					2010		

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area
	C24	World Bank Second Tourism Development Plan	Project appraisal document 1997	Report		√	PDF	World Bank	1997	Creating the conditions for an increase in sustainable and environmentally sound tourism in Petra, Wadi Rum, Kerak and Jarash.	Socio-economist/ Tourism/ Legal/ Land use
			Implementation Completion report 2005						2005		
	C25	Petra National Trust statistics	General visitors data & statistics; nationalities & numbers.	Tables and graphs		√	PDF	PNT	1985 to 2010		Socio-economist/ Tourism
	C26	The Structural Land Plan for the Urban Expansion Areas in the Petra Region		Report		√	PDF/ GIS	CC	2014		Socio-economist/ Tourism/ Legal/ Land use
	C27	Buffer zone land use for Petra		Report		√	PDF/ GIS	Dar Al-Omran	2014		Socio-economist/ Tourism/ Legal/ Land use
C28	Final Strategic Master Plan 2012		Report		√	PDF/ GIS	ATC Consultants	2012		Socio-economist/ Tourism/ Legal/ Land use	

Area	Code	Document	Content	Type	Hard copy	Soft copy	Format	Authority	Year	Additional Notes	Speciality Area
	C29	Development of a zoning management plan for Petra Archaeological Park (PAP), Jordan	Analysis and recommended actions for Petra Archaeological Park (PAP), Jordan	Article		√	PDF	Scientific Articles	2011		Socio-economist/ Land use/ Tourism



LAND USE

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3. Project Components

3.1 Land use component

This chapter concentrates on the development trends ,mainly -but not limited to- tourism in the various localities of the project that influence the changes of land use which in its turn affects the biodiversity in negative ways.

Each of the project localities has different development pressures in addition to social contexts/issues which affect the types of development, define respect and enforcement of the regulations and influence the biodiversity.

Analysis of land use capacity is a very important step of any master plan or application review for additional zoning in addition to environmental analysis of the influence of such developments. The general practice within municipalities is to increase municipal boundaries to facilitate expansion of zoned areas without proper assessment of the land and environmental value of the expansion zones, and the effect of expansion and land use alterations on Biodiversity and Natural heritage systems. Generally environmental concern is the least **priority on authorities' development agendas with attention concentrated on encouraging investment and tourism activities and offering logistical, legal and technical facilitations.**

The influence of refugees on housing demand and affordability should not be neglected and is not limited to large cities, this issue has affected the hosting communities in many different levels ranging from housing demand and availability, affordability, soft and hard services capacity.

The land use planning component of the project represents a key milestone under the second component/outcome , namely the institutional capacities for planning, monitoring and enforcement of biodiversity-sensitive tourism development, and is one of the main upstream interventions addressing the integration of biodiversity protection and conservation in the **existing planning and management frameworks and processes in the project's three pilot sites** in the Jerash Governorate with specific focus on the areas associated with the Dibbin Protected Area, the Wider Wadi Run Landscape in the Aqaba Governorate, and the Petra Region. At the national level undertaken by the Ministry of Municipal Affairs (MOMA) and the regional level undertaken by the Aqaba Special Economic Zone (ASEZA) for the Wadi Rum landscape region and the Petra Development and Tourism Regional Authority (PDTRA).

3.1.1 Sector Background

Settlements within the study area include Cities, Towns, Villages, Scattered Development, Housing Projects and Refugee Camps according to the following criteria:

Cities: populations greater than 100,000 people and usually serve as Governorate capitols and primary administrative centers.

Towns: populations between 15,000 and 100,000 people serving as a local administrative and service centre.

Villages: populations less than 15,000 people with an economy generally derived from one primary economic activity (e.g., agriculture) and with a strong community identity usually derived from strong familial ties.

Scattered Development consisting of individual, small or medium contractor built housing projects that do not contribute to any defined settlement pattern, instead follow land parcels.

Housing Projects are defined according to local **Mashro' Esskane, or government, co-operative** and private sector housing initiatives comprising of large site-service or fully constructed projects usually unattached to an urban centre.

Refugee Camps are urban areas which house registered refugees within the UNRWA system and are administered under the Department of Palestinian affairs.

The majority of zoning ordinances designated within the Study Area are contained within the Cities, Villages and Buildings Planning Law, No. 79 of 1966 ("the Planning Law") and amendments, and Regulation of Urban and Rural Zoning and Building Regulation No.19 of 1985 and its amendments.

The Higher Planning Council has also approved Regulation No.6 in 2007 for a National Land use Map of all non-zoned land of areas within MOMA Jurisdiction. The map indicates land use outside of zoned areas within the Jerash Governorate and some of the villages in ASEZA which are under the jurisdiction of MOMA.

The land use and regulation gaps and shortcomings, including:

- Unclear designation for industrial, crafts area or commercial zones
- Destroyed green land
- Lack of designated area for community accessed service
- Outdated existing spatial plans which resulted in inability to deal with the increasing demand for land from various sectors
- Poor coordination between governmental planning agencies that deal with spatial and physical planning. In addition to inadequate coordination between sectoral, physical and environmental planning activities which resulted in improper locations of development sites and conflicting land uses.
- Non effective utilization of land and services due to low density and urban sprawl with pockets of land within towns in absence of clear vision for urban growth directions.
- Inadequate maps and information for various planning levels in addition to inefficient spatial data management systems
- Weak enforcement (or absence) of regulations of planning standards, policies and development control due to absence of executive enforcement tools
- Limited public participation in the planning process.

3.1.2 Context

The land use sector will concentrate on the issues related to land use ranging from laws, bylaws, regulations, ordinances, standards (if available) and implementation.

The different localities of the project have either proposed or endorsed land use plans and have the existing structural plans/ zoning which is the representation of land use implementation and decision making within these authorities. In that regard the following summarizes the status of land use plans of the three different localities of the project:

- 1- Jerash Governorate:
 - A proposed land use Master plan in 2010 that is not endorsed
 - Structural plans for each Municipality.
 - Existing land use map and regulation number 6 for the year 2007
- 2- PDTRA:

- Endorsed Master plan of 2012 excluding the land use component,
 - Proposed Land use Plan for PDTRA 2014
 - Proposed land use plan for the Buffer zone 2014
 - Existing structural plans for the different localities
- 3- ASEZA:
- Endorsed Land use Master Plan 2007
 - Proposed land use plans for the different localities
 - Existing structural plans for each locality

This chapter will assess the endorsed and proposed land use master plans and will give specific attention to the existing structural plans and zoning categories and designations as they are the actual representation of decisions and implementation. Also these structural plans are best demonstration for the gaps in the institutional capacity, and regulations and categories of designations within the systems to accommodate different types of uses of land.

The unsystematic implementation of land use regulations results in:

- Unplanned sprawl and loss of agricultural lands
- Lack of open spaces and public parks
- Negative impact on community and environment from certain types of investment.

Mainly it has been observed that most localities suffer from:

Centralization of commercial activities

- Annexation of surrounding municipality and village councils created gaps between different localities within Municipal boundaries in terms of service provision and land designation.

Lack of adequate public services which includes:

- Centralization of public services and imbalanced distribution for both physical and social infrastructure
- Lack of social infrastructure, in general, especially children and youth facilities

Land designations within small communities are limited to residential and few commercial or services categories, without any consideration of natural designations and economic necessities.

Lack of tourism or biodiversity/nature related designations within the structural plans and visions of localities:

- There are no specific designations that can be specialized for tourism activities i.e. accommodation, services and touristic uses. Hotels and touristic restaurant are usually allowed on commercial uses and thus do not have designated zones, restrictions and facilities.
- The same can be said about Environment, as these localities do not have environment protection designations, and most of the time the natural assets within built up areas lose their vitality and value as they become part of the infrastructure service (wadis) or target for touristic developments (forests).

3.1.3 Work Methodology

3.1.3.1 Methods of inquiry

The method of inquiry concentrated on the various master plans that were conducted to the different areas of the projects; some of these plans have been endorsed and approved and thus have been influencing development decision making, while others either did not go through the process of approval and endorsement or are still under preparation and when implemented will have a great impact on the development extent and biodiversity.

The main method of inquiry besides desktop review was interviews and focused meetings with the specialized teams concerned with land use, legal aspects, investment, planning, tourism, institutional set up and environment. These meetings provided very valuable local knowledge in the specific topics and highlighted Gaps through processes or demands according to needs and responsibilities.

The Land use tackled matters concerning existing settlements, the different types of investments available and demand trends, Administrative boundaries, jurisdictions and controls or invites for certain types of development.

The teams also discussed how applications get processed and the different stages to highlight and discrepancies or overlap or gaps in some of the processes. This will be discussed in further details in the legal section.

Other types of inquiries were through the evaluation of the various studies and master plans, their GIS database, assessment and classification of biodiversity and natural elements and how they have been translated into land use. We will explain these projects in more detail in section 3.1.4

3.1.3.2 Field work

The purpose of field work was to get more knowledgeable of the context of the different project areas, and to meet with the local authorities or NGOs working in specific parts of the different localities.

Local teams highlighted threats, problems and concerns from certain developments on the biodiversity, environmental governance and social behaviors that are affecting the special areas in negative ways.

Field observations:

Jerash; Al Mi'rad Municipality and Burma Municipality are on the edges of Dibe'en reserve and some of their zoned lands are inside the forest area. The main threats that were highlighted by the Municipal teams and RSCN team within Dibe'en reserve were:

- Land exploitation; where citizens either build on public land without permission or illegally amalgamate public land to their private property.
- The effect of the Syrian refugees on the localities range from pressures on infrastructure, social services and housing. Some municipalities reported 30% increase in garbage due to Syrian refugees.
- The distribution of Haraj lands for private benefit agricultural uses.
- The area has been targeted by major investment projects (i.e Dubai Capital, Muniyat Dibe'en, Dibe'en Hills ..etc) that target high income users exclusively and thus exclude the local communities in addition to their locations within the forest influencing the environment in a negative way.
- The **visitors'** numbers to Dibe'en reserve that exceed its capacity and thus create negative impact. In addition to surveys indicating that the majority of visitors

are from adjacent cities and not from the local community (local communities constitute 15% of the total visitors) and for leisure purposes that some might be harmful to the environment.

- Wood cutting as a source of energy due to the high fuel prices. Yet the percentage of local community is negligible compared to merchants who practice wood cutting as an industry and pose the biggest threat on the forest and the environment.
- Multiplicity of Legal penalties that can be bypassed through loopholes of difference between penalty systems of different entities/authorities (Law of agriculture penalize 100 Jordanian Dinars for each tree cut illegally while Penalties law charges 5 Jordanian Dinars for the same felony)
- The Dibeen reserve falls between different communities and forms the connection between them with no reasonable alternative routes for commuters between them which impact the reserve and natural habitat in a negative way.
- Garbage collection cars pass through the reserve road network which is not designed for heavy machinery.
- The negative change in development trends from social inclusive approaches in the 70s of small scale and environment friendly initiatives to major investments and private developers targeting certain strata of the community.

In addition to issues related to Dibeen and neighboring municipalities generally the municipalities within the governorate complained from the following:

- The amalgamation of Municipalities with no additional financial allocations posed burdens on these Municipalities for service provision.
- The negative effect of the animal and chicken farms and the light industrial activities (block industry)
- The effect of the expansion on the existing and old water and sewage networks.
- Administrative boundaries of some Municipalities has been expanded to include the haraj land and transform them from Miri to private and public ownership, this decision has a very high risk on the environment as zoning becomes much easier within municipal boundaries and does not go through environmental concerns and assessments. In addition this inclusion of lands to the municipal boundary poses financial burdens on Municipalities in terms of service provision.
- The existing infrastructure within certain Municipalities cannot accommodate tourism projects.
- Currently zoning applications through the Ministry of Municipal affairs are finalized within two to three weeks for certain Municipalities which will have a good impact on application processing yet might also have some adverse impacts thorough insufficient assessment of the influence of such changes on the environment.
- Overlap in municipal boundary for certain lands between Greater Jerash municipality and Al Naseem municipality.
- Syrian refugees increasing the pressures on services and housing stock and thus affecting the local communities and their affordability of housing and services.

Petra: has a different context of combining a heritage site with a valuable biodiversity site, in addition to the UNESCO nomination which has certain criteria to be met in order to maintain the nomination in the world heritage list. Through the meetings with the local teams and the themed field visits there were some concerns related to expansion over developable land through land use studies which will pose a huge financial burden on the authority in terms of services and on the environment through exploiting development trends for large investments with no environmental consciousness.

Um Sayhoun which falls within the buffer zone of the archaeological park have been marginalized in many studies. There is a demand for expansion by the local community which will endanger the maintenance of the UNESCO designation and will alter the valuable nature of the area into a less environmentally conscious zone. Currently the additional zoning or zoning alteration process is frozen by PDTRA and there have been recommendations presented for the government for that regard.

As per the decision of the commissioners council investment in Petra has been facilitated with no restriction except abiding to the investment regulation and a proof of goodwill.

Wadi Rum: Run by a system called the “tribal budget” where it is divided mainly into three tribes; “Al Zawaydeh”, “Al zalabia” and “Al Sweilhieh”. This structure has negative influences on the various activities and developments in the area; especially tourism and touristic service provision.

One of the major issues and concerns in the region is the buffer zone; it is exactly the same as the park in its nature and biodiversity thus attracting illegal tourism activities and promotion without the permission from the Ministry of Tourism. This issue in addition to the absence of legal management and regulation enforcement created new camps redirecting the touristic activities from the reserve to the boundary and thus losing control over touristic activities.

The agreement to transfer the jurisdiction of RUM from RSCN to ASEZA (which has an investment priority) influenced Rum, reducing its flexibility and management capability. In addition, funding agencies favor partnering with NGOs more than governmental authorities.

Rum development fund lost the trust of the local community as its revenues are managed by ASEZA which does not prioritize community development over other issues on its agenda.

UNESCO highlighted concerns regarding the approval for touristic camps by ASEZA without the consultation with Rum; 28 camps have been approved on the northern edge. Touristic activities are coordinated with tourism companies in Amman linked to foreign tourism companies, and promoted by Jordan Tourism Board. Most of investments are not from the local community which has been transformed into service provision for these foreign investments.

All land use studies conducted for the area did not suggest creating a buffer zone for Rum. The land use plan of 2007 that was commissioned by ASEZA did not suggest a buffer zone and current proposals contradict with the idea of the buffer zone. The buffer zone came into attention after Rum has been added to the world heritage list.

Environmental management is not a priority especially in the recent political conditions where legal enforcement is not applied in means of mellowing the popular rage, thus encouraging abusive trends disrespectful of authorities, law enforcement and consuming the environment for private benefits.

3.1.3.3 Information collection

Most of the information was collected through the meetings and interviews as the local expertise demonstrate high value and authenticity. Discussions provoked issues, concerns or opportunities and highlighted most important studies and contexts.

Another form of information collection was the desktop research for studies related to biodiversity, the regions and the different components. All information collected in this method was cross checked with the local teams to ensure accuracy and relevance.

3.1.4 Presentation & Preliminary Assessment of Data, Studies, and Trends

3.1.4.1 Presentation & Assessment of Land-use Plans & Master Plans

There are usually concerns regarding municipal boundary expansions that are not assessed and properly calculated in terms of the community demand versus land stock, services, environment and the influence of land use change on biodiversity. These concerns arise from the easiness of zoning lands inside Municipal boundaries compared to lands outside Municipal boundaries. Historical trends indicate that the result of municipal boundary expansion is additional zoning.

These concerns apply to Jerash Municipalities especially the ones adjacent to Dibeen reserve, yet other Municipalities which are rural in nature yet tend to transform agricultural land to non productive purposes as residential. In Petra the concerns are for the suggested expansion/development land of 70 km² within less than 25 years. In 2008 the PDTRA zoned **3.5 km² in the Biq'a where currently only 10% of the services** has been constructed and land not yet developed. This reflects that the zoned land was not in response to demand but a financial burden on the PDTRA. In that light we can imagine the impact of the proposed development expansion land within a short time frame and the risk of huge financial burdens on the authority and sprawling development trends.

The expansion of Rum village has been suggested since 2009 along with an alternative location within the park yet the local community rejected that proposal and demanded expansion of their village which was finalized in 2013, yet it was not coordinated with UNSECO through the nomination process which was in 2011. The endorsed expansion is sufficient for 30-40 years such expansions should be studied careful as it might jeopardize the UNESCO designation for the world heritage list.

According to the local team feedback, the fact that the Rum local community are not allowed to use the Disi water for agricultural purposes influences the land use of the area, restricting

agricultural and livestock activities continue directing the local communities for other sources of income; mainly tourism.²

3.1.4.2 Presentation and Assessment of GIS data

The GIS data that has been obtained from the various authorities and entities was in two formats; existing situation data for analysis purposes and suggested development layers from endorsed on under preparation master Plans.

The GIS layers tackled administrative, land use, environmental, social, infrastructure and cultural issues mainly. Each Master Plan has different terminologies for certain components, and sometimes additional classification and analytical information within the GIS database, below are certain categories of the obtained GIS layers/database:

Table 2: Different GIS data categories from different entities

PDTRA	ASEZA	JERASH
Final Strategic Comprehensive Master Plan 2012 Land use at 1-2500 & 1-5000 per contract	مشروع منطقة العقبة 2007 (Aqaba Zone Project 2007)	Jerash Master Plan
Agricultural suitable soils, archaeological sites, areas served by schools, bare rocks, concept town districts, development priorities, electricity network, fault lines, forest suitable soils, growth efficiency, hydrology, hydrology country scale, land sensitivity, landmarks, local context, mineral resources, national context map, PAP concept zoning, past mapping, proposed PTDR and PAP, public-private land ownership, regional conceptual land use, regional conservation, satellites images, sewer network, slope analysis, transportation,	Base map Land use Village Layout الاتصالات الأثار الأقطاب التصورات الأولية الجيولوجيا الحساسية البيئية الخدمات الزراعة السكان السياحة الصناعة و التعدين الكهرباء و الطاقة المحاور المحددات و الجبال المشاريع الاستثمارية المياه النقل و المواصلات صور فضائية مجمع الشاحنات	Administrative i.e Governorate Parcels Municipalities Urban boundary Urban Streets Agricultural resources Base data Cartography.... Corridors & centers Cultural heritage.... Employment.... Infrastructure.... Natural heritage i.e. Dams Gold river Wadis Haraj Protected area Springs Wasies heritage Open space.. Settlement & housing.. Social Facilities... Transportation...

² Meeting with Rum local team September 24th 2014, regarding the Rum plan to introduce 1000 employment opportunity in Agriculture utilizing Disi water that was not allowed by MOE.

UNESCO zoning, vegetation types, vegetation zones, views from PAP, views from scenic road.		
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These GIS layers were assessed in terms of their accuracy against layers from different agencies, the data base embedded in them (type, classification, information value, comprehensiveness and clarity).

It is important to note that GIS MXDs are also very important as they are the tool that combines the different layers as per the consultants presentation and information value, it is needed for better understanding of the information through maps and symbols and are integral part of the GIS data.

3.1.4.3 Presentation & Assessment of existing structural plans

The different localities have their own structural plans defined by the different zoning categories, these structural plans define the detailed land use (zoning) associated with ordinances and guidelines defining the different types of development allowed within certain land uses, the setbacks and built up ratio and many other criteria.

In assessing the different existing structural plans, it is obvious:

- 1- PDTRA: Only in Petra the tourism land use is introduced as hotels zone, hotel and commercial uses, residential and tourist condo us and tourist hotel, also there are the classifications of protected zone and restricted zone permission. Archaeology is a land use category and not a form of ownership. Yet these elaborate land uses are only found in Wadi Musa while the other villages were limited to residential, commercial and social facilities uses with certain exception for Um Sayhoon. The different land uses are defined in table 3 below, as this table shows that the different layer names within the provided data are sometimes not clear and might require personal interpretation which affects the accuracy of analysis i.e. linework, restricted zone need permission or even **boundary which does not define municipal of zoning boundary ... etc.**

Table 3: PDTRA structural Plans categories

PDTRA					
Wadi Musa:	Um Sayhoon	Taybeh	Rajef	Dlagha	Bayda
Boundary	Boundary		Boundary	Boundary	Boundary
Agriculture	zoning linework			Agricultural	New Block
Archaeological area	Archaeological area				Old block
Cemetery	Cemetery				Restricted zone need permission
Commercial	Commercial	Commercial	Commercial		Commercial
Commercial with regulation use					
Commercial with special use					
Community building	Community building	Community building	Community building	Community building	
Gas station					
Green area			Green area		
Hotels only zone					
Hotels and commercial use					
Mixed use					
Mosque	Mosque	Mosque	Mosque	Mosque	
Park	Open space				
Protected zone					
Residential Special use					
Residential zone A					
Residential zone B		Residential zone B	Residential zone B	Residential zone B	
Residential zone C		Residential zone C			
Residential zone c with special regulations					
Residential zone D	Residential Zone D	Residential Zone D	Residential Zone D		
Residential and tourist condo use					
Restricted Zone need permission					
Tourist hotels					

Tourist investment					
Upgrading tourism		Upgrading tourism			
	Unplanned land	Upgrading Tourism zone	Zone Building Type J	Zone Building Type J	

2- ASEZA: the villages that belong to Al Quairah district and Al Disi district are mainly residential in nature with few commercial uses. There are no uses regarding the natural heritage, tourism, or other employment oriented land uses within these villages.

Table 4: AQABA structural Plans categories

	AlQuairah	Al Hmeimeh Al Qadeemeh	Al Hmeimeh Al Jadeedeh	Al Eseeleh	Al Khaldi	Al Salhieh	Al Shakrieh	Al Rashidieh	Dabbet Hanout	Al Ghal	Al Twell	Al Tweiseh	Al Diseh	Mneisheer	Titen	Rum	Mizfer	
Residential A converted to B	Residential are not classified	Residential are not classified	NULL	NULL	NULL	Residential are not classified	Residential are not classified	Residential are not classified	Residential are not classified	Residential are not classified	NULL	NULL	NULL	NULL	Schools	Residential are not classified	Residential are not classified	NULL
Residential B																		
Residential B converted to C																		
Residential C																		
Residential C converted to D																		
Residential D																		
Residential converted to School																		
Main commercial center																		
Commercial Approved																		
Commercial proposed																		
Public buildings																		
schools/proposed																		
parks																		
open spaces and parks																		
Archaeology																		

Further AutoCAD sheets were provided yet they were not defined if existing or proposed, and the majority did not have legends to explain the land uses, as sample of these classifications:

Table 5: AUTOCAD structural Plans categories

Al Rashidieh	
Governmental / community services	Fence
Residential Phase 1	Wall
Commercial use	Electric pole
Asphalt road	Tree
Building	Manhole
Temporary building	Bench mark
water reservoir	Telephone pole
Commercial	

3- Jerash: Overall within the governorate, the land uses mentioned in table 6 were mainly residential uses with their various classifications (A, B, C, D, green, rural or row housing) some of these classifications had zones with special regulations. Also the structural plans of the different Municipalities within the governorate included restricted areas, crafts and medium industry zones, water springs and water paths.

Despite the touristic potentials of the various municipalities within Jerash, yet we notice that such potential was not included in the structures and categories of their structural plans leaving tourism development projects as alien activities that will be studied at their time without prior strategic study and definition of the areas that can accommodate such activities. When such areas are not defined then tourism activities that are proposed are evaluated according the criteria of MOTA and then through Municipalities in Zoned areas or MOMA or PDTRA in case of un-zoned land where the risk lies if these developments locations and impact were not comprehensively studied in relation to biodiversity and the local community.

Table 6: Jerash Municipalities structural Plans categories

Jerash Governorate		
Agricultural within zoned areas	Residential C & C with special regulations	Rural residential with special regulation
Cemetery	Special Residential	Residential A
Linear commercial	Residential D	Restricted areas
Local commercial	Rural residential	Residential B & B with special regulations
Public building	connected housing	
Plazas	Residential H	
Parks	Crafts	
Mosque	Medium industrial area	
Green residential	Water Spring and water path	

Outside municipal zoned areas the land use reference is the 2006 National land use map along with the Land use regulation no.6 in 2007 which has defined land areas in certain categories; each had different allowed uses which are the roadmap for any decisions regarding development of urban fabric expansion:

For purposes of implementing the provisions of this regulation, lands shall be categorized, in terms of validity for agriculture and as explained in the land use map, into the following:

1. Sector of agricultural areas (A).
2. Sector of rural areas (B).
3. Sector of marginal areas (C).
4. Sector desert areas (D).
5. Forests sector.

Table 7: Land use law No.6 for 2007 analysis

Sector of agricultural areas (A).	Sector of rural areas (B).	Sector of marginal areas (C).	Sector desert areas (D).	Forests sector.
<p>the agricultural areas (A) are divided into the following classes:</p> <ol style="list-style-type: none"> 1. First class agricultural areas (A1); these are plain lands with high agricultural qualities and fit for all types of agriculture. 2. Second class agricultural areas (A2); these are semi plain lands fit for all types of crops. 3. Third class agricultural areas (A3); well fit for trees. 	<p>The rural areas (B) are divided into the following classes:</p> <ol style="list-style-type: none"> 1. First class rural areas (B 1). 2. Second class rural areas (B2). 3. Third class rural areas (B3). 	<p>Marginal areas (C) are divided into the following classes:</p> <ol style="list-style-type: none"> 1. First class marginal areas (C1), fit for forests and pastures. 2. Second class marginal areas (C2), fit for pasturing. 3. Third class marginal areas (C3), fit for forests and pasturing. 	<p>Desert areas (D) are divided into the following three classes:</p> <ol style="list-style-type: none"> 1. First class desert areas (D1), those are the lands that can be utilized during the rainy season and fit for pasturing, in particular valleys and lower areas.* 2. Second class desert areas (D2), those are dry lands that can be used for seasonal cultivation upon availability of water. 3. Third class desert areas (D3) , those are mud and salty and places of gathering sedimentations from higher desert areas* <p>* No construction, whether temporary or constant is allowed there with view of preserving public safety.</p>	<p>Sector of forest areas; areas planted with forest trees</p>
<p>in (A) areas the following uses are permitted:</p>	<p>the following uses are permitted in (B) areas:</p>	<p>in addition to uses permitted in areas (A)</p>	<p>the following uses are permitted in (D) lands:</p>	<p>The following uses are permitted within the private</p>

<p>1. all types of agriculture works: Saplings of trees, flowers and vegetables, poultry and cattle keeping, preparation, sorting and packing of agricultural items for human and animal consumption, trees and field crops.</p> <p>2. Residential use Investment agricultural units shall be permitted with an area of no less than 4 donums per each agricultural unit in areas (A1) and (A2).</p> <p>a) one or two residential unites with an area of no more than 15% of the area of each land lot or agricultural unit referred to in paragraph 1 of this item provided the total building area does not exceed 1000 square meters and two storey height.</p> <p>c) Rural residential units are permitted with an area of no less than 2 donums per each unit in areas (A3) and the rural residential provisions shall apply in accordance with valid regulations.</p> <p>3. Public utilities; including private telecommunication</p>	<p>1.(B1) areas:</p> <p>a) agricultural uses including trees saplings and flowers, trade of agricultural materials and equipments, protected agriculture (green houses), horse and cattle stables provided the distance from the nearest residential area is no less than 500 meters and in accordance with the approved instructions, commercial agricultural services, field trees and crops, preparation, sorting and packing of agricultural items for human consumption, cattle and poultry slaughterhouses.</p> <p>b) Residential uses: Collaborative and investment residential are permitted with an area of no less than 2 donums in accordance with the valid zoning provisions.</p> <p>one or two residential units with an area of no more than 15% of the area of the land lot but not exceeding 1000 square meters</p> <p>c) public utilities and services; main buildings of telecommunication companies, public defense unit, main buildings of government departments and other public institutions, water purification stations, water and sewage pipelines and water pumping stations, water tanks, centers for storing and distributing agricultural products, water treatment units, power generating, transfer and distribution stations, agricultural associations and accessories,</p>	<p>and (B), the following uses are permitted in areas (C1) and (C2):</p> <ol style="list-style-type: none"> 1. Private projects that require standards as available in these areas, and parts thereof may be utilized in cultivation near water springs. 2. State owned empty lands can be used for planting trees and pastures. 3. Telecommunication s stations and power stations. 4. Water and sewage pumping stations. 5. Metallurgy of natural resources and oil wells works. 6. Industrial zones. 	<p>The various residential buildings, the various installations, gas stations and travel set off stations, cattle and poultry raising, sheep stables and farms, medium and light industries, industrial projects and industrial zones, telecommunication stations and power generating stations, purification stations and garbage gathering areas in geological layers accommodating water so as not to pollute underground water, water and sewage pumping stations, metallurgy of natural resources, gas and oil works, natural gas pipelines and accessories.</p>	<p>property in this sector:</p> <ol style="list-style-type: none"> 1. agricultural works including: saplings and flowers. Intensive and protected cultivation (green houses). Trees and field crops. Planting forest trees and utilizing those. Industrial uses related to extracting raw materials from the forest trees. 2. Uses permitted upon the approval of the council: private and public health clinics. Special educational facilities for the handicapped. Tourism projects presented on the basis of advance studies (resorts) on private and treeless areas. Camping centers. Parks and gardens. 2. Residential uses: one or two residential units with an area of no more than 15% of the area
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<p>stations or for companies that require a specific location in terms of heights and frequencies.</p> <ul style="list-style-type: none"> a) Fire stations (civil defense stations). b) Water tanks and water purifications stations and their accessories. c) Public services unit d) Clean water pump stations and waste water stations. e) Agricultural services center. f) Power generating stations. g) Agricultural products store and distribution centers. h) Oil and gas works. i) Natural gas pipelines and accessories. k) Gas stations. <p>4. Special uses, including horse, cattle and poultry stables and accessories, retail agricultural products shops provided the designated area does not exceed 25 square meters. Metallurgy of natural resources in accordance with valid environmental law.</p>	<p>agricultural service center, oil and gas exploration works, constructing natural gas pipelines and accessories, gas stations.</p> <ul style="list-style-type: none"> d) Private uses, including horse stables and accessories. Retail agricultural products shops. Metallurgy of natural resources in accordance with valid environmental law. Olive mills. e) Temporary uses, including storing temporary agricultural products. Temporary agricultural experiments stations. 3. Temporary residential <p>2 (B2) areas:</p> <ul style="list-style-type: none"> a) in addition to the permitted uses in (B 1) areas; the following are permitted in (B2) areas: <ul style="list-style-type: none"> a. Investment residential projects and cooperative residential projects. b. Medium and light industries within the limits of the provisions of the agricultural areas and in accordance with the valid environmental law. <p>2 (B3) areas: in addition to uses permitted in (B 1) and (B2) areas,</p>			<p>of the land lot provided the total building area does not exceed 1000 square meters and two storey height.</p> <p>3. public services: government or private telecommunication stations or for companies that require a specific location in terms of heights and frequencies.</p> <p>Fire stations and accessories. Water tanks and treatment stations. Power generating and distribution stations. Public services unit such as postal, telephone and others services. Water and sewage pumping stations. Emergency and forest service center.</p> <p>5. Special uses: horse stables and accessories in owned lands. Metallurgy of natural resources</p>
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<p>5. Temporary uses, including storing temporary agricultural products. Temporary agricultural experiments stations. Temporary residential units.</p>	<p>the following uses are permitted; all types of agriculture. Separate residential buildings. Investment and cooperative residential projects. Investment and tourism projects. Government buildings and service centers. Expansion of urban areas. Poultry and cattle raising, provided the distance from the nearest residential area is no less than 500 meters. Medium and light industries provided that the distance from the nearest residential area is no less than 500 meters and, regulating uses therein and solving the problem of waste water in accordance with the valid environmental regulations. Playgrounds, parks and recreational places. Any other use as per the approval of the competent zoning committees in cooperation with the competent authorities. Metallurgy of natural resources in accordance with the environmental law.</p>			<p>and the limited environmental impact. Gas and oil works.</p> <p>6. temporary uses: Temporary agricultural experiment stations. Temporary residential units.</p>
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The Layer of Land use 2007 that was received from MOMA included the following classifications within its data base:

A1-2	B1-1	C2-2	Reserve	Land slides	Forests	Factories
A2-2	B2-2	Dam	Reserves	Zones areas	Gas Stations	Existing industrial areas
A3-3	B3-3	Housing projects	Tourism areas	Universities	Treatment plant	Historic sites

No additional explanation or classification was linked to the above, no mentioning of wadis and the buffer zones. Article 16 of the land use regulation no 6 for the year 2007 prohibits building the wadis within a buffer of 25 meters and not to utilize the wadis to access facilities unless safety precautions were taken. There is no mentioning of Wadis, water springs, wells or Environmental classifications other than forest and reserve within the Land use layer of 2007 for Jerash Governorate.

3.1.4.4 Presentation & Assessment of Previous plans and studies

The team reviewed all the master plans, studies, projects, essays and data mentioned in the inventory list and created summaries for these studies (Annex 1). The summaries highlighted the relevant information that tackles land use issues, tourism development, environmental concerns, social contexts and legal aspect if they exist. The total reviewed documents for Jerash were 15, Petra 29 and Wadi Rum 14. In addition the team reviewed some of the topic related studies and publications that were useful for topic related matters and not necessarily related to the project areas.

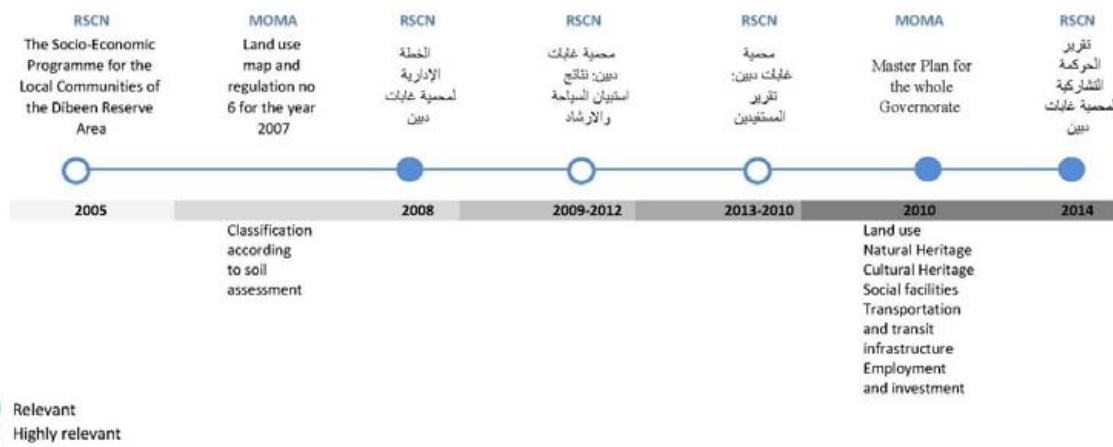
Many of the studies, while providing excellent and detailed information at their time were completed too long ago to be useful and current today. Much of their data which depended on both statistics and field work can no longer be used with confidence sometimes over 10 years later.

Based on the above, the team compiled a timeline for each locality highlighting the relevant and highly relevant milestones for the concerned localities as explained below:

Jerash Governorate:

The most relevant data/ information for Jerash Governorate and mainly Dibeen were:

- i. Socio-Economic Programme for the Local Communities of the Dibeen Reserve/ RSCN – 2005
- ii. The management plan for the forest reserve of Dibeen, RSCN, 2008
- iii. Tourism and guidance survey/ RSCN - 2009-2010-2011-2012
- iv. The beneficiaries report for Dibeen forests, RSCN-2010-2013
- v. Jerash Master plan prepared by MOMA, 2010
- vi. Participatory governance for Dibeen forest reserve, RSCN -2014



Below is a more elaborate assessment for the studies and plans that are relevant for the land use sector

General Preliminary Description	Land use Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
<p>National Land use Map 2006 and Land use Regulation No. 6 for 2007 / MOMA</p> <p>For purposes of implementing the provisions of this regulation, lands shall be categorized, in terms of validity for agriculture and as explained in the land use map, into the following:</p> <ol style="list-style-type: none"> 1. Sector of agricultural areas (A). <ol style="list-style-type: none"> a. First class agricultural areas (A1); these are plain lands with high agricultural qualities and fit for all types of agriculture. b. Second class agricultural areas (A2); these are semi plain lands fit for all types of crops. c. Third class agricultural areas (A3); well fit for trees. 	<p>In (A) areas the following uses are permitted:</p> <ol style="list-style-type: none"> 1. All types of <u>agriculture works</u> such as poultry and cattle keeping, preparation, sorting and packing of agricultural items for human and animal consumption. 2. <u>Residential use</u>: Investment agricultural units shall be permitted with an area of no less than 4 donums per each agricultural unit in areas (A1) and (A2). No more than 15% of the area of each land lot but not exceeding 1000 square meters. Rural residential units are permitted with an area of no less than 2 donums per each unit in areas (A3) 3. <u>Public utilities</u>: including private telecommunication stations or for companies that require a specific location in terms of heights and frequencies. Public services unit, clean water pump stations and waste water stations, power generating stations, Agricultural products store and distribution centers, oil and gas works, gas stations. 	<p>The land use classifications are Agricultural, Rural, Marginal, Desert and forest which are based on the soil classification in terms of suitability for cultivation and production. There is no criterion for taking into consideration the natural heritage and biodiversity in the classification procedure nor there types of classification to accommodate such. As much as the soil type might be suitable for agricultural uses or poultry and cattle keeping, yet there might be a sensitive area that has a link to a larger area and thus might get affected from the allowed uses which are not harmful for agricultural purposes but might be harmful for certain species.</p> <p>Some of the allowed residential uses in various sectors set building limitations to be maximum 15% of land area but not to exceed 1000 square meter plus services and ancillaries. In</p>

<p>2. Sector of rural areas (B).</p> <ul style="list-style-type: none"> a. First class rural areas (B 1). b. Second class rural areas (B2). c. Third class rural areas (B3). 	<p>4. Special uses, including horse, cattle and poultry stables and accessories, retail agricultural products shops.</p> <p>B1: Same as A in addition to public institutions or governmental buildings. Private uses include Olive Mills, retail agriculture and horses' stables and accessories.</p> <p>B2: in addition to the permitted uses in (B 1) areas; the following are permitted in (B2) areas:</p> <ul style="list-style-type: none"> a. Investment residential projects and cooperative residential projects. b. Medium and light industries within the limits of the provisions of the agricultural areas and in accordance with the valid environmental law. <p>B3: Separate residential buildings. Investment and cooperative residential projects. Investment and tourism projects. Government buildings and service centers.</p>	<p>many areas people are using these standards to build villas or second homes that are merely for residential purposes and not agriculture which transforms the land use structure in certain areas.</p> <p>Public utilities as telecommunication stations or companies that requires specific location with o specific limitation on the nature, structure and locations pauses a risk on Biodiversity system as some of the best telecommunication locations might be core environmental locations at the same time.</p> <p>Olive presses allowed in B1 areas which are first class rural areas, there should be more restriction on the locations of the presses as they have affluent discharge that might affect nearby water tables, springs and wells.³</p> <p>B2 areas permit for investment</p>
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³ Olive press establishment and operation regulations and amendments No. g/152 for the year 2012 under Article 16 of the temporary Agricultural Law No 44 for the year 2002 there are restrictions regulating olive press establishment, yet the Biodiversity is not a base of these restrictions as much as proximity to settlements and water ways, check regulations assessment in section 3.4.4.

<p>3. Sector of marginal areas (C).</p> <ol style="list-style-type: none"> a. First class marginal areas (C1), fit for forests and pastures. b. Second class marginal areas (C2), fit for pasturing. c. Third class marginal areas (C3), fit for forests and pasturing. <p>4. Sector desert areas (D).</p> <ol style="list-style-type: none"> a. First class desert areas (D1), those are the lands that can be utilized during the rainy season and fit for pasturing, in particular valleys and lower areas. No construction, whether temporary or constant is allowed there with view of preserving public safety. b. Second class desert areas (D2), those are dry lands that can be used for seasonal cultivation upon availability of water. b. Third class desert areas (D3) , those are mud and salty and places of gathering 	<p>Expansion of urban areas. Medium and light industries</p> <p>Any other use as per the approval of the competent zoning committees in cooperation with the competent authorities.</p> <p>C1-C3: In addition to uses permitted in areas (A) and (B), the following uses are permitted in areas (C1) and (C2):</p> <ul style="list-style-type: none"> - Private projects that require standards as available in these areas, and parts thereof may be utilized in cultivation near water springs. - Telecommunications stations and power stations. - Water and sewage pumping 	<p>residential projects and cooperative residential projects. Such projects should be within built up areas in proximity to soft and hard infrastructure services. The current trends are allowing such projects in exclusion from existing communities and away from services. These projects are considered attraction nodes for growth and thus will encourage more development around them or keep residents excluded from services. This allowed usage will also be allowed in B3 and C sectors thus encouraging development almost in very large areas that are not developed and away from existing services.</p> <p>B3: In addition to allowed uses in B2 it also allows separate residential building which encourages sprawl and unplanned growth. Also according to the approval of the competent zoning committees in cooperation of competent authorities any other uses can be allowed which is a loose end that can permit uses that are harmful to the nature and biodiversity.</p> <p>C1-C3 Allow private projects,</p>
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<p>sedimentations from higher desert areas and no construction, whether temporary or constant is allowed there with view of preserving public safety.</p> <p>5. Forests sector : areas planted with forest trees</p>	<p>stations.</p> <ul style="list-style-type: none"> - Metallurgy of natural resources and oil wells works. - Industrial zones. <p>D: The following uses are permitted:</p> <ul style="list-style-type: none"> - The various residential buildings. - The various installations. - Gas stations and travel set off stations. - Medium and light industries, industrial projects and industrial zones. - Telecommunication stations and power generating stations. - Purification stations and garbage gathering areas in geological layers accommodating water so as not to pollute underground water. - Water and sewage pumping stations. - Metallurgy of natural resources. - Gas and oil works. <p>Forest:</p> <p><u>Agricultural works</u> including saplings and flowers. Intensive and protected cultivation (green houses). Trees and field crops. Planting forest trees. Industrial uses related to extracting raw materials from the forest trees.</p> <p><u>Uses permitted upon the approval of the council:</u></p> <p>private and public health clinics. Special educational facilities for the handicapped.</p> <p>Tourism projects presented on the basis of</p>	<p>telecommunication stations and industrial zones.</p> <p>D: Allows various residential buildings, installations, medium and light industry , industrial projects and zones ...etc Accordingly, due to the unsuitability of the soil for agricultural purposes, the Biodiversity assets of the different areas have been marginalized and not taken into consideration in the classification types or in the allowed uses or any restriction to be enforced taking into consideration site context and connectivity with other environmental systems.</p> <p>Tourism projects, mainly resorts are allowed on treeless lands. Yet within forest. These tourism projects have direct and indirect influences on nature and</p>
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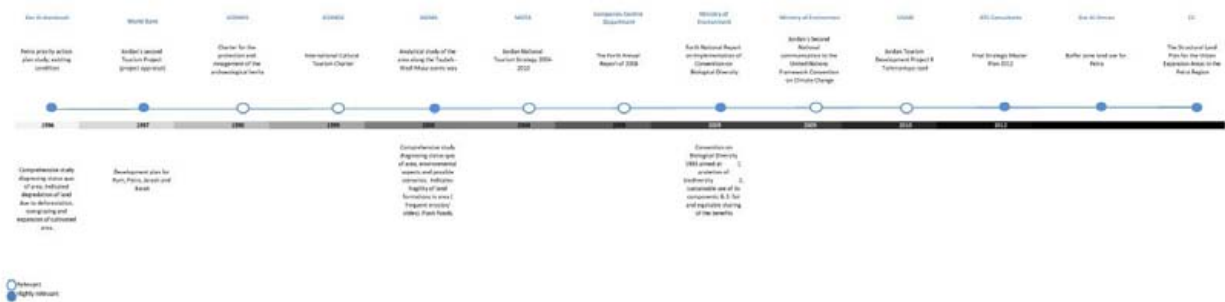
	<p>advance studies (resorts) on private and treeless areas. Camping centers. Parks and gardens.</p> <p><u>Residential uses:</u> One or two residential units with an area of no more than 15% of the area of the land lot provided the total building area does not exceed 1000 square meters and two storey height.</p> <p><u>Public services:</u> Government or private telecommunication stations or for companies that require a specific location in terms of heights and frequencies. Water tanks and treatment stations. Power generating and distribution stations. Water and sewage pumping stations.</p> <p><u>Special uses:</u> Horse stables and accessories in owned lands. Metallurgy of natural resources and the limited environmental impact. Gas and oil works.</p> <p><u>Temporary uses:</u> temporary agricultural experiment stations. Temporary residential units.</p>	<p>biodiversity that should be taken into consideration.</p> <p>Although Munityat Dibeen project (Dubai Capital) was approved on may 17th 2007 on the basis of moving trees with certain percentage of removed trees not to exceed (30-40) and a penalty of 1000JDs for any removed tree above the specified number. That decision was modified on November 20th 2008 which had reduced conditions and restrictions from the previous one increasing the number of allowed trees to be cut to 202 and no mentioning of penalties in case the number was exceeded, they only need the approval of the Ministry of Agriculture for that purpose, and commit in planting 10,000 trees in a location specified by the Ministry of Agriculture. Such a project did not only have the direct physical impact on the reserve and existing eco systems, but also it had social impact on the local communities as it was excluding them as clientele and beneficiaries; fencing 30% of the forest land for private investment. Also the project</p>
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		construction affected the network within the reserve,
<p>Dibeen Reserve Land Use/ RSCN- 2004</p> <p>Official organizations using land in the reserve, the nature if these uses, their significance and impact:</p> <ul style="list-style-type: none"> -Ministry of Agriculture; the establishment of new roads within reserve and around it, increasing accessibility. -Water Authority; the recurrent maintenance activities. -Public Works; constant increase in roads and their maintenance which negatively impacts biodiversity. -Jordanian Electricity Company; the placement of electricity poles within and around the reserves which sometimes leads to fires or the cutting of nearby trees. -Jordanian Tele-communication Company; causes recurrent digging activities. -Dubai Capital Company causes increased construction impacts such as labor and vehicle movement, soil erosion, etc. -Local community; through illegal digging for the search of old valuables, grazing, hunting, wood cutting, picnicking, trespassing, residence, and transportation. 	<p>Land uses outside the reserve include the following;</p> <ul style="list-style-type: none"> -Agriculture -Residential -Picnicking 	<p>The different zones defined in the land use define the levels of sensitivity of these areas and thus the levels and methods of protection. In addition to this there is a need to define a boundary around the reserve to further protect it from encroaching developments and direct contact with localities and their structural plans. Such a buffer will be the transition zone from development land to protection land thus reducing the impact of the neighboring communities and their development trends and behaviors.</p>
<p>Socio-Economic Programme for the Local Communities of the Dibeen Reserve/ RSCN – 2005:</p> <p>Concept paper (submitted to the UNDP) described the proposed approach and outcomes for a socio-economic programme that will promote the development of alternative economic uses of the Forest Reserve for the local communities that recently utilize its resources.</p>	<p>The socio-economic analysis investigated the 5 main village communities surrounding the protected area..The analysis established that their primary use of the Forest Reserve is for livestock grazing and wood cutting. These activities are technically illegal.</p>	<p>Potential solutions</p>
<p>The management plan for the forest reserve of Dibeen, RSCN, 2008:</p> <p>The management plan is compromised from four chapters talking about:</p> <ul style="list-style-type: none"> b. General description c. Evaluation d. Problem analysis e. Objectives 	<p>The report summarized the issues that influence the environment and the reserve management; tourism, multiple entrances, wood cutting, encroachment of private properties on the edge of the reserve and overgrazing.</p>	<p>Private lands with development rights are one of the high risk on the vegetation and environment of the reserve. Municipalities should enforce some development restrictions through transfer of development rights, incentives or any other forms to minimize their impact. These issues and approaches were not mentioned as probable solutions</p>

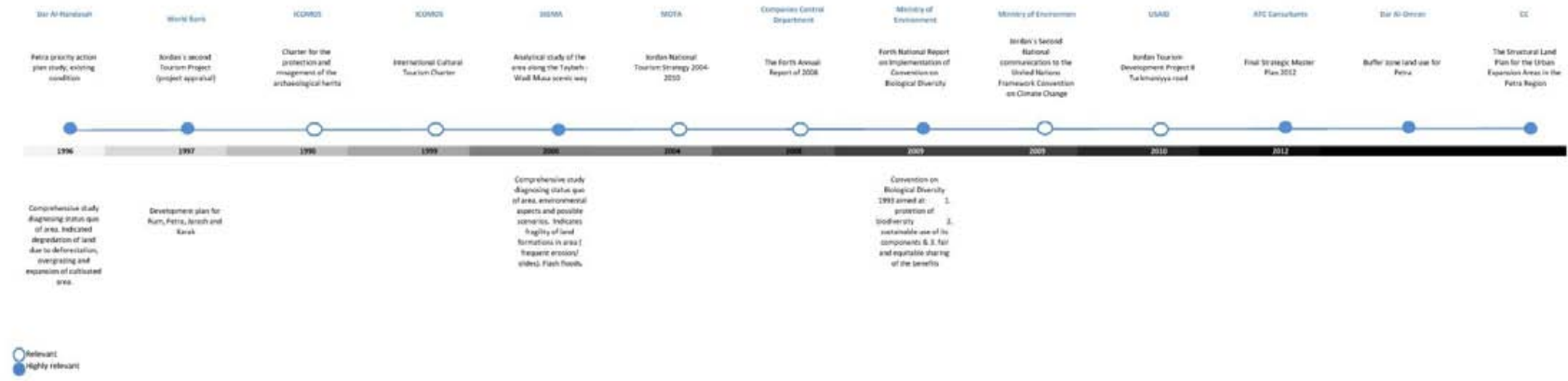
<p>Jerash Master plan prepared by MOMA, 2010 This Master plan which follows a sustainable planning approach for communities and the areas that are surrounding these communities. This master plan covers the Governorate of Jerash with its five municipalities and the lands outside these municipalities' boundaries. In its growth component it defined the areas around the structural plans for each locality and classified them in terms of growth, limited growth and no growth areas thus defining the directions and scope of growth for these localities in terms of protecting the environment as a priority and encouraging smart sustainable growth for the different communities.</p> <p>This plan has different components/sectors:</p> <ul style="list-style-type: none"> - Settlement; population and housing - Investment & Employment - Social facilities - Natural Heritage - Cultural heritage - Open space network - Agriculture - Quarries and mining - Infrastructure - Transportation and transit 	<p>Although this Master plan was done at the regional level due to time and budget constraints, it included some more details that are usually conducted at more detailed master plans for the purpose of documenting and analyzing the natural elements in their different criteria which directed the decision to define communities growth and thus protect the environment through the detailed classification of natural heritage (Core areas and overlay areas; including but not limited to Wadis classified according to their form, water flow, bilt up status, water wells and springs, forests...etc)</p> <p>This master plan was not confined to the administrative boundary of the governorate as it was integrating the surrounding environmental systems as Jabal Ajloun. It has suggested development project along with accommodating existing ones; these projects tackled tourism promotion and environmental activities and programs</p>	<p>-This is the first master plan in the region that tackles Natural environment as a very important component influencing land use decisions in the region. The Master plan is planned to be the road map for decision making for any development applications or agendas</p> <p>-The master plan is compromised of various layers that interact to produce a comprehensive plan. This master plan has introduced new land use categories to be inclusive of new development trends but most importantly the land uses that ensure the preservation of the environment i.e. Natural heritage as core heritage and overlay according to the different values of these assets, open spaces...etc thus defining the types of development and growth that should be allowed or prohibited or downscaled.</p>
<p>Participatory governance for Dibeem forest reserve, RSCN - 2014 This report is prepared to comprehensively analyze and evaluate the different involved entities in preparation to develop a special participatory governance regulation that ensures the application of transparent and just participation with efficient management and accountability.</p>	<p>This report defined four categories of stakeholders in relation to the Dibeem Reserve:</p> <ol style="list-style-type: none"> 1-high influence, high interest sectors; they are the most important partners in the process. 2- High interest low influence sectors; 3- Low interest high influence sectors; and these are considered the most dangerous on the short and mid terms since they are capable of taking and implementing decisions without consulting, implementing their agendas in separately. 4- Low interest and Low influence sectors; the silent majority form all sectors. 	<p>Municipalities adjacent to the reserve and in proximity are of high interest and high influence. Some of these Municipalities lack technical teams or competent teams to make sound decisions regarding land use alterations and development in regard of environmental concerns and threats.</p>

According to the Support and development of local environmental tourism in Dibeen Forest Reserve prepared by RSCN, 2010; which its main goal of the project is to introduce alternative locations for public use of picnics in order to preserve, sustain and regenerate the Aleppo pine trees. The visitors pressures on the reserve increased after the inclusion of the large development projects such as Muniat Dibeen which was located at the heart of the reserve; fenced and privatized more than 30% of the picnicking area within the reserve, the matter that increased the pressure on the remaining areas and lead to the utilization of privately owned lands for picnicking purpose which created new problems for the management of the reserve. It is worth noting that Dibeen reserve is penetrated by large numbers of private properties.

PDTRA:



- 1- Petra priority action plan study; existing condition, Dar Al handaseh -1996
- 2- Jordan`s second Tourism Project (project appraisal), World Bank -1997
- 3- Charter for the protection and management of the archaeological herita, ICOMOS -1990
- 4- International Cultural Tourism Charter, ICOMOS – 1999
- 5- Analytical study of the area along the Taybeh - Wadi Musa scenic way, SIGMA – 2000
- 6- Jordan National Tourism Strategy 2004-2010, MOTA
- 7- Forth National Report on Implementation of Convention on Biological Diversity, MOE-2009
- 8- Jordan`s Second National communication to the United Nations Framework Convention on Climate Change, MOE-2009
- 9- Jordan Tourism Development Project II Turkmaniyya road, USAID-2010
- 10- Final Strategic Master Plan 2012, ATC consultants-2012
- 11- Buffer zone land use for Petra, Dar Al Omran-2014
- 12- The Structural Land Plan for the Urban Expansion Areas in the Petra Region, Consolidated Consultans-2014

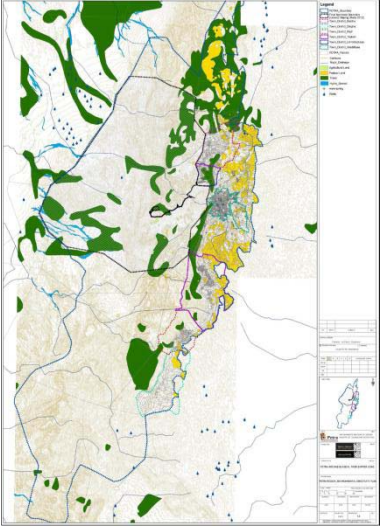


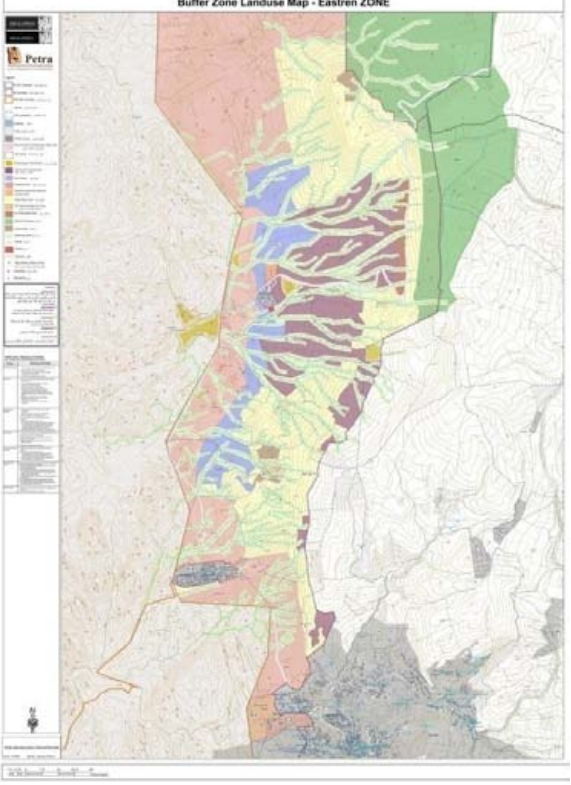

In reference to the timeline of studies and projects that were conducted for Petra, the main relevant are summarized:

General Preliminary Description	Land use Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
<p>Analytical study of the area along the Taybeh - Wadi Musa scenic way, SIGMA -2000</p> <p>Comprehensive study diagnosing status quo of area, environmental aspects and possible scenarios. Indicates fragility of land formations in area (frequent erosion/ slides). Flash floods</p> <p>Comprehensive study of the area around the Scenic Way, Petra. Includes the following sections:</p> <ul style="list-style-type: none"> - Analysis diagnosis - Environment aspects and the scenic way - Potential scheme - Land development <p>Buildable ratios and planning regulations</p> <ul style="list-style-type: none"> - Zoning and building codes and regulations - Landscaping and urban furniture - Private plot index 	<ul style="list-style-type: none"> o Natural features o Natural environment and scenery values o Human features o Tourism o Infrastructure and buildings o Geology map, slopes map and views map o Site conditions and land ownership o Existing infrastructure networks map o Alternative zoning proposals o Potential zoning map o Basic by-laws, planning regulations o Road design and traffic principles o Proposed by-laws o Environmental and landscaping rules o Planning regulations o Zoning and building regulations o Zoning codes o Building regulations o Building permits o Environmental and landscaping guidelines o Landscaping and urban furniture design guidelines <p>The role of the environment from a scenic point of view is basic, it confuses the foundation of every scenic view and most importantly, it gives to it the material of the design of the sight</p>	<p>Natural elements included; topography, climate, geology, pedology, hydrology, flora, fauna, scenery values, tourism related activities, infrastructure and present land use. Fragile area, the plan suggested limiting building heights to one floor in an attempt to protect development from land slides and protect the environment. Such methods of environment protection are not really protecting the environment since development was allowed and required infrastructure services.</p> <p>Discouraging development on sites with slopes greater than 30% rather than restricting.</p> <p>The nature section concentrates on rock formation, slopes, and hydrology and flood control. It highlighted the effect of road construction on the roadside original vegetation coverage that has been replaced by weedy vegetation. It also indicated the effect of cutting and grazing that resulted in shrubs in prostrate status.</p> <p>Minimizing the role of the environment to aesthetic purposes and minimizing the development rights for security purposes are not necessarily environmental friendly and do not influence the biodiversity. (minimizing the artificial impact of all new existing structures)</p> <p>Many of the environmental concerns are directed towards visual scenery rather than</p>

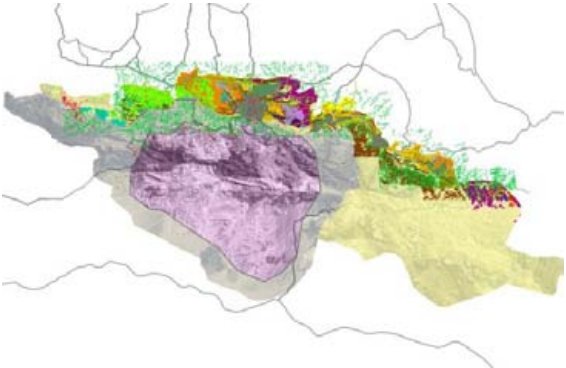
General Preliminary Description	Land use Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
		influence on biodiversity(disturbance from developments is measure by scale rather than type and activity. Infrastructure in sensitive areas is not considered a threat).
<p>Final Strategic Master Plan 2012, ATC consultants-2012</p> <p>Definition of a Strategic Master Plan as a guideline for the realization of the planning goals that were commonly agreed upon, it attempts to give equal opportunities to all sectors of society & all communities in the Petra Region. The Petra Strategic Plan's scope is the next 20 years with multiple provided scenarios, it deals with all aspects of life in the region and it included participatory approaches.</p> <ul style="list-style-type: none"> - Introduction of what makes a world class tourist destination; high quality services, appropriate prices, tasteful local souvenirs, tec. - A marketing vision of Petra in 20 years as a world class tourist destination. This includes introducing new activities such as an animal park, arts and crafts center, attractive shopping area and souq (this raises the question of how needed these activities are and how well integrated they will be with the local community, and their priority in the region). The plan emphasizes on how the Petra Plan aims at increasing numbers of visitors, increasing their time and money spent in the region. - A simplified action plan of the project indicates the following areas of intervention to be focused on: <ul style="list-style-type: none"> • Management and organization: mainly organization, marketing and involving local community, but most importantly: 	<ul style="list-style-type: none"> -From an environmental perspective the plan envisions residents living in harmony with nature, where resources are properly managed and water is harvested. - The plan also envisions Petra to be socially sound, with higher levels of education, where women and youth are encouraged and where there is even distribution of services and access to them. • Some of its main recommendation include: <ul style="list-style-type: none"> - Dedicate development land for residential use as population grows in line - Identify sites for future retail development, schools, medical facilities, parks and places of worship in order to stay ahead of population growth. - Investment and promotion. - Infrastructure; mainly an integrated traffic system for the Petra Region (for busses). - Economic Diversification. <p>Recommendations to PDTRA regarding PAP boundaries and buffer zone include:</p> <ul style="list-style-type: none"> - Extension of the PAP boundaries following natural land characteristics. These proposed boundaries do NOT include land in Baidha and Umm Sayhoun: nothing changes there. - A proposal to extend the PDTRA boundaries in order to include the natural sensitive Masoudha and Dana conservation areas. - Declaration of an extension zone to the Wadi 	<p>The most important element to be studied carefully is the expansion land for development for the next 20 years. The methods of proposed population growth rates, projected population for 20 years and calculation of available land stock and demand for residential and employment (retail, tourism ..etc) should be carefully calculated to be reflected in land uses taking into consideration the nature of the area and the influence of development land on biodiversity.</p> <p>A good cornerstone to measure demand versus planning vision and available land stock is the Big'a area in the northern part of Wadi Musa were the authority zoned 3.5 km² for residential development in 2008 and till this time only 10% of the services are provided and there is no pressure of development in the area (few scattered houses). The continuous provision of infrastructure services to follow the horizontal expansion of the area will affect the biodiversity immensely.</p> <p>The natural heritage component should include more detailed spatial analysis of eco-systems and not definitions of zones or wadis and should include a thorough assessment and classification of the biodiversity of the region and the influence of the proposed</p>

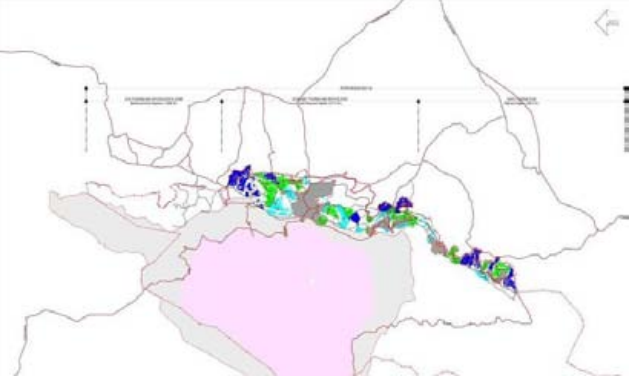
General Preliminary Description	Land use Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
<ul style="list-style-type: none"> • Planning detailed concepts for high in intensive tourism zones Wadi Musa and other areas in the region (shops, entertainment, restaurants, pedestrian area, etc.) • Redefine carrying capacity for PAP and Petra Region: Reducing negative impact on PAP, • Increasing the number of visitors and Length of stay in the region. • Define buffer zone to protect the site. • Regulations and land use: based on the comprehensive analysis of land sensitivity and growth efficiency. 	<p>Araba Road, which would then also include some extension of PAP OUTSIDE the present PDTRA area.</p>	<p>development for the coming 20 years on the various elements of nature.</p>
<p>Buffer zone land use for Petra, Dar Al Omran-2014</p> <p>-International Context and Guidance The context of Petra Archeological Park as a Listed World Heritage Site and the associated requirements and applicable charters and guidelines. This also looked at the archeological park component as an internationally renowned area containing a wealth of different archeological sites and monuments.</p> <p>-National Regulatory and Legal Context: Related to the he relevant national laws, by-laws, legislations, regulations and guidelines. This component is the main protection tool providing the national legal basis for the enforcement of the Buffer Zone. Additionally, it will serve as a - planning management tool after the zone is approved since it will largely determine the shape and manner with which the different activities and/or land uses will be managed and handled during the enforcement of the buffer zone.</p> <p>-Existing Situation and Planning Context :</p>	<p>Analysis and assessment of the existing condition were conducted primarily through a condensed site visit for all study area along the eastern side of the PAP which is considered the main area of concern due to existing development. Items covered in assessment included:</p> <ol style="list-style-type: none"> i. Land ownership patterns, ii. Existing Development iii. Topography in relation to urban context iv. Land forms v. Tribal Fronts vi. Urban Settlements and their Impact on the local area vii. Existing Land uses viii. Previous and Current Violations ix. Approved Land uses x. Percentage of plot areas per ownership patterns <p>ENVIRONMENTAL AND NATURAL CONTEXT: The project area was studied form an environmental point of view including the natural characteristics and resources, in order to develop a</p>	<p>Category 1: Zoned Areas with approved Land use such as Wadi Musa, Um Sayhoun and the scenic road</p> <p>Category 2: Un-zoned areas proposed as residential extension areas in the Petra Strategic Master Plan PSMP (under Scope 1 project)</p> <p>Category 3: Un-zoned areas not proposed as extension areas in the PSMP</p> <p>Environmental and Natural Context Environment in this analysis is limited to geology and geographic parameters i.e. topography and water quality and flooding prevention and Agriculture. The biodiversity with its various components and were not thoroughly analyzed compared to physical characteristics that were analyzed in this project and thus composed the base of decision making regarding the various types of land use. Situation analysis had descriptive</p>

General Preliminary Description	Land use Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
<p>Analysis of the existing physical situation of areas surrounding the PAP, the outputs of this analysis are foreseen as a diagnosis of the existing situation which shall be translated in the further phases of the project as either management or protection measures depending on the items.</p> <p>-Environmental and Natural Context :</p> <p>The environmental and natural setting of the study area with focus on any activities which may have positive or negative impacts. This thematic area is oriented mainly as a protection rather than management tool.</p> <p>-Transportation and Infrastructure:</p> <p>The existing transportation and infrastructure networks and utilities from a management point of view; these components to be analyzed in order to study the required management measures for each of them in light of defining the buffer zone rather than just a straight-forward assessment of the networks for purposed of urban development.</p> <p>-Social, Economic and Tourism Context:</p> <p>The underlying basis of the social and economic contexts of the study area along the Tourism component as it is the main income source/activity for those residents.</p> <p>-Preliminary Buffer Zone Definition and Urban Assessment</p> <p>-Conclusions and Pending Issues</p> <p>"Transforming the concept of development in land use plan from pure physical construction and development to controlled oriented Activities, within an overall compromised management planning framework to achieve the different required levels of protection while achieving also the required socio-economic development "</p>	<p>comprehensive assessment addressing all possible impacts and recommendations. Assessment included:</p> <ol style="list-style-type: none"> Regional Environmental Context Environmental Sensitivity Agricultural and Pastoral Components Solid waste Water and Wastewater WWTP Mining Flooding and Hydrology Natural Resources and Geology <p>main concern in the analysis was "Areas Affecting and Being Affected by PAP" through:</p> <ul style="list-style-type: none"> Existing Development Ownership Pattern Urban Settlements Main Roads Natural Features Violations and Infringements Views Toward and Outward pap Existing Problems and/or Challenges Main Socio-economic features Archeological Aspects Others <p>Guiding line of 200m distance from PAP boundary was indicated on the map.</p> <ul style="list-style-type: none"> This line was studied in conjunction with public ownership patterns in the area. Wherever public ownership defined a belt surrounding the PAP, even if it extends beyond the guiding line, this area was designated as Protected No Development zone. Special attention was paid to areas of high 	<p>paragraphs of biodiversity and fauna and flora with no special marking. (defined biodiversity elements were not reflected in the master plan decision)</p>  <p>More emphasize to environmental infrastructure, as water, waste water and solid waste in addition to tourism, agriculture and Mining.</p> <p>Three scenarios were mentioned yet were not explained and analyzed to understand the decision behind selecting the third scenario of buffer zone over the other alternatives.</p> <p>The boundary of the buffer zone was defined according to the situation analysis findings and report thus Biodiversity elements, zones and movements that were not marked were not part of the elements defining the boundary.</p>

General Preliminary Description	Land use Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
	<p>sensitivity in terms of protection either, as being areas fully integrated with PAP like Bare Rocks accumulations, or areas where development and visual pollution affect the site severely such as Um Sayhoun settlement. Classification of waterways to two categories according to their depths, width and length. This has been conducted based on visual inspection and also using the satellite image.</p> <p>Land uses:</p> <ul style="list-style-type: none"> - Recommended archaeological study area - Re-zoning - Archaeological site buffer - Agricultural and pastoral area - Eco-tourism - Protected areas - Restricted residential expansion - Steep slopes area - PAP management zone - Hisheh Forest - Viewing node - Waterway buffer - School - High density Shred Lethics 	<p>Elements studied in the buffer zone were: Regulations, water ways, slopes, bare rocks and public lands. Agricultural and pastoral zone one of the rings of protection within the buffer zone. Certain consideration should be taken in that regard as pasture is considered one of the threats to biodiversity in the region and certain agricultural activities can influence the nature not necessarily in positive ways i.e. provoking change of species or affecting them through pesticides ... etc. Waterways were not assessed based on their nature of water flow. Mix of land use, concept zones and functions thus affecting the land use understanding of the project.</p> 
<p>The Structural Land Plan for the Urban Expansion Areas in the Petra Region, Consolidated Consultants-2014</p> <ul style="list-style-type: none"> • Phase 1 Report: Assessment of the current situation / April 2013 	<ul style="list-style-type: none"> - Introduction: Scope of work, methodology, development and planning principles, results of the assessment phase. - Identifying the vision derived from the strategic plan for Petra: aims of strategic plan, vision statement, mission, future vision for the residential settlement. - Identifying the growth and expansion 	<p>A good cornerstone to measure demand versus planning vision and available land stock is the Big'a area in the northern part of Wadi Musa were the authority zoned 3.5 km2 for residential development in 2008 and till this time only 10% of the services are provided and there is no pressure of development in the area (few scattered</p>

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<ul style="list-style-type: none"> • Phase 2 Report: The Preparation of The Urban Growth Plans / March 5 2014 • Phase 3 Report: The Preparation of detailed plans for the traffic and transportation component / 12.8.2014 • Phase 4 Report: The Implementation Plan / 18.9.2014 - Introduction of the study: goals, scope of work, methodology of work, spatial challenges in the Petra region, Planning principles and standards, study area, future expansion areas, development expansion zone, analysis of future expansion areas, recommendation for future expansion in PDTRA - Population, housing and urban communities: The carrying capacity of the residential areas within the existing communities, vacant land and built up land - Economy and labor force: Active enterprise and investment, size of enterprise, work force. - Development corridors and centers: - Water and Wastewater network - Solid waste Management: organizational structure, municipal solid waste service distribution, MSWM SWOT analysis, special challenges to the MSWM system, proposed areas for improvement - Road network: intra communities roads, new road through Baida Town, Main road between Baidah and Umm Sayhoun, Main road through umm Sayhoun, main road between umm Sayhoun and wadi Musa, Main road through Wadi Musa, Main road between Wadi Musa and 	<p>strategy: general framework for developing the Petra region, northern part(eco-tourism and archaeological zone), central main part (economic, tourism and service zone), southern part (agro-tourism zone), suggested population for expansion areas, strategic alternative for the scenarios of urban development and expansion in Petra region (first scenario compact, second limited growth, third expansive growth), criteria for assessing strategic alternatives, evaluation of strategic alternatives.</p> <ul style="list-style-type: none"> - Identifying and categorizing growth expansion areas: Structural plan (land use: scope, objectives, road network for the Region), hierarchy of residential areas and service centers (residential neighbourhoods, residential districts, service centers (neighbourhood, district, region) - Preparing urban growth and expansion plans: policies and regulatory frameworks, urban areas and land uses, housing, employment, natural heritage system, agriculture, open spaces, social facilities, transportation and transit, development corridors and centers, infrastructure and public services - Results and recommendations. <p>“The results of evaluation showed that the first alternative (Compact development) is the most appropriate as a general policy for development and expansion in Petra region since it achieved 62 points out of 66. Although this alternative gained</p>	<p>houses) Based on the proper assessment and the land use expansion areas proposed in the in the structural Land plan can be phased for further than 2025 to ensure a balance between expansion, demand and cost of services and the need to upgrade existing services rather than building new ones in areas with minimal demand.</p> <p>The area of the expansions; excluding the areas of more than 30% slope and the buffer zones of major and minor wadis which penetrate the expansion areas, is 55196 donum</p> <p>proposed land uses within the urban development and expansion areas and the area of each:</p> <table border="1" data-bbox="1430 873 1959 1307"> <thead> <tr> <th colspan="3">Land use Area (Donum) Ratio (%)</th> </tr> </thead> <tbody> <tr> <td>High-density residential</td> <td>2506.04</td> <td>4.54%</td> </tr> <tr> <td>Medium-density residential</td> <td>10957.17</td> <td>19.85%</td> </tr> <tr> <td>Low-density residential</td> <td>14124.92</td> <td>25.59%</td> </tr> <tr> <td>Mixed use</td> <td>3987.51</td> <td>7.22%</td> </tr> <tr> <td>Services</td> <td>1367.56</td> <td>2.48%</td> </tr> <tr> <td>High-intensity tourism</td> <td>1773.89</td> <td>3.21%</td> </tr> <tr> <td>Eco-Tourism</td> <td>3855.85</td> <td>6.99%</td> </tr> <tr> <td>Agro-Tourism</td> <td>1548.57</td> <td>2.81%</td> </tr> <tr> <td>Archaeological</td> <td>247.71</td> <td>0.45%</td> </tr> <tr> <td>light-Industrial</td> <td>22.53</td> <td>0.04%</td> </tr> <tr> <td>parks and open spaces</td> <td>75.59</td> <td>0.14%</td> </tr> <tr> <td>Future expansion</td> <td>14729.11</td> <td>26.68%</td> </tr> <tr> <td>Total</td> <td>55196.45</td> <td></td> </tr> </tbody> </table> <p>Proposed land use for areas outside the urban</p>	Land use Area (Donum) Ratio (%)			High-density residential	2506.04	4.54%	Medium-density residential	10957.17	19.85%	Low-density residential	14124.92	25.59%	Mixed use	3987.51	7.22%	Services	1367.56	2.48%	High-intensity tourism	1773.89	3.21%	Eco-Tourism	3855.85	6.99%	Agro-Tourism	1548.57	2.81%	Archaeological	247.71	0.45%	light-Industrial	22.53	0.04%	parks and open spaces	75.59	0.14%	Future expansion	14729.11	26.68%	Total	55196.45	
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<p>Al taybeh, Main road through Taybeh, main road between Rajif and Dlagha, main road through Rajif, main road through Dlagha ... ETC</p> <ul style="list-style-type: none"> - Public Transportation and traffic: Traffic in Baidha community, traffic in umm Sayhoun community, Traffic in taybeh community, Traffic in Rajif community, traffic in Dlagha community. - Natural and cultural heritage: Natural heritage, flora, fauna, Special proposed protected areas to be taken into consideration, cultural heritage. - Open space system: Importance of open space system in PDTRA, open space planning standards, types of open space in Petra region, open spaces to be provided in Petra region. - Public Facilities: standards for public spaces, educational facilities, health centers and services, standards for health centers, summary of public facilities components - Results and recommendations 	<p>the highest ranking, implementing it is conditional with the acceptance of the authority (the client) and local community, and since the authority is seeking to put a comprehensive structural plan for the region so to identify in an early stage the land use and road network that connects expansion areas together, the third strategic alternative was selected based on the client's recommendations. Thus, the team will develop a phasing plan that suits the expected population growth for the different areas of the region in order to control informal expansion within the urban development and expansion areas outside the existing settlements."</p> <p>Land uses have been divided to the following major uses:</p> <ul style="list-style-type: none"> • Residential uses • Mixed uses • Tourism uses • Open spaces • Services • Light industrial uses <p>It should be noted that based on the studies that have been prepared in the early phases of the project in relation to population growth in the region, the area of urban expansion areas is greater than the actual need for expansion. Therefore, the consultant recommends linking the implementation plan to the actual need for expansion for two reasons: availability of investment opportunities; and providing for new residential areas.</p>	<p>development and expansion areas in Petra region and the area of each:</p> <table border="0"> <tr> <td>Land use Area</td> <td>(Donum)</td> </tr> <tr> <td>Wadis' buffer zone</td> <td>13302.82</td> </tr> <tr> <td>Forests</td> <td>18164.84</td> </tr> <tr> <td>above 30% slope areas</td> <td>35910.98</td> </tr> <tr> <td>The PAP</td> <td>261780.78</td> </tr> <tr> <td>The buffer zone</td> <td>119002.10</td> </tr> <tr> <td>Conservation areas</td> <td>272702.48</td> </tr> <tr> <td>Existing settlements</td> <td>18048.40</td> </tr> <tr> <td>Total</td> <td>738912.4</td> </tr> </table> <p>Springs and wells Major wadis Minor wadis Residential - High density Residential - Medium density Residential - Low density Mixed use Services Archaeological areas Eco-tourism Agro-tourism High intensity tourism Light industry Forests Gardens and open spaces Wadis' buffer zones Future expansions more than 30% slopes Existing settlements The Buffer Zone The PAP Conservation areas</p>	Land use Area	(Donum)	Wadis' buffer zone	13302.82	Forests	18164.84	above 30% slope areas	35910.98	The PAP	261780.78	The buffer zone	119002.10	Conservation areas	272702.48	Existing settlements	18048.40	Total	738912.4
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Wadi Rum:



The different studies and project conducted for the area:

- 1- Ecological Baseline Survey, Flora Baseline survey and baseline bird survey of Wadi Rum Protected Area RSCN-1999
- 2- Second Tourism Development Project, World Bank-1999
- 3- Wadi Rum Management Plan, RSCN- 2003-2007
- 4- Comprehensive land use plan for Aqaba, Dar Al Omran-2007
- 5- Studies and design for the preparation of detailed zoning plan for the tourism area in Aqaba, Sigma-2009
- 6- A Proposal for Inclusion in the World Heritage List(Rum), UNESCO-2010
- 7- Land use plans for 6 villages in Aqaba, Consolidated consultants-2011

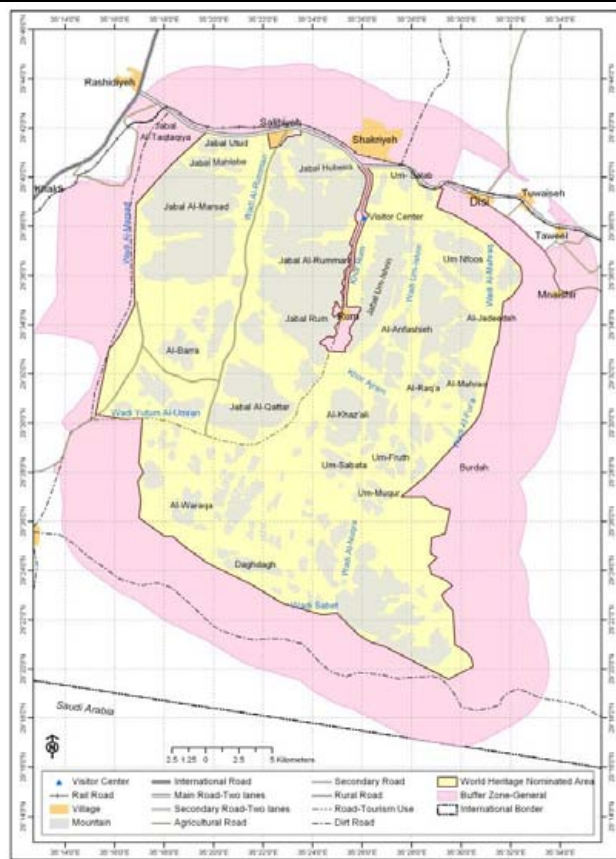
In reference to the timeline of studies and projects that were conducted for Petra, the main relevant are summarized:

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<p>Comprehensive land use plan for Aqaba, Dar Al Omran-2007</p> <p>Land use and infrastructure: water treatment plants, villages, tourism (entertainment and environmental), mining, transportation.</p> <p>Development scenarios: 1-Linear of three axis; entertainment tourism, residential tourism and agricultural tourism. 2-Growth poles; specialization of localities into: -tourism entertainment and transportation (Aqaba) -residential and services -Heritage tourism -Environmental tourism - Mining -desert, agriculture and ranges tourism -Quarrying</p>	<p>Concentrated on growth scenarios to: -Provide control and hierarchy of development, -Residential stability to fight migration, -Best utilization of water and natural resources, -Diversification of economic base/activities</p> <table border="1" data-bbox="814 529 1377 1401"> <thead> <tr> <th data-bbox="814 529 1171 594">Aqaba Land Use Type</th> <th data-bbox="1171 529 1377 594">Percentage Breakdown</th> </tr> </thead> <tbody> <tr><td>Private Land Ownership</td><td>0.50%</td></tr> <tr><td>Future Land for Agriculture</td><td>2.50%</td></tr> <tr><td>Unirrigated Farmland</td><td>4.00%</td></tr> <tr><td>Aqaba Protected Area Extension</td><td>0.90%</td></tr> <tr><td>Sports Tourism</td><td>5.80%</td></tr> <tr><td>Labour Neighborhood</td><td>0.60%</td></tr> <tr><td>Rum Protected Area</td><td>10.80%</td></tr> <tr><td>Industrial City</td><td>0.50%</td></tr> <tr><td>Pastures</td><td>4.60%</td></tr> <tr><td>Tourism Projects</td><td>0.00%</td></tr> <tr><td>Mining Areas</td><td>6.60%</td></tr> <tr><td>Areas not to be Developed during Study</td><td>22.80%</td></tr> <tr><td>Pastures and Sports Tourism</td><td>0.00%</td></tr> <tr><td>Tourism Investments</td><td>0.90%</td></tr> <tr><td>Old Hamima Area</td><td>0.50%</td></tr> <tr><td>Back Services to Aqaba Area</td><td>1.30%</td></tr> <tr><td>Storage Area</td><td>1.20%</td></tr> <tr><td>Agricultural Area</td><td>0.00%</td></tr> <tr><td>Environmental Tourism Area</td><td>7.00%</td></tr> <tr><td>Other</td><td>0.90%</td></tr> <tr><td>Tourism Project Area</td><td>3.20%</td></tr> <tr><td>Future Tourism Area</td><td>3.30%</td></tr> <tr><td>Wadi Araba</td><td>22.10%</td></tr> </tbody> </table>	Aqaba Land Use Type	Percentage Breakdown	Private Land Ownership	0.50%	Future Land for Agriculture	2.50%	Unirrigated Farmland	4.00%	Aqaba Protected Area Extension	0.90%	Sports Tourism	5.80%	Labour Neighborhood	0.60%	Rum Protected Area	10.80%	Industrial City	0.50%	Pastures	4.60%	Tourism Projects	0.00%	Mining Areas	6.60%	Areas not to be Developed during Study	22.80%	Pastures and Sports Tourism	0.00%	Tourism Investments	0.90%	Old Hamima Area	0.50%	Back Services to Aqaba Area	1.30%	Storage Area	1.20%	Agricultural Area	0.00%	Environmental Tourism Area	7.00%	Other	0.90%	Tourism Project Area	3.20%	Future Tourism Area	3.30%	Wadi Araba	22.10%	<p>-Agricultural report: description of the current conditions of agriculture, soils, vegetation and obstacles of developing this sector, with no clear connection how this reflects in terms of designated land uses, and policies or actions for agricultural sector development.</p> <p>-Demographic analysis and classification of settlements, growth rates were calculated on the district level then the different ratios of these districts were used as growth rather for the whole area in the form of different scenarios. This does not reflect the contexts of each area.</p> <p>-Social tribal dimension was not taken into consideration in the projection and activity designation for the various villages.</p> <p>-Mainly the areas were classified as primary, secondary and local urban centers. Activities suggested did not take into consideration the rural context of these communities and natural environment that contradicts with certain suggested development activities.</p> <p>-Environment report was descriptive of the different types of vegetation.</p> <p>-mix between descriptive and analytic matters. In general the master plan lacks clear translation of environmental ideas and concerns into the land use plan. Has no justified land designation that is not reflecting any demand and land availability for suggested activities.</p> <p>No policies, no actions and no guiding information for the different proposed land uses.</p>
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Environmental Tourism Area	7.00%																																																	
Other	0.90%																																																	
Tourism Project Area	3.20%																																																	
Future Tourism Area	3.30%																																																	
Wadi Araba	22.10%																																																	

General Preliminary Description	Land use Sector Related Issues and Impact on Biodiversity	General Discussion & Critique								
	<p>The land use plan includes regulations for all main activities taking place in the buffer zone, most importantly; urban development and organization; tourism investment licensing, monitoring and enforcement; agriculture expansion and development; land allocation and designation; municipal management and related services; and local social and economic development.</p>	<p>The primary plan guiding the management and development program of the Protected Area, which covers the whole Governorate of Aqaba to which Wadi Rum Protected Area belongs. The land use plan, and its associated legal acts and bylaws regulating the various development activities taking place around the Protected Area, forms the basis for the legal designation and regulation of the buffer zone proposed around the Protected Area.</p>								
<p>A Proposal for Inclusion in the World Heritage List(Rum), UNESCO-2010</p> <p>Statement of Outstanding Universal Value of Wadi Rum; discussing factors resulting in the unique formation of Wadi Rum. The property manifests outstanding universal values with respect to five separate, but fully complementary, World Heritage criteria. These can be summarized as:</p> <ul style="list-style-type: none"> - Exceptional testimony to a cultural tradition or civilization, - Outstanding example of human interaction with the environment, - Association with literary works of universal significance, - Significant natural beauty and aesthetic importance, and - Significant geomorphic features 	<p>Provides the following general maps:</p> <ul style="list-style-type: none"> - World Heritage Nominated Area – General Map, Topography (general map of Wadi Rum, indicating transportation and agglomerations) - World Heritage Nominated Area – Map with Buffer Zone <p>- Current Land Use and Exploitation of Natural Resources; indicating that presently, Wadi Rum Protected Area is mainly used for tourism and pastoralism. The report also shortly describes tourism, livestock grazing and management, settlements and villages with an elaboration on the Rum Village, firewood collection, water catchment systems, agriculture and mining.</p> <p>State of Conservation and Factors Affecting Management; Present State of Conservation, Factors affecting the Wadi Rum Protected Area</p> <p>-Development Pressures (e.g. encroachment, adaptation, agriculture, mining),</p>	<table border="1" data-bbox="1423 756 1948 1157"> <thead> <tr> <th data-bbox="1423 756 1682 821">Area</th> <th data-bbox="1682 756 1948 821">Size in hectares (ha)</th> </tr> </thead> <tbody> <tr> <td data-bbox="1423 821 1682 938">Total Area of the Wadi Rum Protected Area</td> <td data-bbox="1682 821 1948 938">74,200 ha (Seventy Four Thousand and Two Hundred Hectares)</td> </tr> <tr> <td data-bbox="1423 938 1682 1057">Total Area Nominated for World Heritage Status</td> <td data-bbox="1682 938 1948 1057">73,300 ha (Seventy Three Thousand and Three Hundred Hectares)</td> </tr> <tr> <td data-bbox="1423 1057 1682 1157">Total Area of Buffer Zone</td> <td data-bbox="1682 1057 1948 1157">60,000 ha (Sixty Thousand Hectares)</td> </tr> </tbody> </table> <p>Criteria: Outstanding example of human interaction of the environment, good examples can be derived from historic settlements to influence current practices. Also it is important to involve current residents of the area as they also have their own interaction with the environment in positive and negative.</p>	Area	Size in hectares (ha)	Total Area of the Wadi Rum Protected Area	74,200 ha (Seventy Four Thousand and Two Hundred Hectares)	Total Area Nominated for World Heritage Status	73,300 ha (Seventy Three Thousand and Three Hundred Hectares)	Total Area of Buffer Zone	60,000 ha (Sixty Thousand Hectares)
Area	Size in hectares (ha)									
Total Area of the Wadi Rum Protected Area	74,200 ha (Seventy Four Thousand and Two Hundred Hectares)									
Total Area Nominated for World Heritage Status	73,300 ha (Seventy Three Thousand and Three Hundred Hectares)									
Total Area of Buffer Zone	60,000 ha (Sixty Thousand Hectares)									

General Preliminary Description	Land use Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
	<p>-Environmental pressures (e.g. pollution, climate change, desertification)</p> <p>-Natural disasters and risk preparedness (earthquakes, floods, fires, etc.)</p> <p>-Visitor/Tourism pressures</p> <p>-Number of inhabitants within the Wadi Rum Protected Area and the buffer zone.</p> <p>Six main Bedouin tribes live inside or on the boundaries of the Wadi Rum Protected Area: the</p>	<p>Description of Landscape, land formation, hydrology</p> <p>Wadis: description of wadis shapes but no classification according to water flow or nature. Since these wadis can range up to hundreds of meters then if they are not well defined and classified they might be targeted for development and thus affect their environmental nature in addition to functional and historic nature.</p> <p>Historic human interaction with nature narrative but not tackling the land ownership formation in these communities altering their mood of interaction with the environment into a more exploitive one.</p> <p>The following factors have an effect on the nature and transformation of the livelihood of the local community:</p> <ul style="list-style-type: none"> - Local transformation towards urban settlement after services and infrastructure. - The long drought periods with minimal rain fall and associated low land productivity. <p>Development proposals and concepts if not integrated with the social and economic dimensions might back fire and create tribal envy or problems</p>

General Preliminary Description



Land use Sector Related Issues and Impact on Biodiversity

Zawayda in the area of Disi and adjacent villages; the Zalabya in and around Rum village; the Swelhiyyin in the villages of Salhiyya and Shakriyya; the ‘Umran, Dbour, and Qudhman who have settled or graze their livestock on the margins of the Protected Area.

The current distribution of Bedouin villages in and around the Protected Area is related to water sources. Until the 1970s the only year-round water sources were the springs along the eastern face of Jabal Rum and they stimulated the development of the current village at Rum

Rum village: To minimize the impact of the expansion of Rum Village on the Protected Area, the government of Jordan defined the village boundaries, restricting its area to 404 dunums (around 40 ha.). Construction is forbidden beyond these boundaries.

The current vision for the village is to basically develop it as a model rural village within the Protected Area and to develop it as an attraction in itself, capitalizing on the local cultural potentials and representations and utilizing the presence of several supporting destinations such as a local bed-and-breakfast, a village panorama (built around the fort), a village camp-site and guesthouse, the nearby archaeological sites of Abu Nkhaileh, the local handicrafts centres and several other associated activities.

The village is not included in the area nominated for the world heritage inscription. This is of vital importance as it aims at:

General Discussion & Critique

The area underwent major land use development and alterations. Buffer zone has been defined with 5km radius from the Protected Area boundaries and to include seven land use classifications

Some of the threats in encroachment, which is not within the protected site but on the fringes and its development will be affected by the infrastructure services, their location and nature that will encourage further development.

An important note from the document : **“The new management plan will address some critical issues related to recognition and understanding of the customary system of land tenure along with the assurance of synergy between the new ASEZA regulation and the previous rangeland law. This is important to ensure the long term stability and complementary implementation of all valid laws and systems within and around the Protected Area.”**

General Preliminary Description		Land use Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
Buffer Zone - Sub zones classification	Area (ha)	<ul style="list-style-type: none"> ▪ Ensuring that the village does not represent a compromising element as it was established as a relatively new village before the establishment of the protected area. ▪ Ensuring the strict control of the village boundary line and any possible legal or illegal expansion by excluding it from any delineation ambiguities. The village wall against the nominated area boundary line is precisely established upfront to avoid any future misinterpretation of the village development in regard to the nominated property. 	
Agricultural area – future development	4,670		
Tourism development area	7,545		
Non-irrigated agriculture area	7,702		
Tourism area – future development zone	13,353		
No development zone	10,786		
Rangeland zone	7,858		
Sport tourism zone	6,647		
Special Management zone	876		
Non accessible areas	615		
60,000 ha (rounded)			

General Preliminary Description	Land use Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
<p>Studies and design for the preparation of detailed zoning plan for the tourism area in Aqaba, Sigma-2009</p> <p>Study and design was based on the 2001 Aqaba comprehensive land use plan; its two main components are suggesting a detailed plan for the area coupled with a supportive framework of regulations. The project is based on the suggestion of touristic projects with defined carrying capacity and areas not less than 50 Dunums. Each Project is to be surrounded individually with a buffer zone with an area of 500-1000 dunum. Land lots are to be divided into pieces with areas between 50-100 dunum</p>	<p>A large part of the project and its activities is located within/ or adjacent to the buffer zone around Rum Reserve, these localities/ activities can be summoned into the following: و الطويسة ،الصالحية ،الشاكرية ،الديسة الطويل، محطة البنزين، مشروع النجوي، نادي الرياضات الجوية الملكية و مشروع سباقات الهجن</p> <p>3 studies are related to the project: Environmental study (includes socio-economic aspects), biodiversity study and the hydrological study. The Environmental study: Provides a general introduction to the legal framework and regulations related to environmental conservation within area. It also provides a general description of the socio-economic status quo within area including infrastructure and water resources). EIA resulted in declaring that there are no identified threats imposed on the area regarding proposed projects, but also advises that single field surveys should be conducted for each project on an individual bases.</p>	<p>The general framework for the regulation and design of the area includes an emphasis on the importance of buffer zones, general guidelines to be followed for the land use planning in the area, a list of proposed land uses. The framework also discusses the transportation system, urban density (advises a very low density), materials and colors to be used, service center and infrastructural services. The document provide two alternatives for the development of the area: Alternative 1 (Transportation system alternative) and Alternative 2 (environmental protection alternative). reports favors alternative1 Despite the emphasis on the importance of a buffer zone and the environment, the plan opted for development and tourism activities on the edge of the proposed buffer zone.</p>
<p>Land use plans for 6 villages in Aqaba, Consolidated consultants-2011</p>	<p>NOT AVAILBLE</p>	<p>NOT AVAILBLE</p>

The table below indicates some of the additional references that were reviewed in addition to the data and studies included in the inventory

Document	Content	Info Type	Hard Copy	Soft Copy	Format	Issuing Authority	Year	Additional Notes
Prespa Lakes Basin Strategic Action Programme	The Integrated Ecosystem Management in the Prespa Lakes Basin project is implemented by UNDP with financial support from the Global Environment Facility (GEF). Its overall objective of is to help the region's people with long term economic and social development, conserve the rich biodiversity and protect the waters of the Prespa Lakes Basin.	UNDP publication		√	PDF	UNDP and GEF 12/2012	2011	This is a valuable documents for determining the needed socioeconomic indicators for monitoring the mainstreaming of biodiversity in the project's areas.
SOCIOECONOMIC ROOT CAUSES OF BIODIVERSITY LOSS: AN ANALYTICAL APPROACH PAPER FOR CASE STUDIES	Although it is relatively old publication, this paper is providing an analytical approach for a series of case studies that explore the socioeconomic root causes of biodiversity loss.			√	PDF	Macroeconomics for Sustainable Development Program Office World Wide Fund for Nature	1997	
Mainstreaming Biodiversity into Sectoral and Cross-Sectoral Strategies, Plans and Programmes	This module provides an overview of mainstreaming and its importance for achieving National Biodiversity Strategy and Action Plan (NBSAP) goals.			√	PDF	Biodiversity Planning Support Programme (BPSP), UNEP, in collaboration with the CBD Secretariat.	2007	
Mainstreaming Marine Biodiversity Conservation into Coastal Zone Management Plan								

Document	Content	Info Type	Hard Copy	Soft Copy	Format	Issuing Authority	Year	Additional Notes
نظام صلاحيات سلطة منطقة العقبة الاقتصادية الخاصة في اقليم العقبة								
تعليمات عوائد اعادة التنظيم في منطقة العقبة الاقتصادية الخاصة								
Jarash; Ma`awa Project: Al Ghuslan Reserve Project								
Daher notes from Launching event	Epeeches by Yehia Khaled (RSCN), Nezar (MOTA), Tareq Abu AlHawa (UNDP)	Notes/ Jottings	√				2014	
Daher notes from interviews	Burma/ Jarash. Interview of Burma Mayor and staff in municipality	Notes/ Jottings	√				2014	
Petra Region Land Use Code		SIGMA Document					1998	
Survey/ Jarash Location and specific description of archaeological and heritage sites within the study area	From UNDP, Mr. Zobi							
Survey/ Wadi Rum & Petra Location and specific description of archaeological and heritage sites within the study area	From RSCN (Yehia Khaled & Ma`en Smadi)							
For all areas; future plans and management plans prepared for reserves (mainly Dibeen)								
Regulations and laws	Different regulations and laws of Jordan; Environment law, Natural Reserves and National Parks, protection of the environment, Environmental impact assessment, management of solid waste.							

Document	Content	Info Type	Hard Copy	Soft Copy	Format	Issuing Authority	Year	Additional Notes
Jarash/ Projects Ghusn AlZaitoun hotel and others	From UNDP, Mr. Zobi							
Wadi Rum Management Plan	Wadi Rum Management Plan submitted to the World Heritage Center							
General areas; Previous and future Siyaha USAID projects								
National Tourism Strategy	Last vesion							
General areas; Baseline surveys	Produced by RSCN in all 3 areas							
Social Cultural Impact of Tourism on the Local Community at Petra, Jordan	Prepared by Sami AL Hasanat	Study/Report					2008	
Jarash; Any development projects planned for, within or around the Golden River								
Jarash; First Priority Project	First Tourism Development Project 1997 by World Bank, Also the following second and third							
Carrying Capacity in the Petra Archaeological Park	Prepared by Zeina Mukles-Halasa Del Carmelo						2008	
Jarash; Projects within or affecting Jarash (Haraj) beyond Dibeen Reserve								
Petra; Baseline surveys and water and agricultural projects	Surveys within the range area and forest reserves and within main Wadis leading to Petra							
Aqaba ICZN Development Plan; Draft Report	Contains a short summary of the Gaensler Plan of 2001						2012	

3.1.4.5 Preliminary Evaluation of Current Positive Impacts of Land Use Development on Biodiversity

- f. Intensification approaches and land preservation ideologies. Compactness tends to preserve agricultural land and biodiversity through smart utilization of services and available land stock.
- g. Some trends tend to encourage urban agriculture or direct communities towards environmental friendly producing land encourage better utilization of land with minimal negative impacts.
- h. Master plans prepared by the ministry of municipal affairs defined new parameters that need to be taken into consideration while working on master plans and defined the detailed criteria and classifications associated to ensure natural heritage preservation and smart , efficient and integrated land use allocation.

3.1.4.6 Preliminary Evaluation of Current Negative Impacts of Land use Development on Biodiversity

municipal boundary expansions that are not assessed and properly calculated in terms of the community demand versus land stock, services, environment and the influence of land use change on biodiversity. As historical trends indicate that the result of municipal boundary expansion is additional zoning, thus consumption of fertile or environmentally important biodiversity zones.

3.1.5 Data Gap Analysis

3.1.5.1 Missing data/ information

Although the team conducted extensive data/ information collection throughout this phase. Yet there were some obstacles related to data availability, need for updating, the presence of capable teams to handle updating the data, availability of time for employees to update the information and administrative reasons that prevented sharing due to unclear reasons. In that regard, below is a sample of the missing data/information to be acquired during next phase in addition to the data defined within the survey format document submitted earlier:

- i. Aerial images coordinated in GIS format and covering Jerash governorate (MOMA), updates (ASEZA)
- j. Investment projects (tourism, industrial, Housing) updated layer (MOMA, PDTRA, ASEZA)
- k. Updated Structural plans for each Municipality in Jerash Governorate (MOMA), Petra (PDTRA) and the villages in ASEZA (ASEZA)
- l. Land Ownership (PDTRA, ASEZA)
- m. Training needs (PDTRA, Greater Jerash Municipality/MOMA)

- n. Villages land use in Aqaba 2011 (consolidated consultants) (ASEZA)
- o. Directorates staff and their capacity for specified directorates (PDTRA, ASEZA)
- p. All directorates that deal with Land use, zoning, licensing, environment, heritage, Environment and Human resources (Greater Jerash Municipality/MOMA)
- q. Institutional structure showing the different directorates and divisions (Greater Jerash Municipality/MOMA)
- r. Not all GIS layers are uniform for the three target areas, this means in effect that comparable maps across the three areas cannot be easily achieved.
- s. The legends of the lawyers that do exist are not fully explained, and may give rise to certain levels of misinterpretation.

3.1.5.2 Quality of data within existing studies and master plans

These GIS layers were assessed in terms of their accuracy against layers from different agencies, the data base embedded in them (type, classification, information value, comprehensiveness and clarity). Master Plan layers were assessed in correspondence to the accompanied reports (if provided) to measure the criteria and approach of **categorizing certain elements i.e the wadi’s layer from the currently under preparation land use plan in Petra was based on the data obtained from the Royal Jordanian geographic center “Major and minor wadis that penetrate expansion areas were categorized based on the updated Ariel photo for the region and the new wadis plan which have been collected from the Royal Geographic Centre.”** So no additional surveys or local **experts’ consultation to define the categories of these wadis was mentioned** combined with some issues with the Aerial image. In addition when the wadis layer was compared to other similar layers obtained from different authorities, differences, shortcomings and shifting were visible thus raise a question about the accuracy of data from all entities and entail a recommendation to investigate this in detail in the second phase. Below are some examples that display some of the data deficiency and shortcomings that are either related to data quality, coverage or embedded information value:

Table 8: Data Quality

Jerash		
	Natural heritage Layer	No Associated text explaining type and method of classification
	Tourism projects	They are within the investment category which includes various types of investments. The layer needs updating and there are no available free teams to update and classify this layer
	Project MXDs	They are necessary for understanding the different layers related to certain components , some of these MXDs are still being prepared and thus were not available
	Social aspect	There are no explanatory material/ report to explain the definition and different

		typologies and how they were calculated and reflected in the land use.
	Wadis	Minor shifting between MOMA and RSCN layer and in some areas RSCN layer is more detailed.
	Jerash_exp2	No explanation, it contains a new gold town in Jerash from Jabal Ajloun project that was never mentioned in meetings with Municipalities
	Jerash_exp1	Classified rural, but no intensification or expansion classification
	Ring 2, ring 3	No explanation
	Aerial images	MOMA 2014 Aerial images were in a different coordinate system from the data previously provided and thus could not check if coverage is for the whole governorate or just Dibeena area
	Land use	The layer contains the zoning categories for all Municipalities in Jerash Governorate, yet they are all combine in one layer and not classified according to Municipalities. No dates associated with this layer which makes the latest update not clear and thus requires updating.
PDTRA	GIS: Wadis layer	Some wadis around Wadi Mousa are not classified within their layer and have no associated information.
	Administrative boundary	Lines with no associated information The boundary had a different timeframe and the official Gazette to confirm the boundary and date (Gazette was not provided and layer had null data base)
	PRA Parcels	There is no definition of PRA, its time frame and difference of PDTRA. Layer had no valuable information other than the outlines and the people who created it or modified it. Ownership is not defined within this layer
	Owners	A Table format that is not linked to the GIS parcels and thus cannot be analyzed visually. The table in its current format has no added value for the project analysis purpose and not classified into private and public but in details that require personal judgment in defining public and private.
	Monuments	Qasr Al Bint for example has 2 different points; this touches the accuracy of the layer.
	-Concept_Town_District layer -PAP concept zoning/ private land parcel boundary -Development special planning -Development expansion -Conservation area	Each layer has just polygons defining drawn areas with no definition of the nature of these areas.
	Major drainage layer	Lines and no classification

	Hydro spread	Does not cover all Petra, it corresponds with some waterways that are not permanent and not the major drainage ways.
	Land sensitivity	Classified 1-5 with no further explanation of these values.
ASEZA	مشروع منطقة العقبة 1-4-2007 / القطاعات/البيئة/محددات	The layer is just polygons and classification fields are “null”
	التصورات الأولية / نوع الإستعمال	“null” and numbers that are not explained in addition to some uses.
	Wadis	-Different than the wadis layer provided by PDTRA for the whole kingdom on which their work is based. Also there are some discrepancies with RSCN data for wadis in the same area
	Aerial images	Aerial images provided were from 2011
	Land use / zoning	These structural plans were provided in AutoCAD format with no date and many of them contained no legends to clarify the designations. As for the land use within Dar Al Omran plan, it is dated back to 2007 and many of the land use layers for villages are either with one category or NULL. Where the data is just poly lines with no attributes.
	Gas line	Only within the boundaries of ASEZ
	Khalidi Phase 4 final	CAD and PDF maps for tables, land use, survey, roads and update. No reports or any type of explanation
	Consolidated consultants villages land use ASEZA	Only AutoCAD files that are not explained and report not submitted yet

The above mentioned are just samples to display the different discrepancies and insufficiency of some of the data provided, missing reports, explanations and classifications, (i.e. Jerash within Growth boundary, land use in Msheirfeh is unclassified, In Greater Jerash Municipality, Reimoon, Sakeb and many other localities there is zoned land outside Municipal boundary that require investigation and update ...ect)

In general it is recommended that a detailed investigation, update, classification and validation to be conducted in the next phase to ensure accuracy and validity.

3.1.5.3 Types of information required

The required information for the land use component which is integrated with the socio-economic and tourism, is defined and classifies in Annex 4

3.1.6 Brainstorming and Potential Future Approaches for Reducing the Impact of Sector on Biodiversity (Protocols and Action Plans)

3.1.6.1 An Introduction on Land use & Sustainability

“It is estimated that the human footprint has affected 83% of the global terrestrial land surface and has degraded about 60% of the ecosystems services in the past 50 years alone. Land use and land cover (LUCC) change has been the most visible indicator of the human footprint and the most important driver of loss of biodiversity and other forms of land degradation”. Sustainable Development in the 21st century (SD21)

Recent trends on global demand for food and bio-energy change – which are closely linked to food and energy price spikes and volatility – have raised concerns on the impact of Land Use and land Cover change on biodiversity and other environmental impacts. Additionally, Land Use and land Cover change could lead to natural resource degradation – which affect the poor the most since they heavily depend on natural resources. Such changes are driven by economic development, government policies and other socio-economic factors.

Models for predicting future LUCC change use theory to link changes with its biophysical and socio-economic drivers. Statistical approaches are then used to establish historical relationship between LUCC and its drivers. Three main types of models have evolved based on different disciplines:

- Geographic: focused on land allocation based on suitability of land use and the spatial location of ecosystems and population. Hence geographic models tend to better allocate land use to areas with minimal effect on the ecosystems.
- Economic: focus on the demand and supply of land-based goods and services. They more effectively reflect the effect of international trade and globalization on LUCC change. Additionally, economic models use scenarios to capture the influence of policies and other socio-economic factors on LUCC.
- Ecological: link land allocation to species abundance and extinction, ecological footprints and other environmental concerns.

Solutions to simultaneously achieve the food security, biodiversity and bio-energy objectives of maximizing human welfare require use of integrated models that fit well with the ecological interrelationships of different land uses and the integrated approach that characterizes sustainable development. Models, which integrate several disciplines, are better predictors of future LUCC than those which focus on only one discipline.

3.1.6.2 Demonstration Projects

MOMA conducted various master plans in different cities in Jordan between 2009 and 2011 and they are going through the legal process to be endorsed after extensive review. These master plans introduced new land use designations concentrating on the natural resources

and thus classifying them into core and overlay designations that are reflected in the land use plans and thus protected from development according to certain guidelines and policies.

The main goal of these master plans was to plan the cities in a smart and sustainable way without jeopardizing the natural assets and minimizing expansion costs on local authorities in providing hard and soft infrastructure services to their communities.

The Jerash master plan was conducted on the same principles and approach. Yet it was conducted in 2010 and requires updating. While it was conducted it had a very limited timeframe that affected the level of details studied and classified in the master plan. It is worth mentioning that MOMA has scheduled the update of this Master Plan in the coming three years including it in their budget.⁴

3.1.6.3 Policies Affecting Development Trends & Regulatory Frameworks

It is very important to understand the current development trends which are causing land use transformations in terms of behavior, laws and regulations and most important of implementation and enforcement, incentives and penalties.

The legal section 3.4 will tackle the legal and regulatory policies that are affecting or encouraging certain types of development in more details. The institutional section will assess procedures and logistics and application or reference of regulation that will affect these development trends.

As for the Land use the most important factor is the land use regulation number 6 of 2007 which categorize land according to its suitability for agriculture and production and defines the allowed uses thus allowing several exploitive activities within sensitive areas that require further classification and consideration.

As for Petra and ASEZA / Rum their endorsed land use plans are the road map for any development thus affecting the trends in these areas.

3.1.6.4 Consultation & Participation

The public consultation framework and action plan was built on the assessment of the studies, plans and information for the Land use, Tourism, Socio-economic, legal and institutional sectors. Also it was based on the survey format that was prepared for each sector indicating the different data format and collection methodology.

The experts required the following participatory formats to be conducted during the next phase of the project to serve certain purposes and fill gaps and missing information:

- Open forums,
- Focus group discussions,
- Advisory sessions,
- Workshops,

⁴ Source of Information MOMA focal point.

- Meetings,
Interviews and face to face discussions

The objectives of this sector community participation are:

- Measure community understanding of the value of biodiversity, development influence on nature, impact of land use expansion and changes, infrastructure and service provision for expanding development land on the environmental system and species other than aesthetic values of natural spaces.
- Define different methodologies and approaches to mitigate and prevent the current and future Tourism development and other kinds of development on natural resources in their broader definition other than adjacent areas.
- Define regulatory and institutional amendments in addition to capacity building in the integration of biodiversity and context in development proposals and decisions.
- Reach an understanding and common vision with the local communities, experts and authorities for the future of the areas in the project.

Matrix Regarding Action Plan for Community Consultation:

The following matrix/table 9 illustrate the details of the action plan for community consultation in terms of actions to be taken, stakeholder group, nature of the data to be collected, and time frames.

Table 9: Matrix/Table for Action Plan / Land use, legal and institutional Sector

Action	Target Audience/Stakeholders	Category	Nature of Data	Time frame
• Public Forums	Sample of the local community and the LAC members in each locality, and PDTRA, ASEZA, MOMA, Municipal officials	Project introduction and community vision	Community understanding of biodiversity, the effect of land use alterations on the environment, right based understanding. Vision for their localities and implementation methodologies.	start of the project and before the end
• Focus groups	Ministries, Municipalities, special authorities, organizations, associations, decision makers, funding/donor agencies and experts	Biodiversity and land use alterations and development within legal frameworks	Different forms of alterations of land use through right based approaches and the legal framework to implement these alterations.	2-3 times one day sessions
• Workshops	Teams of the Municipalities , PDTRA, ASEZA and Wadi Rum, MOMA	land use assessment, analysis and amendments	Making decisions regarding tourism developments, land use, legal framework and methodologies, and defining institutional capacities and needed interventions. The workshops are intended as capacity development for the local authorities' teams	Throughout the project for consultation and capacity development (once a month)

Action	Target Audience/Stakeholders	Category	Nature of Data	Time frame
<ul style="list-style-type: none"> • LAC local advisory committees' meetings 	<p>Jerash: RSCN, MOMA; Municipalities Petra: PDTRA, RSCN, Wadi Rum: ASEZA, Members of the committee will be representing the leaders, the locals, as well as officials from main agencies involved.</p>	<p>Provide advice and support and solutions for any technical aspects, and support the LPD, the LPO and others involved in project implementation.</p>	<p>Reach a consent regarding the approaches and methodologies used to reduce the influence of land use alterations, tourism development and law enforcement.</p>	<p>Throughout the project / At least 3 meetings</p>
<ul style="list-style-type: none"> • TAC Technical Advisory committee's meetings 	<p>Made up of representatives of all the implementing partners, stakeholders and beneficiaries as well as some individuals and organizations selected in recognition of their particular expertise of interest to the project</p>	<p>provide advice and support on any technical aspects,</p>	<p>Reach a consent regarding the approaches and methodologies used to reduce the influence of land use alterations, tourism development and law enforcement possibilities and modalities.</p>	<p>Throughout the project / will meet quarterly or as required and will be based centrally, however, it could meet on rotation at each of the principal localities of the project</p>
<ul style="list-style-type: none"> • Interviews 	<p>MOMA, MOTA, MOA, MOE, funding/donor agencies</p>	<p>Development trends</p>	<p>Gather further details regarding institutional capacity of the various authorities, training needs, interaction between different directorates and divisions within the local authorities and Ministries.</p>	<p>Throughout the project</p>

3.1.6.5 Monitoring & Sustainability Indicators

Land use can create diverse cultural landscapes of outstanding aesthetic, economic and ecological value, but it may equally result in land degradation, soil loss and impoverished ecosystems. Hence land use is shaped by processes of society–nature interaction. These processes can detract from sustainability—in other words, society–nature interaction may deplete the natural capital. Sustainability indicators aim at monitoring key aspects of society–nature interaction in order to generate information needed to document the current state and the history leading up to it. Moreover, they are useful to communicate complex sustainability problems within the scientific community, to policy-makers and the broad public.

There are different ranges of land factors for which changes could be observed, and from which indicators of change could be derived. Not everything that happens can or should be monitored. Land change indicators must be representative of or indicative of the factor considered important:

- Forest cover loss
- Field size
- Grazing intensity
- Landscape elements
- Land change patterns
- Water flows and flash floods
- Land covered by urban development
- Household numbers
- Re-use of land in urban uses for development
- Stock and reclamation of derelict land
- Road building
- Out-of-town retail floor space and vacant retail space in town centres
- Regular journeys by car and other modes of transport for shopping, commuting and the school run
- Investment in urban regeneration
- Green spaces in urban areas
- Wadis conservation

To measure changes, it is essential that the baseline conditions are established at the very outset for people's attitudes, for socio-economic conditions, and for biophysical conditions.

Indicators of sustainability are different from traditional indicators of economic, social, and environmental progress. Traditional indicators -- such as stockholder profits, asthma rates, and water quality -- measure changes in one part of a community as if they were entirely independent of the other parts. Sustainability indicators reflect the reality that the three different segments are very tightly interconnected, as shown in figure 5⁵:

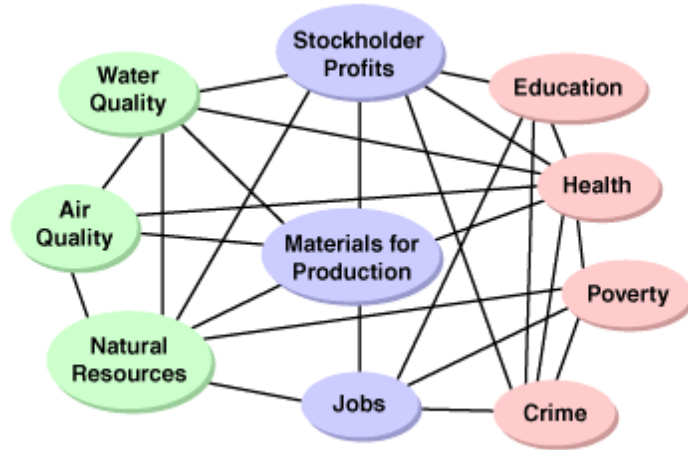


Figure 5: Sustainability indicators interconnectivity

⁵ <http://www.sustainablemeasures.com/node/89>



TOURISM

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3.2 Introducing the Tourism Sector and Links with Biodiversity

3.2.1 Sector Background

Tourism is becoming an increasingly global and complex phenomenon, with political, economic, social, cultural, environmental, and educational dimensions. Many tourism experts consider tourism to be the “largest of multi-national activities.” Others explain about the omnipresence of tourism, they added that tourism on a world scale makes itself felt at geographical, ecological, and technological – as well as in the less visible and symbolic processes. Some consider travel and tourism is the largest industry in the world, accounting for 11.7 per cent of world GDP, 8 per cent of world export earnings, and 8 per cent of employment. Indeed, the inhabitants of the world in the last two decades have met more other people than at any time in known history.

Environmentalism or eco-politics is a useful way of exploring the political globalization and global political re-ordering. Tourism adds another facet to this supposed global environmental politics and has become a focus for debates over the environmental impacts of tourism (especially on natural resources, on biodiversity, and on the lives of the host communities). New forms of environmentally-sensitive tourism (e.g., agro-tourism, eco-tourism, wildlife tourism, other) had emerged and are becoming popular within the tourism industry. Such new forms of tourism had become intimately associated with the environment and the debates over sustainability and on how to achieve less environmentally-harmful forms of tourism activities.

Biodiversity conservation is one of the objectives of such international concern about promoting environmentally-sensitive tourism activities. Another example of action-oriented programmers within the resource conservation steam is the commonly perceived global need to retain biodiversity. The Earth Summit (The United Nations conference on environment and development (UNCED) also known as the Rio Summit) of 1992 resulted in several documents; one of which was the Biodiversity Convention (also known as the Convention of Biological Diversity). The Convention has several objectives including conservation of biological diversity and to develop national strategies for the conservation and sustainable use of biological diversity.

The Rio Summit also facilitated mechanisms to achieve such goals. One of which was the creation of GEF (Global Environmental Facilities) which was set up in November of 1990 by the World Bank, the United Nations Development Programme (UNDP), and the United Nations Environment Programme (UNEP) to assist the so-called developing world in funding projects which either protect biodiversity against destructive development or promote development which does not destroy biodiversity.

3.2.2 Context

The main objective of the Project is mainstreaming biodiversity conservation into tourism sector development in Jordan. The Project is designed mainly to reduce threats to biodiversity from the current and future tourism developments and specially that this sector (tourism) is fast growing in Jordan. Reducing the impact of tourism on biodiversity will be channeled by means of land-use planning, capacity building, and other means. It is important to understand that this important heritage that this Project is dealing with is ecological & environmental, biological, and geological in nature. The following is a summary, in points of the detailed objectives and goals to be achieved:

1. Reduce the impact of tourism on biodiversity by means of land-use planning
2. Reduce the impact of tourism on biodiversity by means of local training and capacity building
3. Integration of eco and biodiversity tourism within the tourism industry by means of promoting positive and key demonstration projects.
4. Increase in sustainably managed landscapes that integrate biodiversity conservation.
5. Improve the sustainability of protected area systems
6. Integration of biodiversity in local and regional policies and regulations affecting tourism development trends and regulatory frameworks.

To achieve the objectives of the Project, action would be needed at 3 levels:

- At the national level: by influencing regulations and investment strategies.
- At the landscape level at the tourism zones: where physical development occurs and where there is a need to change the trajectory of that development to address direct and indirect threats on biodiversity.
- At the site level: in protected areas and sensitive corridors, where additional management intervention is needed to address the direct pressures on ecosystems from visitation and other adverse effects of development.

The project aim to make the consideration of biodiversity a fundamental part of everyday planning and development for tourism in Jordan. This objective will be achieved through three inter-related outcomes:

1. Regulatory and enforcement framework in place to avoid , reduce, mitigate, and offset adverse impacts of tourism on biodiversity.
2. Institutional capacities for planning, monitoring and enforcement strengthened in the Jerash, Petra, and Wadi Rum landscapes so as to manage the impacts of tourism development on biodiversity within ecologically valuable and sensitive areas.
3. Improved management effectiveness particularly in revenue generation, tourism planning and management, and community relations in the various areas of the Study.

Yet, an important added forth outcome to the Project would be the integration of eco and biodiversity tourism within the tourism industry. This could be achieved by promoting visionary tourism-related projects with positive impacts on the eco systems and on biodiversity.

The Project will be conducted during 2 main phases. The first and current phase is concerned with data collection; research, analysis, and presentation of data and information; gap analysis, preliminary assessment (validation) of the various studies, master plans, management plans, and other data; assessment of tourism development trends; and identification of the direct and indirect positive and negative impacts of tourism on biodiversity. This current phase ends with arriving at an action plan for the next phase of the Project.

3.2.3 Work Methodology

3.2.3.1 Methods of inquiry

The methods of research adopted during the first phase of the Project (current phase) were based on:

- Fieldwork research in the form of site visits to the various locations and areas of the Study (e.g., Jerash Municipalities, Wadi Rum, Petra, and Aqaba). Fieldwork also included interviews and meetings with various stakeholders within these areas. This was facilitated by one on one meetings and group meetings as well.
- Preliminary quick review of previous master plans, studies, management plans, and development projects within the various areas of the study.

It is important to mention that during the various site visits, meetings, and interviews a more ethnographic approach to research based on detailed note taking and participant observation was **adopted to arrive closer at the 'native' truth of such areas and communities.**

3.2.3.2 Field work

The site visits and interviews conducted by the tourism expert included the following locations:

- Jerash Municipality, Dibeen Reserve, Municipality of Borma, other locations within Jerash Municipality.
- Wadi Rum Nature Reserve, meeting with Wadi Rum Reserve staff and director
- Wadi Musa, Petra Archaeological Park, and also meeting with PTDRA staff and directors.
- Aqaba and meeting with Aqaba Special Economic Zone Authority's representatives and staff.
- Several meetings with the Royal Society for the Conservation of Nature (RSCN) staff **and directors including meetings with the Dibeen Nature Reserve's director.**

- Meetings with the director and staff of the USAID funded development Project “SIYAHA”

General Discussion based on Observations and Notes Elicited from Meetings and Interviews

The following is a general discussion based on main observations elicited from these meetings and Interviews:

1. Several, if not most, of the current or proposed tourism development projects are based on constructing “buildings” and “structures” in the form of visitor centers, craft centers, or convention centers. Very few projects take on or adopt different approaches to tourism development that could be activity-based and strategizing for promoting different types of tourism such as eco- and biodiversity tourism, agro-tourism, wildlife tourism, or academic tourism.
2. In several locations, there is a direct threat on biodiversity resulting from the nature of tourism development (e.g., neoliberal real-estate development in the form of high-end vacations homes and villas in sensitive areas such as in Dibeen Nature Reserve (e.g., the transformation of about 500 *donums* of *Haraj* (land owned by the Social Security Cooperation) to the private sector with major adverse impact on biodiversity). Furthermore, there is a lack of monitoring and supervision on such projects by the designated authorities once these projects commence.
3. One other significant observation is the rise of insensitive and un-regulated changes and transformations in newly created buffer zones as in the case of the buffer zone of the Wadi Rum Nature Reserve which was supposed to be a spatial regulatory layer for protection of the Reserve in the first place. Such changes occurred after the shift in management from RSCN to ASEZ.
4. There is an obvious urban encroachment on sensitive and important nature areas due to tourism development as in the case, for example, of the basin and banks of the Golden River in Jerash City. Furthermore, several urban areas are rapidly changing their character due to intensification and higher building densities, thus affecting significant nature areas as in the case of the olive and other orchards and Wadis within the Wadi Musa Area that is adjacent to the Petra Archeological Park.
5. In terms of capacity building at the level of municipal staff or staff of the various development areas, it has been observed that most proposed capacity building and local training programs within various departments, authorities, and municipalities focus on mostly technical courses and training modules (AutoCAD drafting, GIS, Microsoft Office, other). Very few training modules address significant theoretical issues related for example to issues of nature of tourism activity, sustainable tourism development, or cultural and natural heritage site management. One has actually to note that

there was an exception to this observation and that was the Staff of the Wadi Rum Nature Reserve.

6. In certain forest areas within Jerash Municipalities, a conflict has been noticed between forest areas and their value by nature and wildlife conservation-minded individuals and agencies (e.g., RSCN) on one hand; and the value of such land as agricultural land used for cultivation by most local communities and farmers in these areas on the other. How to create a balance between the two would be one of the future challenges of the next phase of this study.
7. There are several opportunities for proper solid waste management that could result in full or partial recycling projects in areas that produced larger amount of human waste (e.g., Dibeen Nature Reserve during weekends due to massive tourism of leisure and picnicking).
8. Urban sprawl, insensitive zoning, in proper septic tanks, and the unplanned spread of quarries and small industries (e.g., car-oil change shops, concrete block factories, other) with adverse effect on the nature resources (e.g., water resources and green cover) and biodiversity is observed in many smaller towns such as in the urban areas of the Jerash governorate.
9. It has been observed that expansion in municipal boundaries or expansion in new zoned areas with municipal boundaries in several locations is unfortunately leading to a depletion of heritage resources and also natural resources in the form of olive orchards within small towns or water channels to mention a few. This is evident in many small towns such as Borma and Wadi Musa but also in smaller human settlements as in Al Mansoura, Al Majdal, and in many other locations. Such expansions are also shifting landownership from Miri to private which is leading to the acceleration of such degradation.
10. Many local and small municipalities lack basic public works and civil engineers,. Let along specialists in cultural and natural heritage conservation or tourism.
11. It has been observed that a huge conflict emerges within municipalities where special development zones had been created (e.g., ASEZ in the Aqaba region) in terms of governance and logistics. This happens in small urban concentrations like in Rum, Tetin, Rahma, and Qatar where municipal structure was reduced to a small office. Yet, these towns belong still to the Ministry of Municipalities in terms of their administrative and financial matters and to ASEZ in terms of matters related to land use planning, environmental planning, permits for projects, and other investment related issues and matters. Furthermore, and in general (as observed from transformation in the City of Aqaba), **ASEZ's approach to development** is mainly market and investment driven, hence issues of education, public space & life, social equity, and other concerns that might have an indirect or direct impact on nature and heritage conservation and on biodiversity

becomes a second priority. One clear example is the current tourist developments within the buffer zone of Rum Nature Reserve (with around 40 new camps for tourists that were unplanned) and their negative impacts not only on biodiversity but also on the management of the Reserve itself. These concerns commenced after the transformation of the management of the Reserve from RSCN to ASEZ.

12. In general, and based on interviews and meetings conducted with the local teams of Wadi Rum, investment in agriculture within the Wadi Rum area is not encouraged as the Rum local community the Dissi waters for agriculture purposes within the area. This might have a direct impact on land use but also on the vegetation cover and hence on biodiversity in the future.
13. Land use and urban planning studies within the Petra Region (Petra Archaeological Park -PAP, East of Wadi Musa in Al Biqa'a area, other) are gradually leading to an exaggerated expansion in new zoned areas (e.g., approximately 3500 *donums*) with anticipated uncontrolled urban growth and adverse impact on biodiversity. The same applies also to on-going studies by Consolidated Consultants (CC) and the anticipated expansion in zoned areas that might reach up to 55196 *donoms* with the area at large.
14. In general, and in Dibeen Nature Reserve, which is managed by RSCN, it has been noticed that RSCN do not have any jurisdiction over privately-owned forests, therefore, they only try to influence and direct transformations in these lands towards a more environmentally-responsive approach by convictions and incentives.

3.2.3.3 Information collection

Tourism Related Studies, Master Plans, Management Plans, and Projects

Data collected during this phase of the Project included:

- Master Plans & Land-Use Plans
- Management Plans
- Development Plans & Projects
- Specific Projects and Studies

Published Resources

The Study and during this Phase of the project also worked on consulting key published resources on issues related to tourism development, alternative tourism, biodiversity conservation and several many other topics as well. A detailed list of the consulted material is found in the references; meanwhile, here is a list of the most relevant resources consulted:

- *Socio-cultural Impacts of Tourism on the Local Community at Petra, Jordan* / Sami Al Hasanat / August 2008
- *Carrying Capacity in the Petra Archeological Park* / 2008 / Zeina Mukles-Halasa del Carmelo
- *Jordan Tourism Development Project in the Petra Region (Field Report)* / USAID SIYAHA
- *Jordan Tourism Strategies* / USAID SIYAHA / multiple years.
- *Tourism & Sustainability: New tourism in the Third World* / Martin Nowforth and Ian Munt / Routledge, 1998 London.
- *Tourism: Principles, Practices, Philosophies* / Charles Goeldner, J. R. Brent Pitchie, Robert W. McIntosh. / John Wiley & Sons Inc., New York. 2000
- *Development of Wildlife Conservation in Jordan. A proposal for Wildlife Reserves in Jordan* / John e. Clarke / 1979
- *The National Web for Nature Reserves Conservation of Jordan's Natural Heritage* / Royal Society for the Conservation of Nature (RSCN) & Ministry of the Environment of Jordan / 2008
- *Tourism in the Middle East: Continuity, Change, and Transformations* / Rami Daher / 2007

The list of references at the end of this report provided a detail account of all the published resources consulted.

3.2.4 Presentation & Preliminary Assessment of Data, Studies, and Trends

This part of the Report contains a preliminary and very brief assessment of the various master plans, management plans and other studies that had been collected during this phase presented in a table format. The assessment presents first a brief description of the study; and then tourism sector related issues and impact on biodiversity are discussed; and finally a general critique of the study is presented.

3.2.4.1 Presentation & Assessment of Land-use Plans & Master Plans

The first list of assessments covers the most relevant land use plans and master plans.

Table 10: Table Presenting and Assessing of Land Use Plans and Master Plans

General Preliminary Description	The Tourism Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
<p>The Strategic Master Plan for Petra Region / <i>ATC Consultants GmbH</i> in Consultation with <i>Design Workshop and JCP s.r.l.</i> 2010-11</p> <p>The main goal of this planning project is to arrive at a 20-year period strategic master plan for the Petra region with a focus on the urban areas and key natural landscape and environmental areas associated with the UNESCO World Heritage Site and Petra Archeological Park. In addition, detailed plans for 6 communities (<i>Wadi Musa, Umm Sayhoun, Baidha, Taybeh, Rajif, Dlagha</i>) were accomplished.</p> <p>Also, the Project suggested (by presenting preliminary architectural concept designs) proposed investment projects for Petra.</p>	<p>The tourism sector was addressed in terms of source markets and spending, position of the Petra region in the tourism industry, visitor options and satisfaction, access of Petra Region from key markets, accommodation facilities, and tourism products currently offered and other tourism attractions, tourism products and services, and in general other natural and cultural heritage attractions.</p> <p>There is a brief section on the environment and biodiversity in terms of flora, fauna, and ecosystems integrity.</p> <p>The biodiversity section includes: Plants Species and plant families recorded in Petra Region since 2003 and other lists of as rare and or endangered species.</p> <p>In general, there is not sufficient analysis of the existing situations in terms of the natural heritage, biodiversity and the relationship between the natural and the cultural heritage of the area. Also, there is no suggested of new and alternative tourism endeavors and projects, and most suggested investment projects are mainly addressed from only investment perspectives and they</p>	<p>The Study did not really investigate thoroughly the impact on the ecosystem and on biodiversity as a result of the proposed plans of the 6 communities and also as a result of the Strategic Master Plan for the whole region.</p> <p>The proposed investment projects were poorly designed and presented: Some of the Projects (e.g, Wadi Musa Amphitheatre) would have major adverse effect on the Dara area within Wadi Musa and on the course of natural rainwater and vegetation in the valley. Other proposed projects (e.g., Taybeh Town Center Tourist Area, Little Petra & Neolithic Interpretation Center), and due to their <i>orientalist</i> approach to design, would have a negative impact on the authentic experience of the visitor and the whole tourism experience in the area.</p> <p>The development of land use plans for the 6 communities did not fully address the nature of the natural</p>

General Preliminary Description	The Tourism Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
	<p>mostly center on providing more structures and buildings to the area.</p>	<p>resources, and some of the proposed land uses (e.g., <i>Residential Expansion Area</i>) and in some of the plans would lead to major adverse effects on biodiversity. Furthermore, Some other proposed land uses (e.g., <i>Developable</i>) are not clear. In addition, the land uses of <i>Forest, Reserve, and Conservation</i>) are not sufficient in terms of the total area they cover when compared to the area of the natural resources that needs to be protected or conserved. Finally, the proposed buffer zones for the <i>Water Ways</i> are not sufficient in terms of the total area they cover in order to effectively protect the water ways.</p>
<p>Petra Archaeological Park Buffer Zone Plan / <i>Dar al Omran</i> 2013</p> <p>The main goal of this Project is to device a buffer zone for the Petra Archaeological Park (PAP). Phase I of the Project centered on data collection and situational analysis, while Phase II researched 3 scenarios regarding the buffer which involved different options regarding the boundary of PAP. The adopted scenario centered on keeping the current boundary of PAP as it is and including a buffer zone.</p>	<p>The overemphasis within the situation analysis is existing and ongoing developments, topography, violation and infringements. It lacks adequate concentration on understanding and mapping natural resources and flora and fauna of the area and surroundings. Discussion of tourism development is mostly very general and is restricted to carrying capacity (e.g., result of the master plan proposing 3500 rooms by 2030 on needed land for development (27 hectares of land). There is a need of a proper discussion of the impact of such transformations on biodiversity.</p>	<p>The adopted scenario goes against UNESCO's master plan of 1994 which recommends extending PAP to include other areas such as Beidha and Hisheh Forest. Besides, there is no proper comparative analysis to compare between the 3 presented scenarios and especially in terms of impact of tourism development on biodiversity. There is no links between socio-economic development and tourism development. The special regulations proposed for some land uses (e.g., protected areas) are positive in terms of not allowing sub divisions, no building</p>

General Preliminary Description	The Tourism Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
		development, no cutting of trees and so on. But they are not sufficient when proposed for other land uses such as <i>Eco tourism</i> (where sub divisions are allowed), <i>Agricultural and Pastoral</i> (where buildings are allowed up to 150 m2), and <i>Restricted Residential Expansion</i> (which could be considered an excuse to increase zoned areas).
<p>The Structural Plan for the Urban Expansion Areas in the PDTRA / <i>Consolidated Consultants (CC) 2013-14</i></p> <p>Phase I of the Project addressed assessment of current situation. Phase II of the Project is concerned with the preparation of the urban growth plans for the area while identifying the new expansion areas. Phase III of the Project addresses the preparation of the detailed plans for the traffic and transportation components. Phase IV of the Project is concerned with the implementation plan.</p>	<p>Phase I lacks a proper mapping of natural and cultural heritage within the area. And therefore, the discussion of their contribution to tourism development is not addressed as well.</p> <p>Phase II should have included a comprehensive study of the impact of the urban expansion on natural resources and biodiversity.</p>	<p>The anticipated urban expansion in the zoned areas might reach up to 55196 <i>donoms</i>. This would have a major impact on biodiversity.</p>
<p>Existing Structural Plans for Jerash Different Municipalities, PDTRA Petra Development Tourism Region Authority's different localities, and Aqaba Localities</p> <p>The different localities have their own structural plans defined by the different zoning categories, these structural plans define the detailed land use (zoning) associated with ordinances and guidelines defining the different types of development allowed within certain land uses, the setbacks and built up ratio and many other criteria.</p>	<p>Regarding Jerash different localities, mainly the structural plans and in terms of land uses, mainly residential and agricultural land uses are mentioned in addition to restricted areas, crafts and medium industry zones, rural residential with special regulations, forests, water springs and water paths. There is no mention of tourism or tourism development in terms of the land use within these structural plans.</p>	<p>There is no incorporation of tourism or tourism development areas of any kind in the structural plans of Jerash different localities. Therefore, there is no well-crafted criteria to accommodate such proposed tourism development activities or to control their effects on biodiversity.</p> <p>While the structural plan for Wadi Musa only do address tourism related</p>

General Preliminary Description	The Tourism Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
	<p>Regarding PDTRA’s different localities, their structural plans (and only in Wadi Musa) do mention in terms of their land use hotels zone, hotel and commercial uses, residential and tourist condo in addition there is the classification of protected zones as well.</p> <p>The land uses in other localities are limited to residential, commercial and social facilities uses with certain exception for Um Sayhoon. Yet, it is worth mentioning that in Wadi Musa, the <i>Dara</i> area had been designated as an “environmentally sensitive tourism-development” area, but this new information is not reflected in the City’s structural plans.</p> <p>Regarding Aqaba Localities; there are no land uses addressing natural heritage or tourism.</p>	<p>land uses, they mostly take the form of hotels and hotels and commercial uses; only selected areas are designated to accommodate environmentally-responsive tourism development. There are no specific criteria to govern or mitigate the impact of tourism development on biodiversity and natural resources.</p> <p>There should be a revision for the structural plans of Aqaba localities are they do not address land uses related to tourism development or even nature heritage.</p>

3.2.4.2 Presentation and Assessment of Management Plans

The second list of assessments covers the most relevant management plans.

Table 11: Table Presenting and Assessing of Management Plans

General Preliminary Description	The Tourism Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
<p>The US National Parks Service (NPS) “Master Plan for the Protection & Use of the Petra National Park / National Park Service (USA), 1968</p> <p>This plan was prepared as a management guide for the use, development, interpretation, protection and general administration of the Petra National Park. The NPS team recommended the establishment of a National Park, an independent park division and zoning. The Park was established in 1993 by a Council of Ministers decision and the zoning of some of the areas surrounding the Park took place in 1996.</p>	<p>The Plan also addressed other issues in the field of tourism development, archaeological protection and preservation, as well as social and administrative issues.</p> <p>At that time, issues of impact of tourism development on biodiversity were not even thought of with the exception of the rehabilitation of the ancient hydraulic system with positive impact on biodiversity. But even still, the main goal then was to protect visitors from flashfloods.</p>	<p>Many areas of containing significant natural heritage and also scenic value were left un-studied and un-protected in terms of identifying appropriate zoning and levels of protection.</p> <p>Most of the Projects proposed addressed roads, electricity, water, hotels, visitor center parking lots and other similar projects. There was no vision proposed for alternative tourism development that would address the other cultural and natural resources.</p>
<p>The UNESCO “Petra National Park Management Plan” / UNESCO, 1994</p> <p>This Plan based its recommendations and proposals on the major issues threatening the integrity of the Park from a combination of cultural, socio-economic, and environmental factors and presented recommendations and proposals to remedy these threats. The proposals were comprehensive and</p>	<p>The plan addressed impact of development on biodiversity.</p>	<p>One major critique is that the implementation of such a management plan would be faced with obstacles of application due to its high demand of professional staff and its non-applicability.</p>

General Preliminary Description	The Tourism Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
<p>covered zoning, archaeological conservation, and conservation of biodiversity, Park infrastructure and personnel, tourism, physical planning, sustainable rural development, mitigation measures, training and communication, research and monitoring, and the implementation of the Management Plan. The Plan stated that its implementation required government approval since it involves policy decisions. Although official government approval was not granted, the Plan has and continues to serve as a guiding document for all Petra National Trust projects and activities since then and a large number of the project proposals have been executed.</p>		
<p>The US National Parks Service “Petra Archaeological Park Operating Plan” / <i>National Park Service (USA), 2000</i></p> <p>This Operating Plan differs from its predecessors in that it constituted a major step towards the establishment of comprehensive management policies, detailed operating procedures and standards, a training plan, and the recommended position of the Petra Archaeological Park (PAP) within the purview of the Ministry of Tourism and Antiquities (MoTA).</p> <p>However, some very important prerequisites such as the financial and human resources, essential to making the Plan feasible were missing. Because of that it is clear that the practicability of the Plan depends on the government’s commitment to providing the necessary resources.</p> <p>Furthermore, the by-laws governing the Park have not been endorsed. The implementation of this plan lacked governmental funding. In addition the park management did not get the needed support and authority from the government to activate the plan.</p>	<p>Emphasis was mainly on policies concerning organizational structure and management context. The Plan; and specially its sections on assessment did not thoroughly address the assessment of natural heritage and resources. The assessment of the tourism context is limited.</p>	<p>Overemphasis on Park organizational structure, staffing and management operations. This made the plan difficult to execute.</p>

3.2.4.3 Presentation & Assessment of Development Plans & Prevailing Trends

The third list of assessments covers the most relevant Development Plans and Projects.

Table 12: Table Presenting and Assessing of Development Plans and Projects

General Preliminary Description	The Tourism Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
<p>Wadi Musa Tourist Zone: Urban Design & Landscaping / <i>TURATH: Architecture & Urban Design Consultants & Engicon, 2013 (on going)</i></p> <p>The Project thrives to rethink the urban design and landscaping of this very strategic location between downtown Wadi Musa and the entrance to the Petra Archaeological Park (PAP). The Study also focuses on the introduction of well-thought and comprehensive physical and non-physical levels of interventions.</p> <p>Physical interventions include public space design, cultural site interpretation, urban design & landscaping within the Study area, tourist trails, in addition to urban and tourist signage and urban furniture.</p> <p>Non-physical interventions include tourism-related infrastructure in the form of designing activities, print material, and programs.</p>	<p>Natural resources and tourism was addressed through the recognition and analysis of the public realm and tourism spaces and activities in addition to natural topography, historic cultural landscapes (cultural and natural), rainwater and geology, foliage and green cover.</p>	<p>The study made an extra effort to incorporate the natural resources within the urban areas (e.g., Wadi known as DARA with its natural rainwater water course and vegetation, olive orchards of Wadi Musa, rock formations). This will have a positive impact on both: the diversification of the tourism product (by exploring ago-tourism: which is tourism based on promoting certain agricultural activities for tourists such as picking the harvest or planting crops yourself as tourist) and also on biodiversity conservation of the natural areas within urban settlements.</p> <p>The approach to public space design is public space and heritage and nature conservation driven rather than edifice driven by building un-needed additional structures and buildings. The main contemporary approach to landscape urbanism is</p>

General Preliminary Description	The Tourism Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
		<p>based on seeking potentials within existing spaces within cities rather than “building” new structures. This will have also a positive impact on biodiversity conservation.</p> <p>It is important to add that the project identified various eco-and cultural tourism trails within its study area, and one of them takes place within the Wadi in the DARA area. This will add positively to the experience of tourists and locals and will lead to mainstreaming biodiversity conservation. It is the recommended to extend these trails beyond the study area along the Wadis starting from Ein Mousa and even beyond and end in the DARA area.</p>
<p>A Proposal for Inclusion of Wadi Rum on the World Heritage List / <i>USAID SIYAHA Program, RSCN, ASEZA, 2010</i></p> <p>This proposal attempts to prepare a nomination file and also a management plan to submit to the World Heritage Center for the purpose of including Wadi Rum in the World Heritage. The Project thrives to highlight the significance of Wadi Rum in terms of its natural heritage and intangible and cultural heritage values and potentials. The Project proposed not only the implementation of several protective measures but also the creation of a buffer zone around Wadi Rum Reserve.</p>	<p>Tourism context is addressed and proposals of regulating tourism activities through researching the impact of tourism development on natural resources is included and is a priority in this proposal.</p>	<p>Project has a positive impact on tourism development in terms of adopting environmentally-responsive tourism projects and hence would have a positive impact on biodiversity once and if its principles and vision are properly implemented.</p>

General Preliminary Description	The Tourism Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
<p>Second Tourism Development Project / The World Bank, 1997</p> <p>In 1997, the World Bank stepped in with a plan seeking to find ways to develop Petra, Kerak, Jerash, and Wadi Rum. The project focused primarily on infrastructure development, site management, and environmental protection. A study undertaken by the World Bank two years earlier revealed that the roads in Wadi Musa and Tayyibeh were in poor condition. Not only were repairs needed but streets needed to be widened.</p>	<p>The project highlighted the environmental threats to the Petra Sanctuary and archaeological sites and the surrounding areas due to urban encroachments and developments. The Project also addressed the threats facing Wadi Rum.</p> <p>Yet solutions centered on infrastructure provision, and not on way to conserve biodiversity and to re-think alternative tourism development. Some solutions addressed the provision of special regulations to environmentally-sensitive areas.</p> <p>The tourism component of the study is positive yet, it is general in its proposals.</p>	<p>Solutions centered on infrastructure provision, and not on way to conserve biodiversity and to re-think alternative tourism development.</p> <p>Within certain areas that had been granted special to protect the environment and accommodate, for example, environmentally-responsive tourism development (e.g., light tourism activities in the form of vernacular villages, single story, flat roofed, and other regulations proposed for the fragile Dara Area in Wadi Musa); It has been noticed that sometimes, these special regulations, and even when they intend to protect the environment, do not take into consideration the nature and physical qualities of the area under development (e.g., <i>wadi</i> embankment, rainwater catchment area, olive orchard, other).</p>
<p>Support and Develop Environmental Tourism in the Dibe'en Forest and Reserve / <i>Royal Society for the Conservation of Nature (RSCN)</i>, 2013</p> <p>This ongoing project centers on providing an alternative tourism area and on reserve ground for picnicking to lessen the pressures on the current picnicking area and to mitigate the impacts of tourism development on natural</p>	<p>Environmentally sensitive tourism development in the form of picnicking, and also biodiversity conservation are the priority of this project. Its negative impact on biodiversity would be minimized, and its positive impacts would be highlighted and promoted.</p>	<p>This ongoing project would definitely have a very positive impact on biodiversity conservation as it works to provide an alternative tourism area and on reserve ground for picnicking to lessen the pressures on the current picnicking area and to mitigate the impacts of tourism</p>

General Preliminary Description	The Tourism Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
<p>resources and on biodiversity. It is important to mention that the green cover in the new area proposed for tourism activity is the result of recent planting of trees; therefore, it is less important than the naturally grown Aleppo Pine areas of the reserve. The new picnic area would be provided with environmentally-sensitive picnic pods, parking for cars, and other services such as public utilities and kiosks.</p>		<p>development on natural resources and on biodiversity.</p>
<p>Aqaba Tourism Report (Aqaba Marketing Strategy 2011-2016 and Action Plan / <i>Aqaba Special Economic Zone Authority (ASEZA)</i>, A marketing study of how to promote Aqaba as a premiere international holiday and residential tourism destination. An analysis of market forces and potentials, a study of Aqaba branding and future potentials.</p>	<p>Heritage attractions and significant natural resources are discussed in terms of their potentials as tourism attractions to attract tourism business and real-estate development. There is no discussion of impact of such developments on biodiversity.</p>	<p>The nature of the proposed projects and investments are market-driven and depends on a neoliberal approach to tourism development promoting real-estate for high-income segments of society.</p>

3.2.4.4 Presentation & Assessment of Specific Projects

The fourth list of assessments covers the most relevant Specific Projects and Studies.

Table 13: Table Presenting and Assessing of Specific Projects and Studies

General Preliminary Description	The Tourism Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
<p>Rum Flora Survey Data / <i>Royal Society for the Conservation of Nature (RSCN)</i>, 1999</p> <p>The objectives of the Survey include: the Identification of the vegetation types and their distribution within the protected area; the Identification of as many species of plants as possible within the protected area in order to compile the first vascular plants checklist; the identification of the key species and key areas and thus allow prioritization of management actions; the preparation of a vegetation map for the protected area; the creation of the first collection of plants from the protected area, to be kept at the herbarium in the Wadi Rum Visitor Complex; an overview of ecological relationships, threats and trends; analysis of factors influencing the distribution and status of species and communities to provide conservation management guidelines.</p>	<p>Such studies and projects are crucially needed for the understanding of the details of biodiversity in a particular area. They would feed directly into investigating linking biodiversity with tourism potential and investing in alternative tourism developments.</p>	<p>Baseline survey data (similar to this one) are projects with a positive impact on biodiversity conservation as they lead to increasing and improving our knowledge of biodiversity information in a particular area which would lead to its better conservation in the future. Furthermore, they lead to better linking biodiversity with tourism-related developments.</p>
<p>Ecological Base Line Survey / <i>Royal Society for the Conservation of Nature (RSCN)</i>, 1999</p> <p>A comprehensive review of Wadi Rum; including vegetation, geology, biogeography, topography and culture. The objectives of the study include: establishment of the presence and distribution of the</p>	<p>Such studies and projects are crucially needed for the understanding of the details of biodiversity in a particular area. They would feed directly into investigating linking biodiversity with tourism potential and</p>	<p>Baseline survey data (similar to this one) are projects with a positive impact on biodiversity conservation as they lead to increasing and improving our knowledge of biodiversity information in a particular area which would lead to</p>

General Preliminary Description	The Tourism Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
<p>carnivores in the Wadi Rum Reserve; estimation of the population of these species; assessment of the ecological and conservation status (threats and trends) of these species; identification of key species and key areas and to provide the conservation and management guideline for these species; assessment of carnivore-human interactions including livestock predation and hunting pressure.</p>	<p>investing in alternative tourism developments.</p>	<p>its better conservation in the future. Furthermore, they lead to better linking biodiversity with tourism-related developments.</p>
<p>A Baseline Bird Survey of Wadi Rum Protected Area / <i>Royal Society for the Conservation of Nature (RSCN), 1999</i></p> <p>The report is based on a highly ecological basis, numbers of birds, kinds, distribution and migration, habitat diversity, habitat types, and breeding.</p> <p>The project had four objectives:</p> <ul style="list-style-type: none"> i) To determine the ornithological importance of the Wadi Rum Protected Area, and the status, distribution and, where possible, numbers of all species of birds using the site. This information to be used to identify key species and areas within the Protected Area, and to provide baseline information against which future changes in bird numbers and distribution (as the result of visitor and/or habitat management) can be assessed. ii) As part of (i) to assess the importance of the site as a flyway for migrating raptors in spring. iii) Based on the above, to present suggestions for future management and monitoring for inclusion in the Management Plan for the Protected Area. iv) To train Jordanian counterparts in bird identification and survey techniques to strengthen RSCN's capacity for carrying out future bird surveys at Wadi Rum and other sites in Jordan. 	<p>Such studies and projects are crucially needed for the understanding of the details of biodiversity in a particular area. They would feed directly into investigating linking biodiversity with tourism potential and investing in alternative tourism developments.</p>	<p>Baseline survey data (similar to this one) are projects with a positive impact on biodiversity conservation as they lead to increasing and improving our knowledge of biodiversity information in a particular area which would lead to its better conservation in the future. Furthermore, they lead to better linking biodiversity with tourism-related developments.</p>

3.2.4.5 Preliminary Evaluation of Current Positive & Negative Impacts of Sector Development on Biodiversity

In general, section 2.2.1. of this report (General discussion based on Observations and Notes Elicited from Meetings and Interviews), in addition to sections 3.1, 3.2, 3.3, and 3.4 (Presentation and Assessment of Land Use Plans and Master Plans; of Management Plans; of Development Plans and Projects; and of Specific Projects and Studies) represent a preliminary evaluation of current positive and negative impacts of tourism development on biodiversity in the 3 locations. Yet, the following is a brief summary of the most prevailing impacts and trends:

A. Several, if not most, of the current or proposed tourism development projects **are based on constructing “buildings” and “structures” in the form of visitor centers, craft centers, or convention centers.** Very few projects take on or adopt different approaches to tourism development that could be activity-based and strategizing for promoting different types of tourism such as eco- and biodiversity tourism, agro-tourism, wildlife tourism, or academic tourism.

B. Many previously developed and on-going master plans, present insufficient analysis of the natural heritage and its potentials in promoting alternative tourism development that would have less negative impact on biodiversity. Furthermore, many studies promote tourism projects that mainly center on adding more building and structures to the landscape.

C. Very few agencies in Jordan work and concentrate on notions of promoting environmentally-sensitive tourism development or on biodiversity conservation.

D. In several locations, there is a direct threat on biodiversity resulting from the nature of tourism development (e.g., neoliberal real-estate development in the form of high-end vacations homes and villas in sensitive areas such as in Dibeen Nature Reserve (e.g., the transformation of about 500 *donums* of *Haraj* (Land owned by the Social Security Corporation) to the private sector with major adverse impact on biodiversity). Furthermore, there is a lack of monitoring and supervision on such projects by the designated authorities once these projects commence.

E. One other significant observation is the rise of insensitive and un-regulated changes and transformations in newly created buffer zones as in the case of the buffer zone of the Wadi Rum Nature Reserve which was supposed to be a spatial regulatory layer for protection of the Reserve in the first place. Such changes occurred after the shift in management from RSCN to ASEZ.

F. There is an obvious urban encroachment on sensitive and important nature areas due to tourism development as in the case, for example, of the basin and banks of the Golden River in Jerash City. Furthermore, several urban areas are rapidly changing their character due to intensification and higher building densities, thus affecting significant nature areas as in the case of the olive and other orchards and Wadis within the Wadi Musa Area that is adjacent to the Petra Archeological Park.

G. It has been observed that expansion in municipal boundaries or expansion in new zoned areas with municipal boundaries in several locations is unfortunately leading to a depletion of heritage resources and also natural resources in the form of olive orchards within small towns or water channels to mention a few. This is evident in many small towns such as Borma and Wadi Musa but also in smaller human settlements as in Al Mansoura, Al Majdal, and in many other locations. Such expansions is also shifting landownership from Miri to private which is leading to the acceleration of such degradation.

H. It has been observed that a huge conflict emerges within municipalities where special development zones had been created (e.g., ASEZ in the Aqaba region) in terms of governance and logistics. This happens in small localities where municipal structure was reduced to a small office. Yet, these localities belong still to the Ministry of Municipalities in terms of their administrative and financial matters and to ASEZ in terms of matters related to land use planning, environmental planning, permits for projects, and other investment related issues and matters. Furthermore, and in general (as observed from **transformation in the City of Aqaba**), **ASEZ's approach to development is mainly market and investment driven**, hence issues of education, public space & life, social equity, and other concerns that might have an indirect or direct impact on nature and heritage conservation and on biodiversity becomes a second priority. One clear example is the current tourist developments outside the protected area of Rum Nature Reserve (with around unplanned 17 large camps for tourists which are monitored by the Ministry of Tourism) and their negative impacts not only on biodiversity but also on the management of the Reserve itself. These concerns commenced after RSCN was no longer involved in the management of the Reserve.

I. Land use and urban planning studies within the Petra Region (PAP, East of **Wadi Musa in Al Biqa'a area, other**) are **gradually leading to an exaggerated** expansion in new zoned areas (e.g., approximately 3500 *donums*) with anticipated uncontrolled urban growth and adverse impact on biodiversity. The same applies also to on-going studies by Consolidated Consultants (CC) and the anticipated expansion in zoned areas that might reach up to 55196 *donoms* with the area at large.

J. Several of the previous projects that focus on urban planning and design with a strong tourism component solely focus on urban design in the form of public space design and beautification without serious attention given to addressing nature and green corridors (e.g., *Wadis*, urban orchards, other) or water resources (e.g., *Wadis*, rainwater channels) in the area that could offer a strong potential in re-defining tourism development in terms of diversification of tourism product and experience and also in a way that would mainstream eco and biodiversity conservation in these areas.

3.2.5 Data Gap Analysis

3.2.5.1 Missing data/ information

The purpose of this report (Phase I of the Project) is to identify current and previous master plans, land use studies, management plans, development projects, and other studies on the 3 locations and evaluate them from the perspective of tourism sector and impact on biodiversity. Yet, and after this data collection, fieldwork, and assessment phase, several data gaps emerges. The gap analysis together with the preliminary assessment will help prepare a comprehensive action plan and capacity building program during the future phases of the Study. The most relevant of such data gaps had been identified in the following table 14.

Table 14: The most relevant data gaps

Area	Data Type	Data Description	Level of Importance (1-10)	Available at
Petra (PDTRA)	Management Plans	Conservation action plan/ Cultech USAID Summary of the Plan	10	PDTRA
Petra (PDTRA)	Management Plans	2008 Petra archaeological management plan	8	PDTRA
Petra (PDTRA)	Development Project	Khirbet al Nawafleh Project, Wadi Musa	9	PDTRA
Petra (PDTRA)	Development Project	Khirbet al Flaihat Project, Wadi Musa	9	PDTRA
Petra (PDTRA)	Development Project	Bani Atta Project, Wadi Musa	9	PDTRA
Petra (PDTRA)	Development Project	Al Hima Project (HIMA al Layathneh)	9	PDTRA
Petra (PDTRA)	Management Plans	Petra Archaeological Park Management Plan, UNESCO, 1994	7	(PDTRA), UNESCO office Amman
Petra (PDTRA)	Management Plans	Management Analysis and Recommendation for the Petra World Heritage Site, US/ICOMOS, 1996	7	(PDTRA)
Petra (PDTRA)	Management Plans	Petra Archaeological Park Operating Plan, (3 Vols. National Park Service,	8	(PDTRA)

Area	Data Type	Data Description	Level of Importance (1-10)	Available at
		2000		
Petra (PDTRA)	Management Plans	Jordan Second Tourism Project, Staff Appraisal Document, WB, 1997	6	(PDTRA)
Petra (PDTRA)	Management Plans	Jordan Second Tourism Project, Implementation Completion Report WB, 2005	8	(PDTRA)
Wadi Rum	Master Plans and Land Use	2003 zoning plan for Wadi Rum,	10	RSCN
General /All Areas	Management Plans	Future plans and management plans prepared for the Reserves by RSCN (mainly the one for Dibeen)	9	RSCN
Jerash	Key Projects	Ma'awa Project: Al Ghuslan Reserve Project	9	RSCN
Wadi Rum	Management Plan	Wadi Rum Management Plan submitted to the World Heritage Center	10	RSCN, SIYAHA USAID
General / All Areas	All Types	Previous and Future SIYAHA USAID Projects in Jerash, Petra, and Wadi Rum areas	10	SIYAHA USAID
General / All Areas	Strategies	National Tourism Strategy (last version)	10	SIYAHA USAID
General /All Areas	Baseline Surveys	Baseline Surveys prepared by RSCN in the 3 areas.	9	RSCN
Jerash	Master Plans and Urban Regeneration	Jerash First Priority Project (First Tourism Development Project) 1997/ WB, and following Second, and Third Projects by WB as well.	7-9	WB / MOTA / BITAR / Sigma / other
Jerash	Development Projects	Projects within or affecting Jerash "Haraj" beyond Dibeen Reserve	9	Ministry of Agriculture / Jerash Municipality

3.2.5.2 Tourism Survey Format Analysis

In addition to identifying data gap analysis, it is important to propose future tourism related surveys together with their format and objectives. Such proposed surveys, and together with the data gap analysis will contribute to the success of future stages of the Project in terms of defining an action plan or a capacity building program.

Rationale for the Proposed Surveys: Achieving the Objectives and Goals of the Study

The main objective of the Project is mainstreaming biodiversity conservation into tourism sector development in Jordan. The Project is designated mainly to reduce threats to biodiversity from the current and future tourism developments and specially that this sector (tourism) is fast growing in Jordan. Reducing the impact of tourism on biodiversity will be channeled by means of land-use planning, capacity building, and other means. The following is a summary, in points of the detailed objectives and goals to be achieved:

1. Reduce the impact of tourism on biodiversity by means of land-use planning
2. Reduce the impact of tourism on biodiversity by means of local training and capacity building
3. Integration of eco and biodiversity tourism within the tourism industry by means of promoting positive and key demonstration projects.
4. Increase in sustainably managed landscapes that integrate biodiversity conservation.
5. Improve the sustainability of protected area systems
6. Integration of biodiversity in local and regional policies and regulations affecting tourism development trends and regulatory frameworks

The surveys suggested here will focus on attempting to help achieve the desired objectives of the Project. Furthermore, and as much as possible, the surveys suggested will attempt not to overlap with studies and research that has been completed already but had not been attained yet by the research experts working on this project and will hopefully be attained in the future. This type of missing data will be addressed and highlighted in the gap analysis.

Key Observations from Data Analysis and Fieldwork with Impact on the Suggested Surveys

After conducting a preliminary review of the studies and research material collected; furthermore, after conducting site visits and stakeholder meetings in the 3 designated areas of Jerash, Petra, and Wadi Rum & Aqaba; the tourism expert identified certain trends and observations that might have an impact on the needed and suggested surveys.

A. Several, if not most, of the current or proposed tourism development projects are based on constructing “buildings” and “structures” in the form of visitor centers, craft centers, or convention centers. Very few projects take on or adopt different approaches to tourism development that could be activity-based and strategizing for promoting different types of tourism such as eco- and biodiversity tourism, agro-tourism, wildlife tourism, or academic tourism.

B. Furthermore, several of the previous projects that focus on urban planning and design with a strong tourism component solely focus on urban design in the form of public space design and beautification without serious attention given to

addressing nature and green corridors (e.g., *Wadis*, urban orchards, other) or water resources (e.g., *Wadis*, rainwater channels) in the area that could offer a strong potential in re-defining tourism development in terms of diversification of tourism product and experience and also in a way that would mainstream eco and biodiversity conservation in these areas.

C. The importance of linking natural heritage and cultural heritage data to potential tourism development in terms of future incorporation of different types of tourism projects with a strong sustainability, eco, or biodiversity focus.

D. The importance of linking natural heritage and cultural heritage data to previous, current, and proposed tourism development with adverse effects on biodiversity and the environment.

E. It has been observed that certain areas had been granted special regulations proposed by municipality or by master plans developers to protect the environment and accommodate, for example, environmentally-responsive tourism development. Sometimes, these special regulations, and even when they intend to protect the environment, do not take into consideration the nature and physical qualities of the area under development (e.g., wadi embankment, rainwater catchment area, olive orchard, other). Having mentioned this, it is worth mentioning that other master plans (e.g., Jerash Municipality Master Plan) represent a positive example of good practice dealing with the identification of no-growth; limited growth; or growth areas leading to a constructive impact on biodiversity conservation and designation of future protected natural areas in such places.

F. It has been observed that most proposed capacity building and local training programs within various departments, authorities, and municipalities focus on mostly technical courses and training modules (AutoCAD drafting, GIS, Microsoft Office, other). Very few training modules address significant theoretical issues related for example to issues of nature of tourism activity, sustainable tourism development, or cultural and natural heritage site management.

Of course, it is important to mention that the main objective is not to load the future stage of the study with un-needed surveys, but rather for the suggested surveys to be precise, addresses needs, and works to achieve desired objectives.

Table 15: Suggested needed Surveys for next phase - Tourism sector

Authority	Links to Objectives & Goals (1, 2, 3, 4, 5, 6) and to Observations from Fieldwork (a, b, c, d, e, f)	Level of Importance of the Survey (1-10)	Sector & Data Category	Classification & Details of Data	Method of Inquiry & Type of the Survey	Format of Survey
Jerash, Petra (PTDRA), Rum	3, 4, a, b, c, d	9	Sector: Tourism / Natural and Cultural Heritage Category: archeological and heritage, natural heritage sites	Surveys ⁶ Updating information available on locations of most significant archaeological, heritage, and natural heritage sites within the 3 study areas. Narrative and short description of these locations	Digitization based on available data from DOA And MOTA where these locations are identified on a map. Text and short description & photos about and from these locations	GIS Text, photographs
Jerash, Petra (PTDRA), Rum	3, 4, 7, d	9	Sector: Tourism Category: Proposed Tourism Projects	Identification of current and proposed tourism projects of different nature with positive or negative potential impacts on nature and biodiversity proposed either by government or donor agencies or by private investors. Purpose is to identify location and attributes of these various projects.	Semi-structured interviews with relevant stakeholders in the 3 locations. Semi-structured interviews with relevant experts working in the development and tourism sectors. Review of studies, master plans, management plans, and identification of future or proposed tourism projects.	Listing and brief projects synopsis

⁶ This survey overlaps with a suggested survey by the Land Use Expert. Coordination between the two is needed to avoid replication.

Authority	Links to Objectives & Goals (1, 2, 3, 4, 5, 6) and to Observations from Fieldwork (a, b, c, d, e, f)	Level of Importance of the Survey (1-10)	Sector & Data Category	Classification & Details of Data	Method of Inquiry & Type of the Survey	Format of Survey
Petra (PTDRA)	1, 3, 4, 5, c, d, e	7	Sector: Tourism Category: Natural Resources (including water and agricultural land)	Baseline Surveys within the Range areas and forest reserves and within the main <i>Wadis</i> leading to Petra addressing <i>wadis</i> water-bed courses, flora and fauna, and agricultural lands.	Physical survey ⁷ based on available data and fieldwork resulting in a baseline survey.	GIS
Jerash	1, 4, 5, c, e	7	Sector: Tourism Category: Natural Resources (including water and agricultural land)	Baseline Surveys within the Range areas and forest reserves and within the main <i>Wadis</i> along the Golden River basin/ <i>Wadi</i> addressing <i>wadis</i> water-bed courses, flora and fauna, and agricultural lands. In general, all data should be updated.	Physical survey ⁸ based on available data and fieldwork resulting in a baseline survey.	GIS
Jerash	1, 3, 6, b, c, e	8	Sector: Tourism Category: Development Projects	Survey of current and proposed development projects within the Range areas and forest	Semi-structured interviews with relevant stakeholders Physical	Listing and brief projects synopsis GIS

⁷ This survey overlaps with a suggested survey concerning the natural heritage by the Land Use Expert. Coordination between the two is needed to avoid replication.

⁸ This survey overlaps with a suggested survey concerning the natural heritage by the Land Use Expert. Coordination between the two is needed to avoid replication.

Authority	Links to Objectives & Goals (1, 2, 3, 4, 5, 6) and to Observations from Fieldwork (a, b, c, d, e, f)	Level of Importance of the Survey (1-10)	Sector & Data Category	Classification & Details of Data	Method of Inquiry & Type of the Survey	Format of Survey
				reserves and within the main <i>Wadis</i> along the Golden River basin/ <i>Wadi</i> addressing <i>wadis</i> water-bed courses, flora and fauna, and agricultural lands.	Survey of Projects on the ground (location, size, nature of project, impact)	Listing and brief projects synopsis
RUM	1, 4, 5, 6, a, b, d, e	9	Sector: Tourism Category: Development Projects (e.g., buildings, tourist camps, other)	Physical survey of the current transformations in buffer zone of the Wadi Rum nature reserve in terms of new buildings & infrastructure, tourist Bedouin camps, and proposed activities.	Semi-structured interviews with relevant stakeholders Physical Survey of physical transformation on the ground Review of studies, master plans, management plans, and identification of future or proposed tourism projects.	Listing and brief projects synopsis GIS Listing and brief projects synopsis
Jerash, Petra (PTDRA), Rum	2, 3, 4, 5, f	7	Sector: Tourism Category: local knowledge and practices	An ethnographic survey that would research, identify and highlight the local community's local knowledge and links with their natural resources	Semi-structured interviews with relevant stakeholders and members from the local communities in the 3 locations. Review of ethnographic	Report Format Listing and synopsis of studies

Authority	Links to Objectives & Goals (1, 2, 3, 4, 5, 6) and to Observations from Fieldwork (a, b, c, d, e, f)	Level of Importance of the Survey (1-10)	Sector & Data Category	Classification & Details of Data	Method of Inquiry & Type of the Survey	Format of Survey
				(e.g., plants, agricultural land, wildlife, other).	studies and other studies on intangible heritage.	
Jerash, Petra (PTDRA), Rum	2, 3, 5, c, f	7	Sector: Tourism Category: tourist profiles	A survey of tourist profiles in terms of their types and diverse interests (e.g., preferring alternative tourism (e.g., eco-biodiversity, wildlife, other). And also preferring different types of accommodations.	Semi-structured interviews with relevant stakeholders and tourists in the 3 locations. Semi-structured interviews with tour operators.	Listings and report on tourist profiles
Jerash, Petra (PTDRA), Rum	1, 3, 4, 6, a, b	8	Sector: Tourism Category: natural agriculture and nature conservation Projects	A survey of current or proposed projects dealing with natural agriculture (permaculture, other), water harvesting, and other projects.	Semi-structured interviews with relevant stakeholders in the 3 locations. Semi-structured interviews with relevant experts working in the development and tourism sectors.	Listing and brief projects synopsis
Jerash, Petra (PTDRA), Rum	1, 3, 6, e	8	Sector: Land use Category: special regulations changes proposed by municipality or	A survey of municipal decisions regarding areas with special regulations and of master plans that propose changes in land use to	Semi-structured interviews with relevant stakeholders in the 3 locations. Semi-structured interviews with relevant	Report: analysis of zoning and land use proposed changes.

Authority	Links to Objectives & Goals (1, 2, 3, 4, 5, 6) and to Observations from Fieldwork (a, b, c, d, e, f)	Level of Importance of the Survey (1-10)	Sector & Data Category	Classification & Details of Data	Method of Inquiry & Type of the Survey	Format of Survey
			by master plans developers.	protect the environment and accommodate , for example, environmentally-responsive tourism development. Main purpose of survey is to find out if these special regulations and changes, and even when they intend to protect the environment, do (or do not) take into consideration the nature and physical qualities of the area under development (e.g., <i>wadi</i> embankment, rainwater catchment area, olive orchard, other). Furthermore, the purpose of the Survey as well is to identify and explore the different incentives or disincentives applied when licensing a particular tourism project or development.	experts working in the development and tourism sectors. Review of studies, municipal ordinances, master plans, management plans.	

3.2.6 Brainstorming and Potential Future Approaches for Reducing the Impact of Land use on Biodiversity (Protocols and Action Plans)

3.2.6.1 An Introduction on Sector & Sustainability

In most third world countries of the world, uneven and unequal development prevails. Furthermore, issues of sustainability (e.g., social, environmental, cultural, and economic) in general and in tourism development in particular within these context is not a priority leading to the degradation of natural resources, biodiversity, and geological resources in such context.

Yet, the world is witnessing new forms of tourism that are more sustainable in nature than archaic mass tourism depending on simply sunny beaches and entertainment. Such forms include biodiversity tourism, agro-tourism, eco-tourism, academic tourism, anthro-tourism, heritage tourism, cottage tourism, environmentally friendly tourism, green tourism, nature tourism, ethnic tourism, trekking tourism, wildlife tourism, wilderness tourism, and other emerging forms of tourism as well. The key questions are: are these new forms of tourism sustainable and does sustainability relate to tourism at large.

Environmental and ecological sustainability is unfortunately the only way that sustainability is publicly perceived. It refers to ability to sustain natural and ecological resources into the future and to minimizing or mitigating the impacts of tourism development on nature and biodiversity. Social/cultural sustainability refers to the ability of a community, whether local or national, to absorb consequences of tourism development. It also refers to the ability of such communities to continue to function in social harmony despite the transformations brought in through tourism development. Economic sustainability refers to the level of economic gain from tourism and whether or not this gain is sufficient enough to cover the cost of tourism development, support local communities, and mitigate the negative impacts of tourism.

The remaining sections in the report attempt, and based on the fieldwork conducted and studied reviewed, to brainstorm regarding ideas concerned with future approaches for reducing the impact of tourism development n biodiversity. Eventually, this very brief and preliminary brainstorming would lead to protocols and action plans for the next stage of the Project.

3.2.6.2 Land-Use Planning

One key issue that can be inferred from the various observations listed above, is how land use planning could be directed and approached in a particular way to mitigate and lessen the negative effect of tourism development on biodiversity.

Unfortunately, it has been observed that this is not case in most master plans and land use plans addressing the 3 areas under study. So, future action plans has to research how can practices of land use planning change to become an active vehicle for such objectives and how can they relate more to addressing the impacts of tourism and tourism development.

3.2.6.3 Demonstration Projects

Another key issue to take on to the next phase of the project is the lack of demonstration projects that embrace new forms of alternative tourism that is sensitive to biodiversity conservation. Many development projects are conventional, and do not creatively engage in promoting another approach to development that might lead to increased sustainability and properly managed landscapes that integrate biodiversity conservation. Furthermore, several development projects noticed in the study area (e.g., Dibeen, Aqaba, Petra) are enforcing a neoliberal approach to development centering mainly on real-estate development within the tourism sector. It is crucial to promote demonstration projects that adopt best practices in cultural site management, business planning, heritage and biodiversity conservation, sustainable financing and social equity. One example to learn from is emerging public/private partnerships in the tourism and development world that attempt to adhere to a serious and strict environmental, social, and economic sustainability. It is crucial to identify and highlight such development project during future stages of this endeavor (e.g., preparation of the action plan). This issue is very important and especially because many tourism developments are currently orchestrated by large-scale developers and multi-national companies for whom biodiversity conservation is not a priority in most cases.

3.2.6.4 Local Training & Capacity Building

Several emphasis areas are lacking when it comes to local training and capacity building including emphasis areas concerning new approaches to tourism development, integration of biodiversity conservation in development, and many others to mention a few. Future training and capacity building programs should go beyond the conventional technical focus of training addressing solely computer applications (e.g. GIS, AutoCAD) or tackling only overly addressed topics of public participation. Rather it should be directed to the core needs of capacity buildings in such locations and should target as well the individuals who are in daily contacts with such sites.

3.2.6.5 Policies Affecting Development Trends & Regulatory Frameworks

One important question to be asked at this stage is how can current trends to tourism development be transformed and changed? Can such transformation be triggered by integrating biodiversity in local and regional policies and regulations? To answer such significant questions, it would be crucial to look at new forms of area protection in highly environmentally sensitive areas (e.g., varying categories of status of protected areas including national parks, wildlife reserves, biosphere reserves, country parks, biological reserves, areas of outstanding natural beauty, and sites of special scientific interest).

Another arena where regulations and policies can contribute to biodiversity conservation is to research cultural and natural site management approaches and attempt to integrate them in national policies and regulations. Jordan has a humble experience in that regards only in very few sites such as Wadi Rum and the Baptism Site.

3.2.6.6 Biodiversity Information Systems & Facilities and Interpretation Development

One potential area to address is how to share, distribute, and disseminate biodiversity information and information systems across different stakeholders and actors and agents in the tourism and other development sectors in the country. In addition, it is important to start investigating how to promote proper facilities development and also proper interpretation and presentation of sites, in relation to biodiversity, to the general public.

3.2.6.7 Monitoring & Sustainability Indicators

It is important to start adopting and implementing various monitoring and sustainable indicators concerning tourism development projects and their impact on biodiversity conservation and heritage & nature conservation. Such monitoring and sustainability indicators include resource use, waste, pollution, local population, access to basic human needs, access to facilities and to the decision-making process, and diversity of natural and cultural life.

This stage of the Project ends with developing a protocol and action plan regarding the tourism sector. The previous report on the tourism sector and biodiversity would form a solid base for the development of such a protocol and action plan.



SOCIO-ECONOMIC

3.3 Socio-economic component

3.3.1 Sector Background

The Socioeconomic section is part of an overall comprehensive report which focuses on the socioeconomics sector. The project aims at mainstreaming biodiversity conservation into tourism sector development in Jordan. This report will focus on communities within the Jerash, Petra and Wadi Rum areas. The project is designed specifically to reduce threats to biodiversity from the current and future development of this fast growing sector, in addition to reducing the impact of tourism on biodiversity in Jordan by means of land use planning, capacity building, and other means; the project has another dimension where it attempts to find potentials for the integration of eco and biodiversity tourism within the tourism industry in general. Some of the information in the sector background section is taken from the UNDP Project Document.

For the three target areas, tourism is a major economic staple. It is also one of the main pillars within the Jordanian economy, with the contribution of tourism to GDP in 2013 standing at 12.3% with a value-added to the economy of JD 1.5 billion. Employment has grown 15% since 2010 to reach 48.9 thousand employees in the sector in 2013. Tourism from the Gulf has been a category of additional growth within the sector. The ecotourism subsector accounts for 7% of the total visitor numbers up from 4% in 2004. However, as part of the overall strategy the need to reduce the negative footprint of large-scale tourism on biodiversity is evident. Responsible ecotourism in a well managed system could even benefit biodiversity further⁹.

Table 16: Tourism Statistics for Jordan

	2010	2011	2012	2013
Number of arrivals (million)	8.2	6.8	6.3	5.4
Gross tourism income/GDP (%)	13.6	11.9	13.1	12.3
Value added of tourism sector (JD million)	1,272.7	1,215.8	1,441.8	1,461.5
Growth rate at constant prices (%)	18.5	-12.5	13.6	-3.2
Outstanding credit facilities extended by licensed banks (JD million)	457.3	493.7	505.6	503.5
Number of hotels	487	490	496	512
Number of rooms (thousand)	24.0	24.4	24.7	26.4
Room occupancy ratio (%)	46.4	41.1	50.7	NA
Employees in hotels (thousands)	15.1	15.2	15.4	18.3
Employees in tourism sector (thousand)	41.9	41.9	43.9	48.2

Source: www.cbj.gov.jo

The project is designed to support the second strategic objective of the GEF biodiversity focal point for mainstreaming biodiversity conservation and sustainable use into

⁹ Central Bank of Jordan available statistics, in addition to the UNDP Project Document for Mainstreaming biodiversity conservation in tourism sector development in Jordan

production landscapes, seascapes, and sectors. The project will contribute to Outcome 2.1 which works to increase sustainably managed landscapes and seascapes that integrate biodiversity conservation, through the adoption of recognized environmental standards (both at the international and national level) that take into account the biodiversity considerations of the designated areas. The project also contributes to Outcome 2.2 which works to develop and adopt policies and regulations that regulate tourism activities and integrate biodiversity into the targeted zones and protected areas, as well as any significant areas between the two. The project will also seek to capitalize on responsible tourism development to secure long-term funding¹⁰.

Within this framework context, the socioeconomic chapter will look to achieve the following:

1. Gathering information: research and review of literature and regulations related to the socioeconomic aspects of biodiversity and tourism industry within the target areas to establish baseline
2. Building an Inventory of Studies: which will be the basis for Phase Two and the construct of a gap analysis
3. Identify Key Stakeholders: across institutional players and the local community
4. Defining Key Parameters required: Identify local economic stimuli, and determine the impact on the local economy.
5. Gap Analysis: identifying the gaps of socio-economic information in the following areas:
 - a. Socio-economic aspect of historic development, with concentration on tourism development.
 - b. Project localities in terms of bio-geographical and socio-economic characteristics
 - c. Tourism market and ecological economy impact studies in the targeted localities.
 - d. Defining the most pressing socio-economic issues related to environmental issues , tourism growth, efficient land-use, as well as other social and infrastructural challenges
 - e. Selection of project localities that exhibit a range of bio-geographical and socio-economic characteristics
 - f. The current share of employment of the local population in the tourism industry and its contribution to local economy
 - g. Socio-economic impact analysis review, to examine the back ground of existing urban planning initiatives
6. Explore various economic and financial options for incentives and disincentives to the tourism industry for protecting biodiversity

The valued components of study that will feed into this chapter are:

Table 17: Components and Issues

Valued Socio-Economic Component	Issues
Health and well-being	<ul style="list-style-type: none"> • Individual and population health • Community and cultural group cohesion • Family cohesion • Cultural maintenance

¹⁰ UNDP Project Document for Mainstreaming biodiversity conservation in tourism sector development in Jordan

Valued Socio-Economic Component	Issues
Sustainable wildlife harvesting, land access and use	<ul style="list-style-type: none"> • Traditional economy • Recreational economy and access to land • Value of alternative land-use
Protecting heritage and cultural resources	<ul style="list-style-type: none"> • The aesthetic, cultural, archaeological and/or spiritual value of places • Maintenance of traditions
Equitable business and employment opportunities	<ul style="list-style-type: none"> • Local, regional and territorial business competitiveness • Employment opportunities for local, regional and territorial residents • Training and career development for local, regional and territorial residents • Economic diversification
Population sustainability	<ul style="list-style-type: none"> • In- and out-migration effects • Change in social and cultural makeup of affected communities
Adequate services and infrastructure	<ul style="list-style-type: none"> • Pressures on social services such as health care, education, and justice • Housing pressures – affordability, availability and appropriateness • Traffic and road safety – pressures on physical infrastructure
Adequate sustainable income and lifestyle	<ul style="list-style-type: none"> • Amount of money in the community • Local and regional cost of living • Distribution of costs and benefits amongst population • Adverse lifestyle changes

Generically, across Jordan there are several direct threats from tourism activities affecting biodiversity as follows¹¹:

1. High numbers of visitors: Large numbers of visitors in the environmentally sensitive and protected areas disturbs natural ecology and habitat. Visitors' activities including trampling, trekking and climbing put pressure on biodiversity; and this sort of habitat degradation has already been seen in Petra (the most highly visited site) which has negatively impacted wildlife populations and contributed to low levels of avifauna.
2. Waste and discharges: Hotels and tourism facilities create significant amounts of waste that is often discharged into ecologically sensitive areas. This dumping has affected animal behaviors and forced the accumulation of toxic compounds into the ecosystem.
3. Extraction of groundwater: The heavy extraction of groundwater needed to sustain tourism activities has threatened the biodiversity of certain habitats.
4. Infrastructure development: The tourism industry requires the development of certain standards of infrastructure, especially in ecologically sensitive areas which means the decay of biodiversity and the loss of animal habitats. This

¹¹ UNDP Project Document for Mainstreaming biodiversity conservation in tourism sector development in Jordan

infrastructure often destroys connectivity between different habitat blocks and does not keep in mind free passage corridors between habitats or for cumulative effects of projects.

There are also several indirect threats from tourism on biodiversity which include:

1. Local population: local populations often use natural resources from habitats and ecosystems in sensitive areas that support their local economies. Certain growth in agriculture activities, as a supply-chain consequence for expanded tourism, may lead to overgrazing, low levels of vegetation and wood-cutting.
2. Through passage-ways: the infrastructure created for tourists that provides access to and through environmentally sensitive areas also increases access for local populations, and so increases pressure on these areas increasing traffic, and having other effects such as an increase in poaching.

The solution within the project is to address the identified threats and alter the course of the current tourism sector development by "mainstreaming" biodiversity; this chapter will give this goal a socioeconomic context.

3.3.2 Context

The context for each project depends highly on the information that was available, in the absence of a detailed local community visitation program. The project focuses its initiatives in three target areas:

3.3.2.1 Jerash

The Jerash Governorate is in the north-west of Jordan with a total area that is quite geographically limited compared to the total area of Jordan. The Governorate has five major municipalities:

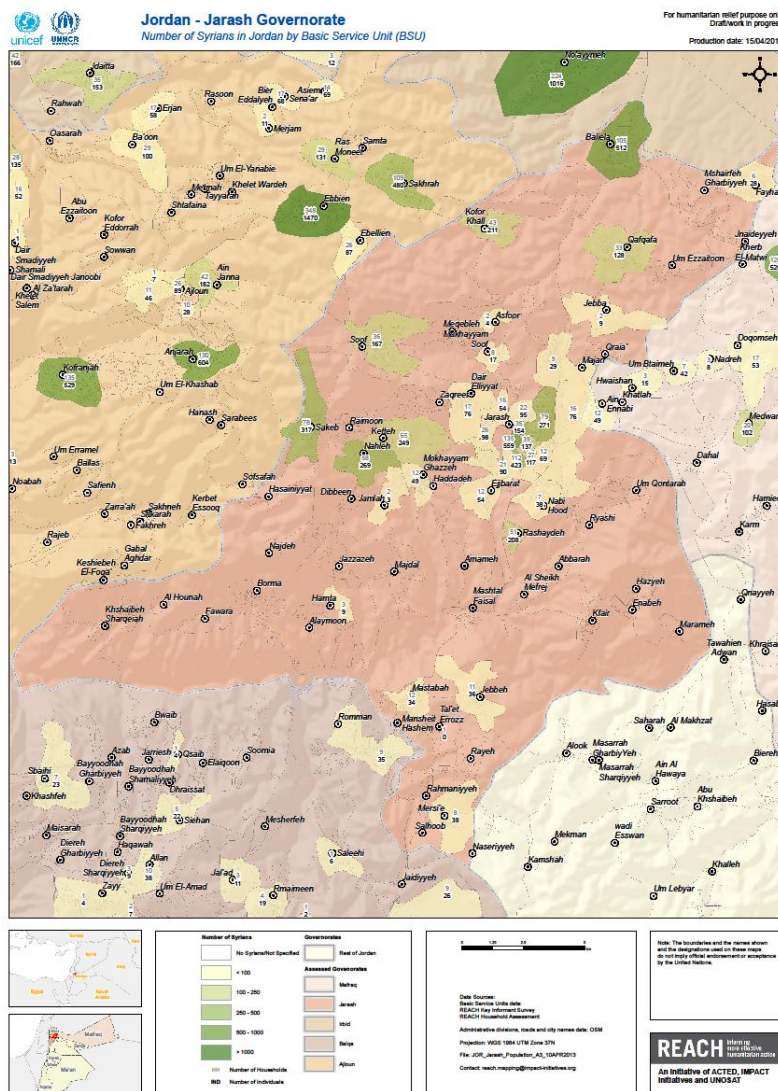
Table 18: Names of Municipalities and Localities

Name of Locality	
Jerash Municipality	Jerash City
	Souf
	Al-Kefir
Me'raad Municipality	Rimon
	Nahleh
	Kitteh
	Sakeb
Bab Amman	Marsa
	Mestaba
	Jebbah

Al Naseem Municipality	Qafqafa
	Al Rabwa
	Kofor Khal
	Belila
Burma Municipality	Burma

In the latest figures available from the start of 2013, the Department of Statistics estimated that the Jerash municipality had a population of 191,700, at 3% of the total population in Jordan. This was split up into 93,100 females (48%) and 98,600 males (51%). The population is distributed in 52 settlements and agglomerations, resulting in a population density of 467.8 persons/km². This is the second highest population density in Jordan after Irbid Governorate. About 37% of the population live in settlements of less than 5,000 people. Jerash City is the main center of the Governorate with a population of 37,000 inhabitants. There are 30,252 households in the Governorate with the average household members being 5.9 persons. Projections will be available for the final report where completed by the Ministry of Municipal Affairs. There are currently 11,095 registered Syrian refugees in the Jerash governorates according to UNHCR.

Figure 6: Map of Syrian Refugees within Jerash from UNHCR



Within the governorates 20.3% of the population is considered to be below the absolute poverty line. 19% of the households within the governorates (5,757) are considered vulnerable, immediately above the poverty line. Jerash has the lowest Gini Coefficient across Jordan at 0.254 compared to the Jordanian average of 0.376. This means that it is one of the governorates where income is more equally distributed.

The unemployment rate in Jerash is 12.3%, with the female rate at 22.3% substantially above the male rate at 10.4%. The activity rate within Jerash is 35.1%, well below the Jordanian average of 37.1% and the second lowest across the Kingdom. Within this economic activity rate, males have a figure of 57.6% and females of 11.5%. The average household income in Jerash according to the 2010 Housing Income and Expenditure report from the Department of Statistics indicates it to be JD 7946 per annum of which JD 3568 is income from employment.

Threats to Biodiversity from Economic Activities¹²:

- *Agriculture:* The area of arable lands in the governorate amounts to 9,840 ha:

Table 19: Breakdown of agricultural land

Type of Landuse	Area of Land (ha)
Field crops	2,370
Fruit trees	6,770
Vegetables	700

The livestock population is 40,450 of which:

Table 20: Breakdown of agricultural land

Type of livestock	Number
Cows	1,650
Lambs	5,360
Goats	33,440

The percentage of agricultural workers amounts to 3.2% out of the total workforce in the governorate. The sector suffers from a significant number of challenges including high levels of competition, high production costs and the fragmentation of agricultural holdings.

The 2006 Land Use Plan for the Jerash governorate has given the agricultural sector top priority. However biodiversity considerations were not included in the plan. These must be included if the sector is to be sustainable within the

¹² Some of the economic activities have been taken directly from UNDP Project Document for Mainstreaming biodiversity conservation in tourism sector development in Jordan, others have been developed based on field interviews and their input

governorate without significant damage to catchments and forested areas. The sector's zoning must therefore be done carefully with consideration given to forest lands, farming practices and natural pastures. The Agricultural Directorate in Jerash seeks to ensure agricultural production is inline with the environment and natural resources also meeting national food security. The Department of Forestry within the Directorate protects forests against abuse.

- *Industry:* There is some indication of manufacturing in light industries especially in the Burma district that may need future mitigation measures. Olive factories and olive presses and block factories are also a problem in the Jerash municipalities and governorate. Regulations governing olive presses are to be found from the Ministry of Municipalities, Environment, Water and Irrigation, Health and Agriculture amongst others.
- *Tourism:* Historical Jerash is the second most important tourist destination in Jordan considering the number of visitors. Jerash is considered one of the most important tourist destinations within Jordan. Several of the major tourism sites in Jerash include:
 - Archaeological sites
 - Jerash visitors' center
 - Dibeen National Park
 - Al-Biretein (Two Ponds)
 - The Eastern Baths
 - Picnic Locations
 - King Talal Dam
 - Al-Pasha Palace in Suf

The Dibeen Forest Reserve which is situated within the Dibeen Forest is the one protected area within the Jerash governorate borders. It was established in 2004 with an area of 849 hectares managed by the Royal Society for the Conservation of Nature.

The Al-Kafeer region is a hilly area about 12km to the south east of Jerash City. It includes Islamic archaeological sites such as old cemeteries, the Qaisyah area –to the west of Al-Kafeer – with its caves and old water springs surrounding the village. The Al-Kafeer area is 2,500 dunums with a total population of 14,661¹³.

The Suf Region within Jerash is surrounded by hills and dense forests. It has a water spring which is a major tributary from the Al-Thahab River in addition to the Al-Fawwar water spring and the Ain Al-Maghasel water spring. The region used to be known as "Dune" in ancient times until the Romans called it "Deir Yusuf". It includes an old Omari mosque, an ancient church tower, Ali Pasha Al-Kayed Palace and "Ain al-Maghsal" water spring. Its total area is about 45,672 dunums with a population of about 17,000

The total number of tourists to the governorate in 2011 was 241,900 people of which 179,700 were foreigners with 62,200 Jordanian) although this was a

¹³ Information in paragraphs below from <http://ppru.net/wp-content/uploads/1-Jerash-PSDL.pdf>

significant drop since 2010 when the total number of visitors was 412,649 people (354,508 foreigners and 58,141 Jordanians). The magnitude of these statistics indicates that this sector is amongst the most competitive in the governorate. The governorate itself has a depth of richness in natural scenery, aesthetics and forests which makes it an attractive destination for local and foreign visitors.

The proximity of the Jerash governorate to heavily populated cities such as Amman, Zarqa, and Irbid has made it an easy and accessible trip. Trips peak over the summer and on the weekend. The Dibeen Protected Area sees around 80,000 visitors annually. Even though the Protected Area makes up only 850 hectares, visitors tend to congregate due to the major road that crosses through it. The trips that are seen to the area include family-based trips, recreational, picnic, attracted by its low cost. However, according to an RSCN report in 2010, some days the number of visitors reaches 8,000 whereas the protected area holds a capacity of 700.

Despite the high number of visitors to the governorate, the impact of tourism on local development is still relatively limited. The governorate has only two hotels, 11 restaurants and cafes, and 27 souvenir shops. Tourism sector jobs make up only 2% of the total governorate workforce. Most tourists are not overnight visitors. The classified hotels have 120 beds, and a total of 19 employees. The unclassified hotels have a total of 15 beds and 2 employees.

The demand for tourism has been increasing, and there has been a renewed focus on nature-based and family tourism. The effects on agricultural and forest lands, as well as new buildings especially on private land neighboring biodiversity regions could potentially be very adverse and so they must be carefully managed to ensure that the tourism that is developed is fully sustainable. Examples of this include the Jordan-Dubai-Capital (JDC) project the Munya Resort and Spa launched in 2006 that was planned to include 600 luxury residences, a hotel, spa, convention center amongst other facilities. However, the developers worked to change the law to allow for additional forest clearing. There was a successful lobbying effort undertaken by the RSCN and the amount of clearing was scaled back, although there will still be an impact especially downstream on the Zarqa' River. There were certain attempts made to reduce the impact including the transplanting of 544 old-growth pines for several million JD in cost with a success rate of 78%.

The development of the road network within Jerash that connects rural areas to the neighboring urban areas will contribute to the fast rising number of picnickers in the Dibeen Forest and other natural areas. Wood is collected for barbeques and this has meant additional forest loss, especially seen in the Dibeen Forest Reserve. Here there have been a high number of visitors (around 80,000 in 2011) that helped the Protected Area generate USD 43,000 in 2011. However, compared against the financing needs (for operation and investment)

they were estimated at around USD 160,000. The area has a management plan for the coming five years.

Within Jerash, the major threats to biodiversity focus on tourists and their functions within the natural areas such as undertaking recreational activities like barbecuing, whereby events such as fires could be catastrophic for the forests. Other tourism activities such as random hiking and trekking off-trail by visitors are not controlled adequately. Both residents and non-residents use the forests' natural resources such as gathering firewood for fuel. The resources are protected with a strict approach that combined with the insufficient resources exposes biodiversity to risks and abuse. The approach has also meant a lack of sound pricing and valuation mechanisms for the ecosystem services and biodiversity resources. The continued failure to adequately value the natural resources within a functioning market economy will ultimately mean their unsustainable use or resource replacement. The expansion of roads and other tourism facilities through habitats increases traffic to and through the sites and affects water catchment areas. The planning and management of biodiversity and environmentally sensitive areas has often been done without the inclusion of primary stakeholders, particularly those are close to the biodiversity resources and incur the cost of any planning and management interventions. There have also been insufficient financing at the local and national levels for the required management programs needed to administer and sustain protected areas.

3.3.2.2 Petra

The Petra Development and Tourism Region is administratively located within Ma'an Governorate in the south of Jordan. However, the Petra Development and Tourism Region Authority (PDTRA) is an administratively autonomous body established in 2009 governing the designated area.

Figure 7: Map of Population areas and Archaeological Sites¹⁴

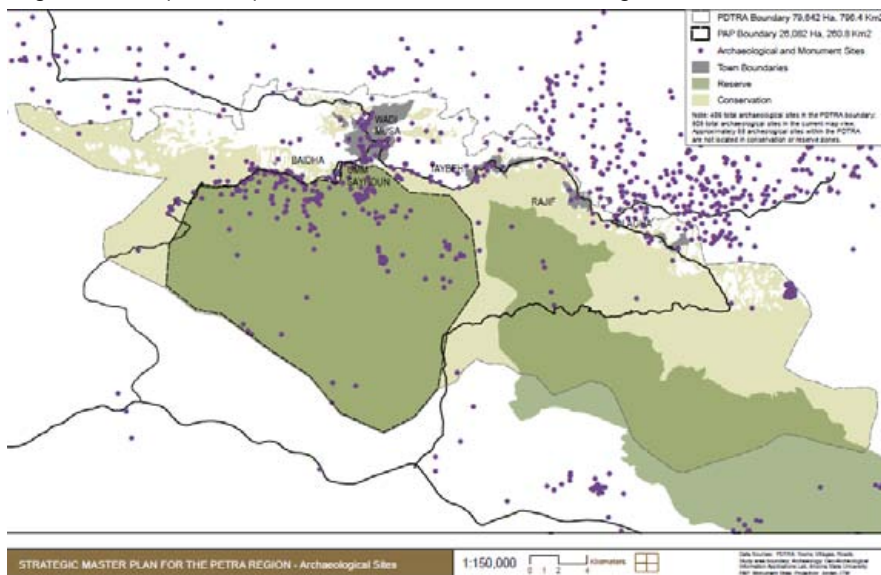
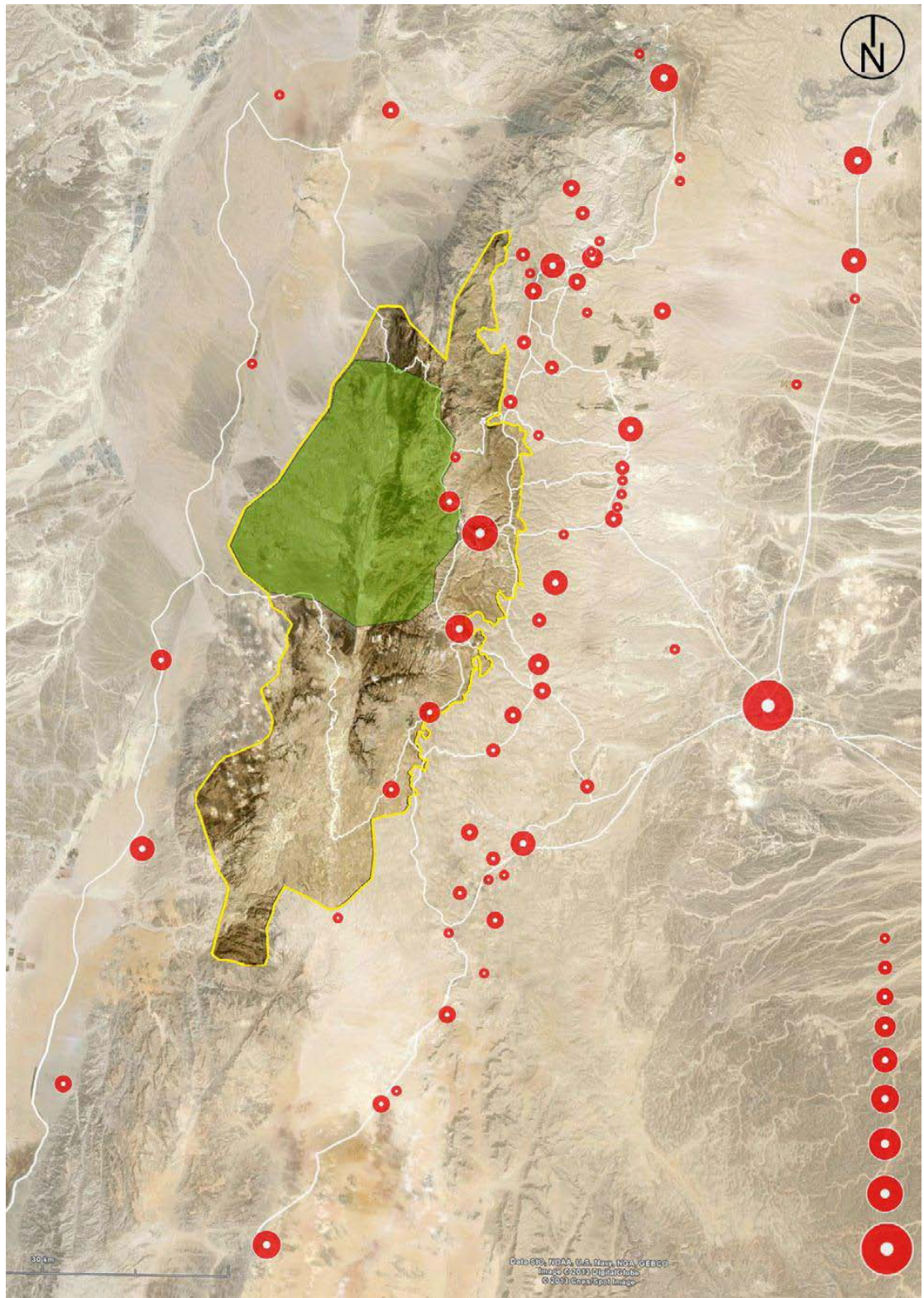


Image taken from Strategic Master Plan for the Petra Region, CC

Figure 8: Map of Population Hubs and Magnitude¹⁵



The region is best known for the renowned World Heritage Site – the Petra Archaeological Park (PAP) which attracts some 900,000 visitors a year. The PDTRA enjoys a legal personality with financial and administrative

¹⁵ Image taken from Strategic Master Plan for the Petra Region, CC

independence, it is affiliated with the Prime Minister’s Office and its head office is located in Wadi Musa town. According to Law No. (15) of the year 2009, “Petra Tourism Development Zone Authority Law”, PDTRA is meant to develop and improve the Petra Development and Tourism Region touristically, economically, socially and culturally.

The multiplicity of institutions wielding authority over the Petra Archaeological Park (PAP) has historically made planning, development and even conservation complicated within the Park and often difficult outside the Park boundaries. The boundary of the protected area itself has only recently been digitally geo-referenced and physically marked on the ground. The vagueness of the putative buffer zone has made Region officials reluctant to permit private sector and often public sector projects. Though the Strategic Master Plan (SMP) for Petra Region (PDTRA 2011) was specifically tasked with, among other things, creating a rational basis for zoning codes, these have yet even to be ratified, much less implemented.

Socio-Economic Aspects

The Petra region has a population of 29,390 inhabitants as per end-2012, distributed in six main communities as follows, combining data from a variety of sources including the Petra National Trust and the Petra Strategic Master Plan:

Table 21: Petra Population by Community

Community	Population ¹⁶	Area of zoned plots (dunum)	Area of residential plots (dunum)	Total population density 2012 (ppl/dunum)	Tribe
Baidha	428	63	44	6.83	Amaariin
Umm Sayhoum	1741	289	114	6.03	Bidoul
Wadi Musa	18238	11443	7778	1.60	Layathnah
Taybeh	6107	3124	2230	1.95	Layathnah
Rajif	1788	1881	1881	0.95	Rawajfah
Dlagha	1531	1634	1311	0.94	Saidiyyiin

Petra mainly depends on the tourism sector. Tourism has greatly improved in the region, while the traditional sector of agriculture has declined due to the growing water shortage and the comparatively easy income opportunities in tourism. The entire region's population could nearly double within the next two decades. Increased pressures on housing and social-welfare services are expected, which are already inadequate in some of the communities. The social structure of the population is characterized by a variety of tribes, subdivided by clans, which have a tendency to favor members of the same clan when it comes to hiring employees. This explains to some extent why members of one tribe and/or one community are often dominating some businesses (e.g. tour operators). As a result, benefits from tourism are not shared equally among all the tribes and communities of the region.

¹⁶ Department of Statistics, 2009

According to the Strategic Master Plan(SMP), the current population of just under 30 thousand inhabitants lives over 18.5 thousand dunums of zoned area, with a very low population density of persons per dunum, averaging under 2.

According to the latest data from the Department of Statistics, within the Ma'an governorate unemployment is at about 15% (male unemployment at 14.1% and female unemployment at 19.1%). In terms of economic activity rates, it is at 36.9% for the Ma'an governorate (59% for males and 13.4% for females). Absolute poverty in Ma'an was found by DOS in its 2013 report to be 26.6%, with abject poverty at 2.68%. The Gini coefficient for the governorate is 0.28 which shows more equality than the Jordanian average. The average annual household income for the governorate is JD 7513 of which income from employment is JD 4521.

The Petra region is best known for its renowned World Heritage Site – the Petra Archaeological Park (PAP) - and the tourism sector is the most important ingredient for economic as well as social development. The dramatic rock-cut temples and tombs as well as the water collection, distribution and storage system of the Nabataeans represent unique artistic and technical achievements. This outstanding universal value was recognized when in Petra was declared a UNESCO World Heritage site in 1985. The Cultural Space of the Bedu was also inscribed on the UNESCO Intangible Cultural Heritage List of Humanity in 2008.

Economic Activities

More than half of the active enterprises are retail shops and the next highest percentage was for hotels and restaurants (around 10%). In terms of invested capital over 95% of all investments are made in hotels, mainly due to the size of investment in hotels. If hotels are excluded the retail business dominates with over half of all investments. All other sectors account for less than 3% of investments made. In terms of numbers most of the activity is focused in Wadi Mousa where the number of establishments account for nearly 75% of all establishments. Al Taybeh had some economic activity and had around 14% of all establishments. Other cities had barely any or no economic activity. In terms of invested capital, the bulk of investment is located in Wadi Musa accounting for about 50% of all investments in the region. If the hotel sector is excluded then the bulk of investment would remain focused in Wadi Musa at around 85% of all invested capital followed by Al Taybeh at around 11%¹⁷.

While tourism offers the most job opportunities in the Petra Region (both legal and illegal ones) women are largely excluded from this labor market segment. Overall, the workforce in the Petra Region is well educated and includes many academics, especially in Wadi Musa where the College of Archaeology, Tourism and Hotel Management is located. The research showed that the vast majority of labor is employed by the hotel and restaurant sector accounting for nearly half of the labor force. The retail followed employing about one quarter of the labor. Excluding hotel and restaurant business more than half of the labor is employed in retail, and very low percentages distributed over other sectors, with manufacturing and health services employing around 6% each. The average size of workforce is around 2.5 per enterprise. Nearly 88% of labor is employed in Wadi Musa and around another 8% in Taybeh. There is very little employment

¹⁷ Petra Strategic Development Plan, CC

opportunities in the other communities in the study area. The highest per invested capital employer (most labor intensive) is the manufacturing led by wearing apparel with around 3.5 employees per 1,000 JD of invested capital. Apart from the Hotel and Restaurant sector, almost no females are employed in the region. The largest employer, the hotel and restaurant sector, employs approximately 25% foreign labor. Overall the percentage of foreign labor employed in the study area is around 12%¹⁸.

In 2010, the total visitor numbers to the PAP reached over 800,000, making it extremely important not only for the development of the regional economy, but also for the national Jordanian economy. In 2004 tourism was Jordan's largest export sector, its second-largest producer of foreign exchange (at 11%), its second-largest private-sector employer, and accounted for nearly 11% of Jordan's GDP. Tourism was Jordan's fastest-growing development sector, and Petra accounted for over 90% of the total income from tourism in Jordan.

Visitor numbers have climbed steadily, dropping back only in years marked by regional conflict (see table below).¹⁹ A watershed year was 2007, when Petra was selected to be **one of the “New Seven Wonders of the World”** – Petra hotel rooms were suddenly fully booked through to 2010.

Table 22: Visitors to Petra, 1985-2010²⁰

Year	No. of Visitors	Percentage Change
1985	93,000	
1986	65,000	-30.1%
1987	80,000	23.1%
1988	91,000	13.8%
1989	120,338	32.2%
1990	102,151	-15.1%
1991	40,889	-60.0%
1992	117,347	187.0%
1993	138,559	18.1%
1994	200,505	44.7%
1995	337,221	68.2%
1996	414,448	22.9%
1997	380,527	-8.2%
1998	347,109	-8.8%
1999	429,644	23.8%
2000	481,198	12.0%
2001	231,203	-52.0%
2002	158,837	-31.3%
2003	160,658	1.1%
2004	310,271	93.1%
2005	393,186	26.7%
2006	359,366	-8.6%
2007	581,145	61.7%
2008	802,866	38.2%

¹⁸ Petra Strategic Development Plan, CC

¹⁹ **The vulnerability of Jordan's tourism market to international perceptions of regional conflict is problematic.** It is estimated that Jordan has lost a billion dollars in tourism revenues since the beginning of the Arab Spring (Keilani 2012). This factor and the seasonal fluctuation of tourism annually suggest the importance of developing diversified income streams in tourism areas, as well as developing types of tourism that do not require the maintenance of expensive infrastructure during off seasons/ years.

²⁰Source: Petra National Trust 2011

2009	728,108	-9.3%
2010	975,285	33.9%
2011	629,864	-35.4%
2012	636,146	1.0%
2013	609,044	-4.3%

The SMP, the National Tourism Strategy and the PDTRA are clear about the goal of raising visitor numbers into the millions. Visitors to Petra stay primarily in hotels of which, according to Department of Statistics, there were the following in Petra in 2011:

Table 23: Petra Tourism Facilities

	Hotels	Rooms and Suites	Beds	Employees
Classified Hotels ²¹	24	1,913	3,466	1,128
Unclassified Hotels	14	257	664	50
Hostels, Motels	2	50	90	9
Petra Total	40	2,220	4,220	1,187
National Total	354	20,737	37,642	14,219

According to the UNDP Project Document, visitors also stay in three kinds of tourist camps, either permanent camps, organized camping through licensed tour operators or camp excursions operating on a "pick-up" basis by unlicensed residents²². There are certain environmental restrictions of these. Most gather available firewood found in the area for cooking and the bonfire. The mobile camps do not have portable bathrooms, and most bury or burn or simply leave waste rather than removing it from the site²³. Any excursions with livestock do not manage feeding or grazing in an appropriate manner.

There are presently five licensed, permanent camps in Petra Region and at least four unlicensed camps. All are located in the northern end of the Region, beyond Umm Sayhoun. Another camp is under construction above (east) of Wadi Musa/ Umm Sayhoun at the abandoned village of Muniefeh. Four of the camps -- one licensed²⁴ and three unlicensed -- are within the PAP.

The number of tourists that visited the proposed Shoubak during 2010-2011 was about 42,351 (of which 35,786 foreigners). However, they did not contribute to the local income due to lack of tourists facilities or infrastructure. The potential for ecotourism in Shoubak is thought to be significant and it could be based on:

- Cultural Bedouin live practices
- Hiking
- Bird watching
- Camping

²¹Hotel classification in Jordan was launched in 2012 and hotels are still going through the process - see <http://www.ameinfo.com/222906.html> Current criteria for classification do not include consideration of biodiversity.

²² There are still approximately 150 fully nomadic tent groups -- usually extended families -- in the Petra Region, and many times that number of seasonal nomadic pastoralists (DoS 2011).

²³ Animal remains -- skins, guts, bones -- are often simply left behind. Though the guts are eventually consumed, the rest remain gorily recognizable for months and even years.

²⁴ Ammarin Camp -- the one licensed camp within PAP -- was built illegally and permitted after the fact. It belongs to the Baidha Tourism Association.

- Star gazing
- Traditional local cuisine
- Medicinal and similar herbal products

After decades of tourism activities at Petra, a major part of the local population which relied on animal husbandry and/or farming have changed their lifestyle. This is noticeable particularly among the Bedul Bedouins (now settled in Um Sayhoun), and the inhabitants of Wadi Musa and Taybeh. According to MoTA, an estimated 1,800 persons were working in the tourism sector in 2010 and although this figure probably reflects the number of people employed full-time, as opposed to casual or seasonal workers, the total figure is not thought -to be much higher.

Institutionally all of the local tourism businesses are represented by Cooperative Associations (*jam3iyyat ta3ouniyya*), legal business associations registered with the national Cooperatives Association. The tourism-related cooperatives are:

- Tourist Guides Association (Wadi Musa)
- Hotel Owners Association (Wadi Musa)
- Travel Agents Association (Wadi Musa)
- Tourist Restaurants Association (Wadi Musa)
- Horse Owners Association (horse guides and carriage drivers in Petra -- Wadi Musa)
- The Nabatean Ladies Society (souvenirs [jewelery] - Wadi Musa)
- Petra Gates Society (souvenirs [copper, wood & ceramics] -- Wadi Musa)
- Bait al-Anbat (souvenirs [textile goods] -- Wadi Musa)
- Taybeh Ladies Society (souvenirs [ceramics] -- Taybeh)
- Baidha Tourism Association (souvenirs [tote bags, rucksacks from recycled plastics] -- Baidha)
- Umm Sayhoun Tourism Society (guides and travel agents -- Umm Sayhoun)

Of these, the strongest are the Guides and Horse Owners Association, because they take a cut of the revenues from the Park itself. All of the others are more vulnerable to the vagaries of the market, which, since the global economic crisis and the Arab Spring, has been miserable for Jordan.

There is a strong feeling among the local community that it does not benefit adequately from Petra revenues and this perception was voiced in every single interview with locals, without exception during the research carried out for the preparatory phase. Economic gains in the local community have not been commensurate with the increasing economic importance of Petra. The table below summarizes changes in local and national economic indicators between 2006 and 2009 (rounded to nearest whole number):

Table 24: Summary of Economic Indicators for Petra Region, Ma'an Governorate, Jordan, 2006-2009²⁵

Factor	Economic Indicator
Rise in visitor numbers	350%
Rise in per capita income, Jordan	4%
Rise in household income, Jordan	20%
Rise in household income, Ma'an Governorate	18%
Rise in household income, tourism families in Wadi Musa	32%
Rise in percentage of Wadi Musa pop. directly employed in tourism	0.2%
Rise in land prices in tourist area, Wadi Musa	428-625%
Rise in land prices in Wadi Musa municipality, outside tourist area	200-400%
Rise in land prices in Wadi Musa, outside municipality	166% (average)
Growth of PRA/PDTRA budget	610%
Growth in PDTRA staff	58%
Growth in PDTRA administration	500%
Growth in salary budget for top PDTRA officials	700%

Locals perceive that the benefits of tourism are not received or felt by them in a proportional manner. Indeed while there has been a rise in tourism revenue of 350%, local households have only felt an income increase of 20% at most. Tourism families have felt a higher increase in income than other households; however the percentage population of those working within the industry has only increased by 0.2%. There has been a rise in land value of anywhere between 166-255% but this has not been reflected in a rise in income of local families. Similarly the expanded PDTRA budget of 610% and administrative salary line of 700% are not reflected in a comparable rise in local family incomes²⁶. While the importance of Petra to the national economy has been publicized, the local community feels left out of the equation. In fact with the relatively high cost of living that comes with Petra's tourism status, there is a negative effect on residents.

Specifically jobs for the youth and women has been a constant issue, especially for women where tradition has meant restricted employment opportunities so their role has mainly focused on the household. In some cases activities that would be required of them in situation of employment in the tourist industry are considered inappropriate. After consultations with the local community, it appeared that the handicraft sector would be the most suitable income generating activity. This is the case for all women, even those with higher education accolades.

Most of the workforce in tourism related activities in Petra are from Wadi Musa and Umm Sayhoun the two areas neighboring the Petra Archaeological Park. There is also a five star hotel in Taybeh that neighbors Wadi Musa in the south and that has a women's souvenir cooperative that sells ceramics and has been successful. In Baida, the locality north of Umm Sayhoun there is also a community cooperative, with the women's cooperative producing souvenirs from recycled materials, and a men's cooperative running a camp near Little Petra.

²⁵ UNDP Project Document

²⁶ Figures from UNDP Project Document for Section below

In 1994, UNESCO estimated the maximum capacity of visitors to the park to be 1.25 million and this rate is now being approached and this has increased pressure on the park itself and other natural and cultural resources. The limitations in infrastructure at the community level have limited certain economic developments only aggravating environmental issues felt. Improvements within the park and other tourism related products could improve living standards and help reduce social disparities. This would help protect the region's natural and cultural resources. As was outlined in the Project Document, the Strategic Master Plan addresses some of the most immediate socio-economic and environmental issues related to the PAP, tourism growth, land-use, and other infrastructural challenges.

One of the issues facing tourism across Jordan, as well as the Petra Region, has been the issue of extending visitor stays. Jordan sometimes is considered a "package" with Holy Land tours, and Petra a single day excursion with no overnight stay. The average length of a stay in Petra was 1.17 nights in 1995 and today it stands similarly at 1.2 nights. The average amount spent in Petra is low. Spending on souvenirs was about JD 13 on average and overnight accommodation expenditures JD 55 per day.

Further infrastructure will be needed in order to extend overnight stays along with further product development. Within this there is also an expanded need for trained human resource development and a greater variety of tourism offerings.

There are both direct and indirect impacts of tourism on the biodiversity within Petra. There have been no recent detailed case studies however, even though there has been a reduction in a number of wildlife species, a habitat loss, and wildlife disturbance as there has been new infrastructure setup meant for tourists (whether roads or hotels in the ecologically sensitive areas). There has also been a destruction of vegetation through trampling and flower collection, and an increase in waste as a result of picnickers, and emissions from vehicle traffic.

None of the master planning efforts have included a specific plan for biodiversity conservation including the recent Strategic Master Plan for the Petra Region. There is also very limited discussion of environmental impacts that mass tourism will inevitably include. The development of any tourism product must be in accordance with a comprehensive zoning plan that should be undertaken in detailed consultations with stakeholders to take advantage of opportunities for marketing as responsible tourism service providers. Tourism should also include in part planning and support for conservation, especially that in relation to domestic recreational tourism.

A lot of local residents throughout the Petra area wish to be involved in tourism activities and to find a liveable wage within employment opportunities within the sector. Women, for instance, see roles for themselves in handicrafts including jewellery and carpets, in addition to agricultural products provision to hotels and restaurants. The low level of organization within these sectors has limited their potential benefit to local populations.

*Land-Use and Urbanization*²⁷

Undocumented or unclear land ownership is one of the main issues impeding the development of the region and needs to be addressed urgently. A significant amount of land in the Petra region is owned by the government and, by law, must not be transferred to private ownership. Therefore the total amount of private land for development and agriculture is limited.

Five existing forms of land use currently exist within the Petra Region: 1) urban development, 2) agriculture, 3) forestry, 4) protected areas and 5) tourism zones as represented by the Petra Archaeological Park. Urban development occurs in a series of towns and villages generally situated along the Scenic Road between Baidha and Rajif, including the nearby village of Dlagha. Land is used for agriculture throughout the region on small fields and larger fields in the eastern part of the region. The fields are partly on government land or on land leased from the Ministry of Finance. More than 363 sqkm of the 796 sqkm total area of the PDTRA is covered by land with slopes steeper than 30%. This land is hardly suitable for development.

Each of the communities within the Petra Region currently has zoning in place. However, when this zoning was created, the type of extensive land analysis that is contained here was not undertaken. As a result, the current zoning plans do not protect wadi lands, agricultural soils, steep slopes or forest cover from development. In a similar way, important views from the Scenic Road or within the PAP are not adequately protected. In addition, the development opportunities described within this document were also not fully contemplated. For this reason, an update of the zoning plans of all communities is warranted recommendations in this report.

The form of zoning currently utilized in the Petra Region is what is often referred to as Euclidian zoning. In this type of zoning, land uses are separated horizontally into discrete districts - residential, commercial, and industrial, etc. This can lead to the inflexible use of land for property owners and reduced vitality for the community. Such zoning often precludes corner grocery stores and neighborhood restaurants, for example. Urban designers and planners are increasingly turning to form-based codes to direct development.

Such codes are more concerned with the form and character of a community than with the separation of uses. Form-based codes are particularly appropriate for a tourism based community where the character and walkability of the community itself becomes a major draw for tourists. It is recommended that the PDTRA give consideration to replacing the current Euclidian zoning codes of the community with a form-based set of standards.

An estimate of the demand for additional hotel rooms within the Petra region, suggests that an additional 3500 rooms may be needed by 2030 if the maximum carrying capacity should be reached by that time. As tourism facilities within the Petra Region will consist primarily of these hotel rooms and related attractions and interpretation and entertainment facilities, it is useful to consider the amount of land that will be required to accommodate this maximum number of additional hotel rooms. An evaluation of hotel development within the PDTRA, in Amman, and in Aqaba suggests that a density of 150 hotel rooms per hectare can be considered a reasonable standard. At such density, 27 hectares of land would be required just for additional hotel facilities.

²⁷ Petra Strategic Plan

Amongst the key barriers to biodiversity sustainability is the weak institutional framework for planning that is integrated and well managed in relation to natural and archaeological issues. There is a noticeable lack of standards, guidance and incentives for eco-friendly tourism development. The confused institutional balance has led to tension between stakeholders. There is also weak involvement of the local community in the planning and decision-making process. This contributes to the lack of equity between the different community groups in Petra. The enforcement of planning efforts and monitoring of them such as that of the Strategic Master Plan is weak. With the high pressure on natural resources from domestic and tourism use, and the need to accommodate for people's economic activities in balance with the environment a renewed focus on biodiversity is required. Ownership patterns, despite the fact that the majority of land is publicly owned still the patterns indicates private ownership with the associated ambitions of the owners to invest and develop their lands, especially as they consider their properties very valuable due to their location in this area. Moreover, the existence of six urban settlements, varying in size and effect, is considered a major challenge and needs different and innovative ways of treatment and recommendations.

3.3.2.3 Wadi Rum

The Greater Wadi Rum locality of which the Wadi Rum Protected Area forms an integral part is to be found within the administrative territory of the Aqaba Special Economic Zone Authority (ASEZA) which is a financially and administratively autonomous institution responsible for the management, regulation, and the development of the Aqaba Special Economic Zone. ASEZA was inaugurated in 2001 as an initiative by the **government to ensure that Aqaba's commercial and cultural prominence** develops to be a regional hub for trade, tourism, and culture. Six secretary general-level commissioners, each responsible for a major area of regulatory or operational activity, govern the zone. The UNDP Project Document notes that the mandate of ASEZA in terms of land management covers the following administrative districts and sub-districts; Qasabat Aqaba District, Quairah District which includes, in addition to the other communities, the villages of Rum, Salhiyyeh, Shakriyyeh under its jurisdiction and Diseh Sub-District, which includes the villages of Diseh, Twiseh, Mnaisheer, Al-Twail and Al-Ghal. It has been observed that this negates with what was heard from local team feedback and the legal sources.

Figure 9: Photograph of Wadi Rum



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ASEZA is a service-oriented organization offering one-stop assistance covering all investment needs. Its vision statement is - "*The Aqaba Special Economic Zone is a world class business hub and leisure destination on the Red Sea, acts as a development driving*

²⁸ Wadi Rum Nomination File

force for Jordan that improves the quality of life and prosperity for the community through sustainable development". As the authority responsible for the largest protected area in Jordan and one which takes up a substantial part of its territory, it is surprising that the ASEZA mission statement does not also include reference to biodiversity protection²⁹.

Socio-economic Aspects:

It is estimated that around 8,500 Bedouin people live in the Greater Wadi Rum area. Until recently, they relied on their nomadic life and herding livestock. They are marked by their strong tribal network and their tribal affiliation. There are six Bedouin tribes inhabiting the Greater Wadi Rum Area and its villages, as follows:

Table 25: Villages, Tribes and Major Activities

Tribe	Village and/or Area	Main occupation
Zalabia	Rum village, Wadi Rum, Wadi Um Ishrin, Wadi Raman and Jabal Qattar	Tourism and livestock
Zawayda	Diseh, Twaiseh, Mnaisheer, Al-Ghal and Al-Twail North of Wadi Rum and Wadi Um Ishrin and NE of the area	Agriculture & Tourism
Sweilhiyyeen	Shakriyyeh and Salhiyyeh Wadi Raman	Governmental employment & Tourism
Umran	Southern part of Wadi Rum Area	Livestock
Dbour	SW of Wadi Rum Area, the southernmost parts of Wadi Marsad	Livestock
Qudhman	Wadi Marsad (nomadic)	Livestock

Wadi Rum's landscape has been the main economic contributor for Bedouins with large herds of livestock. The lack of villages in or around the Wadi Rum area resided in tents woven from the hair of livestock. It was only till the 1930s that a Desert Police Station was built near Jebel Rum which is Rum Village today. A drought in the mid-20th century had severe consequences for the entire region affecting rangelands and livestock. The Bedouins to supplement their diets began additional hunting and this depleted local populations³⁰.

The springs along the eastern Jabal Rum were the only year-round water sources which supported the development of the current Rum village. The first wells in the region were in the Diseh Village. The water helped a shift in livelihoods and resulted in farming activities, as well as over-grazing.

Wadi Rum's tourism was limited prior to 1962. The film *Lawrence of Arabia* brought the area international acclaim and during filming Bedouin men had served as personal guides for the crew. While tourism remained a low level activity afterwards, in 1980 a Government Rest House was built with Bedouin tents. From this point forward tourism increased, and now the Wadi Rum communities mostly rely on tourism for their income, with very limited farming. The latest reports from the Ministry of Planning and

²⁹ <http://intranet.iucn.org/kb/pub/members/iucn/item.cfm?UID=1F29B253-CBAC-F180-396C-F4C592239185&isGui=0>

³⁰ Section taken from UNDP Project Document

International Cooperation note that the Wadi Rum area show poverty rates at about 44%. The status of women in the community needs more investigation. However, many initiatives have focused on women in the tourism sector and they are now heavily involved with handicrafts.

Based on figures from the Department of Statistics, though not indicative of the Wadi Rum area by any means, within Aqaba the absolute poverty rate was 19.2% and the abject poverty rate 0.6%. Within Aqaba the Gini coefficient is 0.376, which is exactly on the Jordanian average.

Settlements and Villages

Formerly nomadic and living off pastoralism, Bedouins have settled in villages since the 1960s, with few families still living in tents year round or seasonally. Six main Bedouin tribes live inside or on the boundaries of the Wadi Rum Protected Area: the Zawayda in the area of Disi and adjacent villages; the Zalabya in and around Rum village; the Swelhiyyin in the villages of Salhiyya and Shakriyya; the 'Umran, Dbour, and Qudhman who have settled or graze their livestock on the margins of the Protected Area. The current distribution of Bedouin villages in and around the Protected Area is related to **water sources. Until the 1970s the only year-round water sources were the springs** along the eastern face of Jabal Rum and they stimulated the development of the current village at Rum³¹.

In the 1960s the Zawayda sheikh talked to Crown Prince Hassan, who felt compelled to **sink wells for the tribe in the Disi area. By the mid-1980s pumps had been established at the sites of the five new villages: Disi, Tuweisi, Twail, Mnaisheer, and Al-Ghal.** Today, many Zawayda call these villages home. The fact that the Zawayda have had virtually exclusive water rights at Disi, while the Zalabya at Rum have benefited from the tourism income, was a source of envy and mutual distrust between both tribes until recently when all tribes were brought together under a unified visitors management system. The Swelhiyyin tribe has settled in the area more recently. They have established two new villages, Salhiyya and Shakriyya.

Rum Village

Rum Village lies within the Protected Area and is the only settlement inside its boundaries. Its community is part of a wider network of Bedouin tribes stretching as far as Aqaba and Saudi Arabia. The population of Rum Village is about 1,300 (according to recent information), made up of two tribes: the Zalabya tribe with over a hundred families, and the Swelhiyyin tribe with less than a dozen families.

To minimize the impact of the expansion of Rum Village on the Protected Area, the government of Jordan defined the village boundaries, restricting its area to 404 dunums (around 40 ha.). Construction is forbidden beyond these boundaries. Rum village is a relatively new settlement established in the early 1960s adjacent to the fort built in 1934 for the Desert Police and below the main perennial spring. The village is rather small compared to average Jordanian villages and those existing around the Protected Area. During the last two decades, Rum village has developed rapidly in terms of size and population, a process justified by the relatively large average household size in addition to several other supporting factors:

³¹ Section based on Wadi Rum Nomination File

- The general government policies related to settling Bedouins and supporting their services and development. In particular schools, the paved road and basic utilities;
- The establishment of the Wadi Rum Protected Area during the various stages of development;
- The rapid development of tourism activities in and around the Wadi Rum area **since the mid-1980s**;
- The gradual economic shift in the local economy from pastoral livelihood to modern tourism and services;
- The increasing levels of drought periods and the increasing prices of livestock husbandry.

In 1998, when the World Bank project commenced, a proposal to move the village away from the heart of the Protected Area was put forward by the consulting agencies with the aim to **avoid long term impact of the village's urban development on the area's values and potentials**. The proposal was never realized due to local rejection and issues related to the impacts of the new proposed areas for the village relocation. It is worth mentioning that the Royal Society for the Conservation of Nature (RSCN) was not in favor of this option and was promoting an alternative to actively develop the village using an integrated approach in relation to its natural and cultural contexts.

At that time, the village was the centre of tourism management in the Protected Area but soon after the establishment of the visitor centre, it lost much of its role as the main access point and visitor distribution location. The Aqaba Special Economic Zone Authority (ASEZA) developed a clear guide to urban expansion of the village and developed and endorsed an organizational structure for it based on the old 1989 one. The structure is currently under revision to respond to new developments and issues related to shortcomings of the previous one. One of the main suggestions is to have **ASEZA and the local villages collectively agree on a "village wall" that will limit the uncontrolled development of the village while responding to urgent needs for structural expansions**.

The current vision for the village is to basically develop it as a model rural village within the Protected Area and to develop it as an attraction in itself, capitalizing on the local cultural potentials and representations and utilizing the presence of several supporting **destinations such as a local bed-and breakfast, a village panorama (built around the fort), a village camp-site and guesthouse, the nearby archaeological sites of Abu Nkhaileh, the local handicrafts centres and several other associated activities**.

Nonetheless, the village initially was not included in the area nominated for the world heritage inscription, it is today. This is of vital importance as it aims at:

- Ensuring that the village does not represent a compromising element as it was established as a relatively new village before the establishment of the protected area.
- Ensuring the strict control of the village boundary line and any possible legal or illegal expansion by excluding it from any delineation ambiguities. The village wall against the nominated area boundary line is precisely established upfront to avoid any future misinterpretation of the village development in regard to the nominated property.

Allowing the village to be an integral part of the nominated area buffer zone, however, falling under a more extensive set of regulations and enforcement schemes being also part of the protected area proper.

In addition to Rum village there are other settlements outside the Protected Area:

Shakriyya Village

The residents of this village are from the Swelhiyyin tribe. The population is relatively well educated, and depends mostly on wage labor as their principle source of income. A very small number of them remain pastoral, herding goats and camels.

Disi and Tuweisa

These are the main villages of the Zawayda tribe. Government employment is the main economic activity of these villages, and agricultural jobs are ranked second, with Rum Agricultural Company as a major employer. For members of the tourism co-operative, tourism has also been providing an increasing supplementary income, particularly in the last five years. Tourism is recognized to be seasonal with high wages for a limited amount of time.

Mnaisheer, Al-Ghal, and Twail

These villages are home to people of the Mazanah fraction, which was originally part of the Zawayda tribe. The people here acquired recognition of their land claims around the two government wells at Mnaisheer and Al-Ghal. Most of the population have government jobs.

Other Settlements

Three other tribes are found on the margins of the Protected Area: the 'Umran, Dbour, and Qudhman. The 'Umran and Dbour are Saudi Arabian Bedouins whose historical lands were part of the land deal between the Jordanian and Saudi Arabian governments in 1965. Both of these tribes are very small and depend on trading and livestock, bringing it from Saudi Arabia and selling it in Jordan for a profit.

The very small Qudhman community lives in Rashidiyya village, with a few residents in Wadi Marsad at the western border of the Protected Area.

Tourism Sector and its Threats to Biodiversity:

Tourism in Wadi Rum is nowadays the predominant land use and a major source of income for local Bedouin communities. It is also the principal cause of environmental degradation. Tourism numbers have grown steadily over several decades. Between 1998 and 2010, tourism increased more than fourfold, though there has been significant fluctuation in international visitor numbers resulting from external influences outside Jordan. This is illustrated by the following table:

Table 26: Visitors to Greater Wadi Rum Landscape, 1998-2011

Year	Numbers
1998	70,000+
1999	±75,000
2000	102,000+
2001	40,000+
2002	20,000+
2003	no data
2004	no data
2005	127,314
2006	101,077
2007	142,142
2008	256,297
2009	240,000+
2010	285,566
2011	133,962

Figures since that time have shown an increase in number. Domestic tourists are still a minority but have witnessed a steady and significant increase in the share of the Wadi Rum market from 16,889 of 256,297 (7%) in 2008, 19,952 of 285,566 (7%) in 2010, 9,778 of 133,962 (7%) in 2011. In 2011 domestic numbers may have dropped due to economic depression in Jordan. Jordanians may have also preferred camping outside of the Protected Area and so the numbers they recorded within it were low³².

Most Rum visitors do not stay overnight, and many camp at the tents. There are 55 **tourists' camps of which 14 are large establishments near the protected area borders** which are not under the control of the area's management. The nearest classified hotels are in Aqaba 55km away.

The main tourism activities, with their impacts, in the Greater Wadi Rum Landscape are:

- Off-road driving: The valuations of this industry are questions and the vehicles have a negative impact and highly visible damage to the landscape and ecosystem, vegetation and aesthetics.
- Camel and Horse riding: Camels while preferable to jeeps have an impact on vegetation as overgrazing is a major issue. They also eat desert vegetation and are economically sustainable for this reason although it has a detrimental effect on the composition of vegetation species. Horses damage the soil crust.
- Camping has a negative impact on the environment. The evening bonfire was damaging as well as the solid human waste which the camps are not careful of disposing of. The tents damage the panoramic views and there are many skeletal structures that are left behind on the soil.

³² Section taken from UNDP Project File

- Hunting: especially for the clients in the Gulf was an issue with weaponry and cars, although no meaningful statistics exist for this sector. However, hunting today within the Rum protected area (the reserve) is not allowed. Hunting now takes place in Wadi Araba not in Wadi Rum.

Wadi Rum's biodiversity is threatened by the ever growing number of tourists and as the main contributor to the local economy as the major source of income it is especially important that it be managed in a sustainable manner. This is especially important for the youth sector as 50% of the population are under 20 years of age in Wadi Rum.

Land Use and Ownership

All the land within the Rum protected area and the village lies within the Aqaba Governorate, which is administered by the Aqaba Special Economic Zone Authority (ASEZA)³³.

Nonetheless, the new management plan will address some critical issues related to recognition and understanding of the customary system of land tenure along with the assurance of synergy between the new ASEZA regulation and the previous rangeland law. This is important to ensure the long term stability and complementary implementation of all valid laws and systems within and around the Protected Area.

The landuse plan for Aqaba is outlined below. Certain economic uses are not well-explored or explained in the landuse and this may be a result of low-level descriptions:

Table 27: Types of Land Use

Aqaba Land Use Type	Percentage Breakdown
Private Land Ownership	0.50%
Future Land for Agriculture	2.50%
Unirrigated Farmland	4.00%
Aqaba Protected Area Extension	0.90%
Sports Tourism	5.80%
Labour Neighborhood	0.60%
Rum Protected Area	10.80%
Industrial City	0.50%
Pastures	4.60%
Tourism Projects	0.00%
Mining Areas	6.60%
Areas not to be Developed during Study	22.80%
Pastures and Sports Tourism	0.00%
Tourism Investments	0.90%

³³ This is the information that exists from the Wadi Rum Nomination file to UNESCO in 2010. Available at: <http://whc.unesco.org/uploads/nominations/1377.pdf>

Old Hamima Area	0.50%
Back Services to Aqaba Area	1.30%
Storage Area	1.20%
Agricultural Area	0.00%
Environmental Tourism Area	7.00%
Other	0.90%
Tourism Project Area	3.20%
Future Tourism Area	3.30%
Wadi Araba	22.10%

3.3.3 Work Methodology

3.3.3.1 Adopted Methods of Inquiry

At the early stage in the study, there are two types of data that were reviewed:

- Secondary data: from previous studies related to the proposed development, as well as national and regional data, categorized into an inventory of studies with a summary for each. Within the secondary data:
 - (i) Statistics: from the Department of Statistics, Ministry of Tourism, Jordan Tourism Board, Petra National Trust, RSCN, Ministry of Education, Ministry of Health and Central Bank of Jordan were reviewed
 - (ii) Studies: undertaken by various institutions both public, NGO and private within Jordan
 - (iii) Published reports: internationally giving guidance on best practice
 - (iv) Master Plans: as available for the areas considered
 - (v) GIS Data: in the form of layers to support the analysis
- Primary data: through interviews and field visits to collect data through semi-structured interviews. Data was collected on: demographic profile; social institutions and networks; local employment, livelihoods and natural resource use; public services and infrastructure (waste, water, energy etc); health and education facilities; community development issues; attitudes to the proposed project.

The discussions might be divided into the following main categories:

- Local administrative structure and institutions: This section includes information about the national and local government structure and an overview of other key actors such as NGOs.

- Population and demographics: information on population and population trends and demographic statistics, first at a high overview level and then for the more specific areas of interest.
- Economic activity: information about the key livelihoods which contribute to the economy both at a national level and also in more focused areas of the area that are relevant to the Scheme.
- Poverty: information on more detailed areas of poverty occurrence as appropriate.
- Infrastructure: data on housing, water supply, transport and waste facilities in the various areas
- Education and health: information on education and health as well as detailed information about education and health facilities
- Land use: land use patterns across the areas of interest are identified and more information presented on the nature of agricultural practices in the areas of interest.
- Cultural heritage: some of the key sites of cultural interest
- Tourism: trends and what currently exists in the areas of interest
- Biodiversity: as currently available and its major threats and challenges

3.3.3.2 Information Collection

3.3.3.2.1 Sector Related Studies and Statistics

The various studies are detailed below:

- Introduction to Dibeen, RSCN, 2011
- مشروع دعم وتطوير سياحة بيئية محلية في محمية غابات ديبين, RSCN
- 2014, تقرير الحوكمة التشاركية لمحمية غابات ديبين
- محمية غابات ديبين: تقرير المستفيدين 2013
- The Socio-Economic Program for the Local Communities of the Dibeen Reserve Area, 2005
- معلومات عن بلدية المعراض, مشروع المحطة التحويلية لمحافظة جرش
- 2014, الاحتياجات التدريبية لبلدية المعراض
- تقرير دار العمران 2007: الموقع والمساحة والمناخ والتقسيمات الادارية؛ خطة التنمية الاقتصادية؛ والاتصالات والبيئة والجيولوجيا والصناعة والخدمات والزراعة والسكان والسياحة والطاقة والنقل وغيرها, Dar Al Omran, مخطط استخدامات الاراضي وغيره
- A Proposal for Inclusion in the World Heritage List |UNESCO, 2010
- خدمات الدراسة والتصميم لاعداد مخطط تنظيمي تفصيلي للمنطقة السياحية في الاقليم, SIGMA, 2009

- Final Strategic Comprehensive Master Plan 2012 for all region, PTDRA, 2011
- Final Strategic Comprehensive Master Plan 2012 for communities, PTDRA, 2011
- Delivery stage of Final Strategic Comprehensive Master Plan 2012, PTDRA, 2011
- Aqaba Tourism Report 2008-2009, ASEZA, 2009
- Petra Priority Action Plan Study; Phase 1 report "Outline Development & Growth Scenario Petra Region" Volume 1 : Existing Conditions, Dar Al-Handasah, 1996
- Department of Statistics, Population and Housing, Income and Expenditure, Employment and Unemployment data, 2008-2012
- Petra survey annual reports years, Jordan Tourism Board, 2007, 2008, 2009
- Biodiversity Strategy; Conservation and Sustainable Use of Biological Diversity in Jordan, Ministry of Environment, 2011
- Ministry of Tourism and Antiquities, 2014, Hotel Statistics
- Jordan National Tourism Strategy 2004-2010
- Petra National Trust statistics, 1985-2010
- The Structural Land Plan for the Urban Expansion Areas in the Petra Region, CC, 2014
- Final Strategic Master Plan, Petra, 2012, ATC Consultants

3.3.3.2.2 GIS Layers

The following GIS layers were available for analysis, they will be assessed and evaluated in Phase II:

- Jerash situation Geodatabase – MOMA
- Jerash Growth database – MOMA
- Land use 2007 – MOMA
- حدود التنظيم النهائية - MOMA
- Environmentally sensitive area – MOMA
- Industrial – MOMA
- Municipality Parcels boundary – MOMA
- RSCN GIS: Baselayers, Birds, Fauna, Flora, Reserve Zoning, Threats, Dibeen

Dar Al Omran – 2007: Basemap, Landuse, Village Layout و الاتصالات و الأثار و الأقطاب و التصورات الأولية و الجيولوجيا و الحساسية البيئية و الخدمات و الزراعة و السكان و السياحة و الصناعة و التعدين و الكهرباء و الطاقة و المحاور و المحددات و الجبال و المشاريع الاستثمارية و المياه و النقل و المواصلات و صور فضائية ز التصورات الأولية و الحميمة الجديدة و الحميمة القديمة و الخالدي و الديسة و الراشدية Landuse , tin , مجمع الشاحنات العسيل و الغال و القرى و القويرة و تنتو خارطة الأساس , والشاكرية و الصالحية و الصور الفضائية للقرى و الطويسة و الطويل

3.3.3.2.3 Published Resources

- UNEP (2007), Mainstreaming Biodiversity into Sectoral and Cross-Sectoral Strategies, Plans and Programmes, This module provides an overview of mainstreaming and its importance for achieving National Biodiversity Strategy and Action Plan (NBSAP) goals. Biodiversity Planning Support Programme (BPSP), UNEP, in collaboration with the CBD Secretariat
- UNEP(2012), Mainstreaming Biodiversity Conservation into Tourism through the Development and Dissemination of Best Practices
- Defenders of Wildlife (2006), Incentives for Biodiversity Conservation: An Ecological and Economic Assessment
- The Energy and Biodiversity Initiative, Biodiversity Indicators for Monitoring Impacts and Conservation Actions
- Lamoureux, K., The Relationship of Tourism Development to Biodiversity Conservation and the Sustainable Use Energy and Water Resources: A Stakeholder Framework: *Ecotourism policies and planning*
- Eco logic (2006), The Use of Market Incentives to Preserve Biodiversity Final Report: A project under the Framework contract for economic analysis ENV.G.1/FRA/2004/0081
- SURF Nature, European Union (2011) Sustainable Tourism & Nature Conservation: An Investment in our Future
- Smith, Arthur, Public-Private Partnerships (PPPs) for Sustainable Tourism

3.3.4 Presentation & Preliminary Assessment of Data, Studies, and Trends

Major Identified Trends

No clear protection policy and weak institutional framework: this includes a lack of standards, or any guide or incentive towards eco-friendly tourism development. Lack of effective spatial planning approach to accommodate people and their activities, whilst considering the fragile environment. This is not true of all Master Plans which exist, certainly some may provide best practice examples and must be studied in further details within Phase II.

Limited capacity to implement policy: there is a low level of training and capacity within certain municipalities, especially concerning how to manage environmental assets and associate this with appropriate land use. More detail on this point is required and will be completed as a result of field visits and interviews.

Uses of local community: such as collecting firewood, tree cutting, collection of fertile soil to be sold to nurseries, harvesting of wild and medicinal herbs, which are sometimes not sustainable for the biodiversity.

Lack of sound pricing and valuation mechanisms to protect biodiversity: low value associated with biodiversity at the institutional level has meant that pricing and valuation mechanisms have not been developed appropriately.

Inadequate financing and resource for management: low-level financing available for the protection of the environment and biodiversity has meant that often it is overlooked in preference of other priorities.

Weak involvement of the local community: Weak participation of local community groups in the planning and decision-making process due to insufficient representation of all stakeholders.

Limited monitoring and evaluation: in the implementation of any system of follow-up with clear indicators that help guide progress within the biodiversity sustainability.

Unhealthy competition: The competition between the different cooperatives among each other and **in competition with illegal tour operators and 'outsiders'** has meant negative effects on biodiversity within certain areas.

Increase in number of tourists: High pressure on natural resources, particularly biodiversity, from domestic use, but even more significant, from mass tourism.

Tourist activities: Camping along with its high impact activities such as huge bonfires using native plant species, construction of accessory facilities for camps and disturbance to wildlife. Tourist activities are sometimes unpredictable. Hunting, specifically hunting tourism, in and outside the protected area. Off-road driving. Uncontrolled and excessive grazing due to the increased number of camels that are used for tourism Camel trips

Local communities are not the main beneficiaries: one of the main trends presented by the data that deserves further investigation is that local communities are often the lowest in number of visitors, and the tourist projects generally are invested and managed by much larger investors. This may be an issue of how to explain the benefits to the community.

Overburdened and inappropriate infrastructure: that leaves certain areas without adequate access to sewage systems for instance.

Land Tenure Issues³⁴: Traditional land tenure is based on the actual recognition of the historical rights to a piece of land (mainly its use) by other individuals or corporate groups, so the whole system depends on the mutually reciprocated recognition of claims. Challenges usually occur only over new areas of land where no precedence of use exists. It is vital to note that customary (rather than traditional) land tenure in the area was mostly connected to grazing rights, not to ownership of the land. The traditional (customary) system of grazing rights practiced in Wadi Rum and elsewhere in pastoral areas of Jordan became enshrined in the Rangeland Law in 1971, allowing all individuals **and corporate groups common access to (State-owned) land for pastoral purposes.** Within the traditional (customary) system, temporary pastoral usage confers no longterm tenure to the user since the land is left unimproved. According to the same system, however, **long-term use and development involving significant investment gives** priority access rights to that user. The same applies to ownership in the case of **agriculture and water-catchment and conservation installations, or built storage vaults.**

³⁴ Wadi Rum Nomination Document File

Assessment of Data

GIS Data

- Not all GIS layers are uniform for the three target areas, this means in effect that comparable maps across the three areas cannot be easily achieved.
- The legends of the layers that do exist are not fully explained, and may give rise to certain levels of misinterpretation.
- Certain key pieces of information such as the Department of Statistics census blocks do not exist and cannot be overlaid easily for analysis.

Older Studies

- Many of the studies, while providing excellent and detailed information at their time were completed too long ago to be useful and current today. Much of their data which depended on both statistics and field work can no longer be used with confidence sometimes over 10 years later.

Mapping of Systems and Assets

- There is very well-developed mapping of biodiversity assets and systems especially by the RSCN in Diebeen that could be the start of an overall information system for Jordan though this is not yet in existence.
- Wadi Rum also has data that is well documented and stand-alone provides a cohesive picture of the area, though some of what exists was generated a few years ago. Similarly, the Petra area has good socioeconomic information that was generated a few years ago, that is very useful in understanding local communities but would need to be contextualized into the form of biodiversity mainstreaming and brought up-to-date as the project was discussed with local communities.

Community and Stakeholder Inputs

- Some of the studies very clearly document the need for future stakeholder participation and benefits
- The Diebeen community specifically has had a lot of work undertaken in terms of stakeholder consultations, and statistics generated specifically for the site

Data Lines

- The data presented is often done so along municipal and governorate lines. This has meant that the ecological or urban boundaries of sites have not been the measures across which data is gathered, though these boundaries may in fact be the more reflective boundaries in terms of making sense of the data.

None uniform data

- The same Data does not exist across all target areas which means that comparisons are often difficult.

Population Data

- Population Data: The published statistics available at the Department of Statistics are split according to administrative boundaries of "qada" and "liwa" compared to planning boundaries which are most often done by municipalities **and town boundaries which don't always align.**
- The last population census was completed in 2004 which leaves a gap of about a decade as related to newer information.

3.3.4.1 Presentation & Assessment of Development Plans & Prevailing Trends

General Preliminary Description	Socioeconomic Sector Related Issues and Impact on Biodiversity	General Discussion and Critique
<p>Dar Al-Omran, 2007 Master Plan Aqaba</p> <p>Three development scenarios were introduced in the plan for Aqaba including a focus on: entertainment tourism, residential tourism and agricultural tourism.</p>	<ul style="list-style-type: none"> • An overview of main economic sectors within Aqaba including: Agriculture, minerals and industry, and employment. • Socio-economic factors were tackled in the study were not the focus as per the objectives of the study, an increased understanding of local community income levels, capacity, infrastructure and housing and employment needs would be required. • Long list of projects covering sectors of tourism, services, agriculture, transportation, industry and housing. The recommended project are suggested over the period 2007-2025 to be implemented over four phases starting in 2007 and ending in 2025. • The number of employed Jordanians and non-Jordanians for is reported in the report (2006). • The master plan focused mainly on the housing and services needs and the required areas of lands to fulfill these needs in each of the 23 population centers in the Aqaba region. The plan suggested three scenarios for the development plan of the region. • Detailed analysis is reported of the positive and negative impacts of the tourism sector on the national economy. Statistics on the distribution of the number of tourists by origin are reported for the year 2002. 	<ul style="list-style-type: none"> • Population is well defined with growth rates and community breakdowns. Some of socioeconomic indicators especially the demographic characteristics are listed for 22 localities or population centers in Aqaba district. The reported statistics were based on population and housing censuses of 1994 and 2004. • As per the study's date, the available indicators are listed for the southern governorates for the years 2003, 2004, 2005, should be updated for our use. • The study works well for the geographic region of Aqaba, but has a lower focus on Wadi Rum as per its scope. • The study gives a good overview of macroeconomic sectors (industry, trade, tourism, livestock, agriculture); our purposes would require a more detailed understanding of the relationship between local communities and these economic activities. • There is a good coverage of the education sector • Tourism is covered briefly as one of the industries in the region; however, the covered indicators, would need to be updated for our purposes and are not sufficient • Tourism market is analyzed at the macro-level for the region. Description of the major attractions is provided, however linkages with local community, within the framework of employment, lifestyle or other spillover benefits is not required. • Nothing has been reported on the impacts of

General Preliminary Description	Socioeconomic Sector Related Issues and Impact on Biodiversity	General Discussion and Critique
		<p>tourism on the local communities or on the environments/ecology of the studied localities.</p> <ul style="list-style-type: none"> • Most of the expectations were based on the population growth projections over the period 2007-2025. Housing needs were estimated for all localities in the district. This was well covered but will need updating for our purposes • The current share of employment of the local population in tourism and its contribution to the local economy has not been tackled by the master plan. • The study has not been set up with socioeconomic framework in mind and so the data may be used and updated for our purposes. • Projections need to be revisited and updated based on new statistics and incorporating tourism project development benchmarking against other experiences. • Study did not include a detailed assessment of the socioeconomic impacts of inefficient and unsustainable tourism activities in the targeted areas.
<p>Aqaba, Sigma-2009</p> <p>Study and design was based on the 2001 Aqaba comprehensive land use plan; its two main components are suggesting a detailed plan for the area coupled with a supportive framework of regulations. The project is based on the suggestion of touristic projects with defined carrying capacity and areas not less than 50 Dunums. Each</p>	<ul style="list-style-type: none"> • A socioeconomic study was included. It included basic information about the tourism sector including social facilities and population. It also included an analysis of employment within the sector and benchmarked this to Jordan. • The study also examined the different sectors of use and landuse and agriculture including the industrial category. • The study also covers concerns of: employment, land value, jobs, and infrastructure. • The local community plans included show main roads 	<ul style="list-style-type: none"> • The plan includes tourism activities on the edge of the proposed buffer zone. It also suggests several alternatives and prefers the "transportation system alternative" as the best development choice. • The plan does include a look at infrastructure but it remains high-level focusing on tourism needs rather than on actual community needs. • The plan by design focuses mainly on tourism, and bypasses current community economic activities that may have an impact or be impacted by

General Preliminary Description	Socioeconomic Sector Related Issues and Impact on Biodiversity	General Discussion and Critique
<p>Project is to be surrounded individually with a buffer zone.</p>	<p>with other villages, tourism stops, crafts area, isolating residential areas, and planning to encourage efficient energy use.</p> <ul style="list-style-type: none"> • The framework also discusses the transportation system, urban density (advises a very low density), materials and colors to be used, service center and infrastructural services. 	<p>expanded tourism development.</p>
<p>The Structural Land Plan for the Urban Expansion Areas in the Petra Region, Consolidated Consultans-2014</p> <p>The plan includes several phases. The Phase I Report includes an Assessment of the Current Situation; the Phase II report the Preparation of the Urban Growth Plan; and Phase III the Preparation of Detailed Plans for Traffic and Transportation; Phase IV the Implementation Plan.</p>	<ul style="list-style-type: none"> • The plan identified the vision derived from the strategic plan for Petra and included the aims of the strategic plan, vision statement, mission, future and vision for the residential settlement. • A growth and expansion strategy was identified which included a general framework for developing the Petra Region. • A breakdown of economic development by geography - northern part (eco-tourism and archaeological zone), central main part (tourism and service zone), southern part (agro-tourism zone). • For each of the expansion areas there was a suggested population for expansion with different scenarios, and criteria for assessing the strategic alternatives. • The expansion areas were categorized based on a hierarchy of residences and infrastructure. • Policies and frameworks are prepared for the urban growth and expansion plans • Economy and labor force: Active enterprise and investment, size of enterprise, work force are discussed. • Natural and cultural heritage outlined 	<ul style="list-style-type: none"> • The plan included a good overview of the population in the Petra region by locality. It also included an in-depth analysis of population and expansion areas that could be very helpful for our purposes. • Employment and labor force is broken down by community and sector and analyzed well in context of the plan • The road network is analyzed by type and impacts on the community taken into account as well as traffic on these roads and their condition, which gives a good understanding and insight into community needs. • Cultural sites are well mapped, and helpful in the context of thinking about tourism. • The planning scenario focuses on intensification and densification of vacant land and existing built up areas, respectively. Further work on this in the context of tourism and biodiversity would need to include community workshops. • Detailed standards given for public facilities and

General Preliminary Description	Socioeconomic Sector Related Issues and Impact on Biodiversity	General Discussion and Critique
	<ul style="list-style-type: none"> Public Facilities: standards for public spaces and facilities 	<p>community use.</p> <ul style="list-style-type: none"> Discussion of the impact of the expansion areas and policies on local communities is limited.
<p>Final Strategic Comprehensive Master Plan 2012 for all Petra region, prepared for PDTRA by ATC Consultants</p> <p>The process of developing the Strategic Master Plan for the Petra region incorporated a diagnostic phase, including stakeholder interviews and workshops. The diagnostics phase was the basis for the elaboration of the <i>“detailed analysis, scenarios and strategy, including guidelines and regulations to encourage private investment while protecting the park”</i></p>	<ul style="list-style-type: none"> SWOT analyses at the community level have been prepared. The main tourism infrastructure and facilities were developed in geographic proximity to the main attraction. Population as the major socio-economic characteristic of the six connected communities of Baidha, Umm Sayhoun, Wadi Musa, Taybeh, Rajif, and Dlagha in the Petra region were reported by the plan. Some discussion of economic activities and employment were also included, health services and education. Tourism market related to the proposed project was briefly analyzed for the six localities. Brief description of the major attractions is provided. Impacts of tourism on the local communities in terms of job creation have been estimated for the proposed project. The Master Plan defined the main challenges facing the further development of the Petra region from the socioeconomic and environmental perspectives. The report also covered the perspectives of tourism products, land use and social infrastructure. The Master Plan focused on many tourism projects such as accommodation facilities, interpretation center, tourism services, residential zone, etc. The study provided financial indicators about the estimated investment, space, revenues and the number of jobs 	<ul style="list-style-type: none"> Wadi Musa and Umm Sayhoun, the closest communities to the PAP, experience the most significant impacts in terms of income generation and job opportunities but also experience negative agglomeration effects such as increased traffic congestion, pollution, increasing land prices, etc. These effects visibly decrease with the distance from the main attraction. Tourism development has the least effect on Dlagha and Baidha. The opportunities and threats for each of the communities are, however, quite different. Discussions with the local community regarding their opinion on the impact are important. Nothing on the impact of tourism growth, efficient land use and other social challenges was included. The current share of employment of the local population in tourism and its contribution to the local economy has not been tackled by the master plan is not covered. Further detailed statistics from the Department of Statistics should be included alongside community discussions regarding economic

General Preliminary Description	Socioeconomic Sector Related Issues and Impact on Biodiversity	General Discussion and Critique
	created	<p>activities and their employment impact.</p> <ul style="list-style-type: none"> The only value analysis conducted in this master plan is for the estimated cost of construction, landscaping, etc. and the proposed facilities. Additional detailed valuation of land use should be conducted to reflect the real value of lands in these communities.
<p>Petra Archaeological park buffer zone plan/ Dar Al-Omran</p> <p>The main objectives of the Buffer Zone are the protection of the park, the protection of special natural features within the areas surrounding the park; tourism development; socioeconomic development; overall enhancement of the site.; controlling the development infringements and encroachments; setting the conditions for controlled and oriented development; controlling and mitigating natural hazards like flash floods, landslides and others; preservation of natural features in integration with the other natural reserves at the national level.</p> <p>The Strategic Plan intended to transform the concept of development in land use plan from pure physical</p>	<ul style="list-style-type: none"> Some of the socioeconomic characteristics (population, death rate, birth rate, marriage, and divorce rates), population density, number of students, and social organizations of the six connected communities of Baidha, Umm Sayhoun, Wadi Musa, Taybeh, Rajif, and Dlagha in the Petra region were reported by the plan. The social implications of the potential impacts of the Buffer Zone were assessed. The assessment focused on the land use aspect at different levels such as individuals, social groups, community and the entire Petra region. The socioeconomic factors reported in the assessment included poverty, unemployment, costs of living and other local level factors such as tribal aspects. Positive and negative implications of the Buffer Zone were reported. Positive consequences of land use include: new jobs, poverty reduction, education empowerment, suitable development, social integration, increase land value, and cultural change. While negative consequences included: socio-economic demographic changes, emerging social risks, loss of identity, threats of social cohesion, social conflicts, change in life style, damage to social network, social 	<ul style="list-style-type: none"> The reported socioeconomic indicators were limited to population, education, health services and the major tribes living with the boundaries of the six communities. This gave an excellent overview. For our purposes, additional socioeconomic indicators might be needed such as employment, income, and local resident aspirations. The discussions of economy and tourism were mostly confined to the national level. For the purposes of this project, additional indicators are needed at the locality level to show the impact of the project on the six targeted communities in the region. The discussion of impacts of tourism growth, efficient land use or any other social challenges would need to be expanded for use in this project's context. The depth of information regarding the relationship between tourism and the local communities would have to be expanded, including the impacts of inefficient and unsustainable

General Preliminary Description	Socioeconomic Sector Related Issues and Impact on Biodiversity	General Discussion and Critique
<p>construction and development to controlled oriented Activities, within an overall compromised management planning framework to achieve the different required levels of protection while achieving also the required socio-economic development.</p>	<p>segregation, cultural impact and riots.</p>	<p>tourism activities, required investments and capacity on the communities, etc. The impact on values of land and landuse within the community as a result of these activities would also have to be expanded.</p>
<p>Jerash MOMA Master Plan</p> <p>The Master Plan is an overall pathway for decision making regarding development applications as it sets out future expansion areas and zoning. It is comprised of a series of layers that interact. The Ministry of Municipal affairs Master Plan for Jerash that tackles the Natural Environment as a central component in landuse.</p>	<p>The different layers that exist that have to deal with the socioeconomic sector include:</p> <ul style="list-style-type: none"> • Public buildings • Sports clubs and similar facilities • Social facilities • Schools • Agriculture • Cultural heritage • Landuse • Employment • Industrial, proposed industrial, fruit market • Weddings • Handicraft area • Hospitals and healthcare centres • Weddings • Overall zoning, etc. <p>The layers are expected to interact with each other in order to inform future decision making.</p>	<p>The Master Plan data was prepared in 2010, and might need updating for our purposes. The MOMA plan provides GIS layers that are geared towards producing landuse Master Plan, rather than better understanding the socioeconomic context. Some of the GIS layers are not filled with information (number of students at each school for instance). The plan consisted mainly of GIS layers as its end goal, which includes a lot of good data on agriculture, natural heritage, cultural heritage and social facilities that has been gathered. The data for the purposes of this study must be correlated and analyzed. For our needs associated reports describing economic sectors, industrial locations, commercial establishments and population, income and employment geographically positioned against infrastructure and other GIS layered data. There also needs to be further discussions with the local community regarding the influence of the tourism sector on them and the impact they have on tourism and biodiversity.</p>
<p>Jerash Structural Plan</p> <p>The different localities across Jordan have their own structural plans defined by the different zoning</p>	<p>Within the governorate the land uses covered are for the most part residential with their various classifications (A, B, C, D, green, rural or connected housing) – special regulations are also used. The Structural Plans include different areas such as crafts, medium industrial zones, and other restricted</p>	<p>The structural plan does not include any focus on population, income or employment, and so it remains a landuse and zoning plan with a missing socioeconomic component. For our purposes, an analysis of the impact of the landuse, projects and</p>

General Preliminary Description	Socioeconomic Sector Related Issues and Impact on Biodiversity	General Discussion and Critique
<p>categories. These structural plans define the different detailed land uses that are associated with the ordinances and guidelines which define the various types of development which are allowed within the various landuses (and the associated instructions such as setbacks and ratios).</p>	<p>areas such as water springs. Tourism specifically does not have a designated category and is not studied within the context of local communities and social aspects, or placed strategically considering different local economies and impact on them. Interesting information does exist concerning commercial, public buildings, existing and proposed schools, parks and open space, and archaeological sites. The different layers include: agricultural within zoned areas; cemetery; public building; plazas; parks; mosque; crafts; medium industrial area; water spring and water path; linear commercial; local commercial; green residential; rural residential with special regulations; residential A; residential C and C with special regulations; special residential; residential D; rural residential; connected housing; residential H; restricted areas; residential B&B with special regulations</p>	<p>zoning on the different residents and localities is required. In addition, in order for this analysis to be comprehensive, further information is required considering social facilities, volume of users, infrastructure type and load and efficiency in the various communities, amongst other factors mentioned in the report text. In order to fully be able to use the data, we would need to update it from 2007 and correlate it to other data especially population and income data from the Department of Statistics.</p>

3.3.5 Data Gap Analysis

When considering the gap analysis, the starting points are the major groups of questions as follows:

Table 28: Factors and Issues

Factor	Questions
Impact definition	<ul style="list-style-type: none"> • What are the potential socio-economic and cultural impacts of the proposed development
Direction of impacts	<ul style="list-style-type: none"> • Is the direction of the potential impacts adverse or beneficial? • Does impact direction shift between different groups and sub-populations? Do some benefit while others don't? • Are the trade-offs between potential adverse impacts and potential beneficial impacts acceptable?
Impact causes	<ul style="list-style-type: none"> • How could the proposed development cause socio-economic impacts?
Impact attribution	<ul style="list-style-type: none"> • Will the proposed development create new impacts or accelerate existing impacts? • How responsible could proposed developments be for causing the impact?
Impact scope and scale	<ul style="list-style-type: none"> • Which populations and communities will the proposed development most likely impact? • How wide is the geography across which these impacts might be felt?
Impact manageability	<ul style="list-style-type: none"> • Will potential impacts support or undermine affected community aspirations? • How resilient are potentially affected communities? • Will impacts cause unmanageable change?
Impact significance	<ul style="list-style-type: none"> • Are the potential impacts likely adverse or significant? • Is mitigation available to manage, reduce or eliminate potential impacts?
Impact mitigation and monitoring	<ul style="list-style-type: none"> • Are there existing mitigation measures that have worked for these types of impacts? • How do we track the accuracy of our predictions and use adaptive management?

GIS Data

- A comprehensive GIS database with the various layers should be developed for all target areas to include:
 - Population and demographics
 - Infrastructure
 - Land Value
 - Land Ownership
 - Social Facilities
 - Zoning
 - Tourism Assets
 - Environmental and natural reserves including natural heritage and biodiversity elements

Older Studies

- Updating the information and statistics within the studies as required to serve the purposes defined above.

Community and Stakeholder Inputs

- Focus groups and key stakeholder interviews are required to talk to local communities.

The following concentration areas will be focused on in the assessment:

- Population and demographics
- Land Value
- Land Ownership
- Community Benefits and involvement
- Awareness activities
- Social equity
- Bio-geographical and Socio-economic characteristics
- Socio-economic issues
- Tourism Investment and its Contribution to local economy
- Demographic
- Social impact

Data Lines

- Aligning data to boundaries that serve the purposes of the study, whether municipal or other.

None uniform data

- Work towards having the same level of data available for all three target areas.

Population Data

- In discussions with local municipalities update population data as recently as possible.

3.3.6 Brainstorming and Potential Future Approaches for Reducing the Impact of Sector on Biodiversity (Protocols and Action Plans)

3.3.6.1 An Introduction on Sector & Sustainability³⁵

Tourism is one of the world's largest industries and has become one of the fastest growing economic sectors. The management of tourism affects the conditions of destinations and host communities, and more broadly the future of ecosystems, regions and nations. Tourism has a multitude of impacts; it can be a positive force, bringing benefits to destinations, or an engine for degradation. Tourism can be seen as a complex adaptive system combining socio-cultural values, quality of life aspirations, and the biophysical and economic systems in which tourism takes place over time.

This calls for an integrated approach and a procedural and holistic understanding of sustainable tourism development. Sustainable tourism is not a new form of tourism, as sustainability should be applied to all different forms; for example eco-tourism, cultural tourism, beach tourism. Customer demand for sustainable travel, designed to have a lasting impact on the positive development of the regions visited, is consistently increasing even though terminology may vary. The growing number of tourism experts acknowledges this through expressing their sustainable development intentions; however this does not always translate into practice. Policy-makers have also been **responding; the European Commission now refers to 'sustainability' as one of the 'four indispensable pillars of tourism development'**

There are generally accepted aims of sustainable tourism development:

- Unspoilt natural environment landscapes as well as measures for environmental protection are prerequisites for the tourism of the future.
- Tourism should make optimal use of environmental resources that constitute a key element in tourism development, maintaining essential ecological processes and helping to conserve natural heritage and biodiversity.
- Tourism should be embedded in a sustainable, regionally-specific, networking economy. It should provide fairly distributed, socio-economic benefits to all stakeholders including stable employment, income earning opportunities and social services to host communities.
- Tourism should respect the socio-cultural authenticity and self-determined cultural dynamic of host communities, conserve their built and living cultural heritage and traditional values, and contribute to inter-cultural understanding

³⁵ Inspired by: http://www.surf-nature.eu/fileadmin/SURFNATURE/Publications/Sustainable_Tourism_Thematic_Booklet.pdf

and tolerance. It should serve both the social well-being of the local population and the employees in the tourism sector.

- People are the central focus for a policy on tourism. The local population should have access to all information and be able to participate equally in all decision making processes.
- Intensively exploited tourist destinations have to implement environmental management systems for companies and the region itself, as well as regional sustainability strategies. Environmental Impact Assessments (EIA) have to be carried out for the construction and enlargement of tourism related infrastructure and responsible authorities should make sure that splitting projects into subprojects for the purpose of avoiding the EIA requirement are avoided.

Tourism often stimulates measures to protect or conserve nature, but at the same time, and somewhat paradoxically, presents a significant environmental risk because of its demands on the natural environment. These risks are intensifying as domestic and international tourism demand for natural areas is growing. Furthermore, the nature of that demand is such that tourists are seeking more spontaneity, independence and participation in their experiences, and thus contributing to the growth of sustainable tourism.

There are three different relationships with respect to tourism and nature conservation: conflict, coexistence or symbiosis. These can exist between those promoting tourism and those advocating nature conservation.

- Conflict occurs when conservationists see that tourism can have only detrimental effects on the environment
- Coexistence is noted when a positive effect, though sometimes small, is recorded between the two groups. However, such coexistence rarely continues indefinitely, particularly when an increase in tourism activity may cause substantial changes to the environment.
- Symbiosis is reached when the relationship between tourism and nature conservation is organized in such a way that both derive benefit from the relationship.

Conflict and coexistence are common, symbiosis is perhaps least represented. Tourism and protected areas often take on a symbiotic relationship since protected areas provide values, settings and resources attractive to visitors. Tourism can cause both environmental degradation and enhancement. Sustainable tourism requires the conservation of nature, and thereby can support the maintenance or substantial enhancement of natural

Tools for Ensuring Sustainability

The following types of broad incentives are used: regulatory and economic disincentives, legal and statutory incentives, property rights innovations, market-oriented institutions, financial incentives, and public tax.

Market-based instruments seek to address the market failure of 'environmental externalities' either by incorporating the external cost of production or consumption activities through taxes or charges on processes or products, or by creating property rights and facilitating the establishment of a proxy market for the use of environmental services. Market failure, in the case of biodiversity, originates from the nature of the goods and services provided by biodiversity. The main problems are:

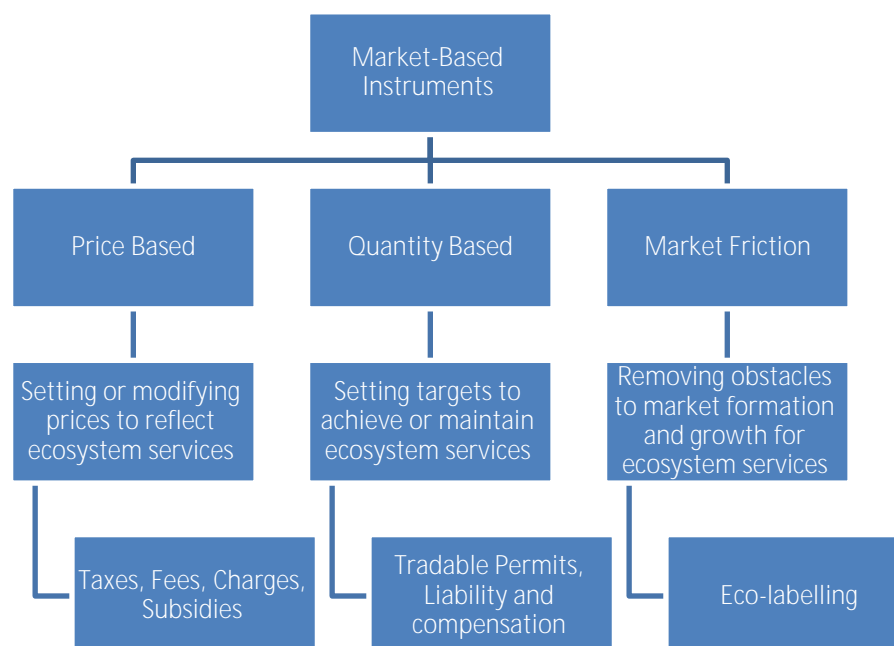
- (i) biodiversity related goods and services are often public goods
- (ii) the use or conservation of biodiversity is associated with external effects, and
- (iii) an asymmetry of information between those paying for conservation measures and those carrying them out sometimes exists.

Market-Based Instruments have several advantages:

1. They allow a flexible response to price signals and encourage innovation.
2. They are cost effective and encourage improvements to be achieved in the cheapest manner.
3. They should avoid some of the negative incentives (e.g. the presence of a protected species on land being regarded as a liability) which may be occasioned by regulatory approaches.

In most cases they attempt to follow the party causing the biodiversity degradation pays principle so that the costs are internalized.

Figure 10: Different Types of Instruments and Incentives



Please see Annex 6 for more information on these.

3.1.1.1.1 Land-Use Planning

The conservation of intrinsic value associated with biodiversity will require the cooperation of private landowners with participation enhanced through incentive mechanisms. There are three major reasons why the role of private landowners and incentives are important: the location of listed and at-risk species, the need for conservation tools that are complementary to regulation and the lack of markets for public goods like species and habitat conservation.

While economic activities can result in habitat and species loss or degradation, economic and market forces do not have to counter national goals on biodiversity. The forces can complement the regulatory approach to conserve and restore endangered species and biodiversity. A system of economic incentives, both positive and negative can begin to translate the broader biodiversity vision. Economic activities that are supportive can be encouraged, local communities offered financial incentives and capacity building to partake in them.

Those with valuable biological resources on their land can be rewarded for conservation or restoration efforts and integrating habitat protection with sustainable economic activities, in order to translate the public social value of conservation into financial incentives for private landowners to invest in and manage lands for biodiversity.

The relationship between maintaining biodiversity and land-use planning is a tricky one especially in Jordan. Local communities, especially those with large informal economies, rentier economic attitudes and pre-existing economic need for the land must be satisfied before it can be zoned in isolation to maximize biodiversity conservation. Tribal equity in Jordan is also especially important to consider.

In best practices the incentive mechanism to be applied can also be applied through a strategy corresponding to land-use intensity and alternative production systems. First, some private lands may be relatively untouched and still maintain a large portion of native biodiversity and ecosystem functions. Accordingly, one conservation strategy would select incentive mechanisms to maintain intact remnant habitats such as conservation easements or long-term stewardship agreements.

Second, the intensity of use on other private lands may be fairly low over time, allowing for the possibility of restoring some species and eco-systems. This type of landscape may require cost-share incentive mechanisms for restoration and some type of permanent protection follow-up. Lastly, private lands may have been substantially modified to support the current production system. Thus, a third strategy would focus on minimizing production impacts on native species and habitats. Each of these strategies will necessitate a different mix of incentive mechanisms requiring a balance between land conservation programs and incentives for alternative production practices. The most effective mix of incentive measures will depend on the types of land use and ownership patterns and the viability of the economic enterprises practiced.

Land use planning is an enforceable set of regulations on land utilization defining potential uses for the various areas of a territory. It typically involves having a clear conception of sustainable development policies and objectives, regarding environmental, social, and economic issues in society. Additionally, it sets standards that are binding to all stakeholders. The agency in charge of implementing the plan is usually the local government, in coordination with all sectors involved. Moreover, it is developed with wide involvement of social and institutional stakeholders present in the area.

Comprehensive space planning in communities and tourist destinations may be an important instrument to support existing biodiversity conservation, as well as abating current impacts on it. The lodging industry can greatly benefit from this process, since it contributes to long-term preservation of landscape and biological attractions underlying tourist activities, and to maintaining destination quality, competitiveness, and positioning.

The land use planning process will vary according to current level of development, and it is meant to help manage it, instead of reverting it. It must be a participatory process to gather inputs from the different sectors involved, i.e., residents, businesspeople, investors, and visitors. It should also have technical support from

professionals in different fields, such as engineers, architects, landscape architects, biologists, ecologists, and sociologists, among others. Land use planning should start **with a deep knowledge of the area's natural features, such as soil types, topography, geology, hydrology, ecosystems, vegetation, and wildlife.** Identifying environmental services provided by natural ecosystems is important, since their maintenance should be sought by the planning process. Human issues should also be taken into account, including demographics, population distribution patterns, recent construction growth rates, customs and life styles, historical and archaeological heritage, current and potential uses of existing biodiversity, and others.

This planning process should also take into consideration both existing and proposed infrastructure and utility issues, such as highways, roads, airports, landing strips, bridges, wharves, mass transit, electric power, drinking water, sewage systems, telephone lines, public lighting, recreational areas, waste collection and disposal systems. A proper balance should be struck between these developments and existing biodiversity.

The process must end with a land use plan, which is an instrument defining actual land use possibilities, identifying spaces for the different socioeconomic development activities, biological diversity conservation, and maintenance of its environmental services, and harmonizing the various identified uses. Additionally, it sets standards that are binding to all stakeholders. The agency in charge of implementing the plan is usually the local government, in coordination with all sectors involved.

Localities and municipalities do not always have the capacity to monitor if defined standards and requirements within territorial land use plans and urbanization plans have been fulfilled during the implementation. This lack of control may be due to the lack of financial resources and personnel and because of corruption at the local level. Therefore it would be very important to have an effective – neutral and financially independent – monitoring and evaluation system regarding the implementation of land use plans. Since land use planning is a long-term issue (10 – 20 years), it would be very important to have regular revisions of the land use plans (every 4 – 5 years) and to evaluate if the objectives and planned measures are still in line with biodiversity conservation objectives and the development /demand of the (tourism) market. Long term monitoring and evaluation may provide useful information to contribute to the adaptation of the plans to changing realities and to the mitigation of negative impacts on biodiversity.

The lodging industry may significantly contribute to land use plan development, implementation and monitoring, providing inputs on available natural attractions, identifying underlying environmental services, complying with standards set by the plan, and embracing sustainable tourism best practices targeted on minimizing negative impacts on biodiversity.³⁶

³⁶ http://www.rainforest-alliance.org/tourism/documents/tropical_forest_eng.pdf

A serious problem with respect to biodiversity occurs when land is inherited resulting in divisions across generations and smaller pieces of land that oftentimes are too small to encourage efficient production and agricultural use. Offering financial incentive schemes tied to larger plots of land and efficient use for agricultural and other purposes may help unite individual owners to encourage appropriate usage.

3.1.1.1.2 Local Training & Capacity Building

The local training and capacity needs should be developed as part of a cohesive document whereby a participatory assessment takes place involving all relevant stakeholders, representatives from various sectors and actors with impact on biodiversity to articulate an assessment report specifically identifying capacity building requirements needed to mitigate threats affecting native and globally important biological diversity. This might start with a preliminary needs assessment survey to gauge the level of understanding on biodiversity, and the gaps that need to be filled. It is important to note that a cultural change across all levels of management, not only that of the environment directorate, but also for decision-makers, technical staff in planning and marketing, amongst other departments is required, and so non-environment staff should be included in training. Local communities may also require awareness campaigns and so must be included in any capacity building plan.

- Facilitating and supporting environmental institution building and legislation by governments at regional, sub-regional, national and local levels.
- Developing and testing environmental management instruments
- Promoting public participation in environmental management and access to information on environmental matters.
- Facilitating technology transfer and disseminating best practices.

Some of the areas capacity building is required may include:

- Low integration of biodiversity concepts in the national policy formulation process
- Weak linkages between research and policy making
- Lack of national directives for Biodiversity Impact Assessment
- Lack of clear policies for regional and international technology transfer
- Lack of an institutional process for assessing impact on biodiversity
- Low national capacity of community management for in-situ conservation outside the protected areas
- Lack of economic incentives and valuation of biodiversity components
- Weak mobilization of financial resources available for biodiversity
- Lack of long-term coordination mechanism between institutions working in biodiversity
- Weak institutional and legislative framework for regulating access to genetic resources and benefits sharing
- Lack of a national knowledge management and data processing system for monitoring and reporting on biodiversity:
- Lack of long term programs for awareness and education on new concepts in biodiversity management.

3.1.1.1.3 Lobbying for Regulated Public/Private Partnerships

PPPs can be a powerful tool for tourism product development and enhancement, as well as for research, marketing, and promotion. While a PPP is not the best tool for every requirement, the strategic use of partnerships can contribute significantly to the development of a sustainable tourism program, and PPPs can be a vital tool for facilitating tourist access and improving the destination experience.

PPPs for sustainable tourism encompass a variety of different models, from simple social collaborations designed to improve the tourism experience, to major infrastructure and project development projects. As the capital investment required for the partnership increases, so does the need for a formal enabling environment. Private investment is attracted by open market conditions, and transparent and predictable policies and procedures. The potential rewards for private sector participants must be commensurate with their investment; this applies to all PPPs, from small, voluntary projects to major development efforts. Governments should carefully evaluate partnership opportunities to ensure that the anticipated outcomes **will support the public sector's sectoral objectives in a sustainable manner.**

Partnerships create opportunities for private sector enterprises of all sizes, and for NGOs, throughout the tourism value chain. Large infrastructure PPPs will be awarded to large contractors, but MSMEs typically participate as subcontractors, and benefit from the project outcomes. Other partnership models may offer greater scope for MSME direct participation, due to the lesser investment requirements³⁷. Within Jordan this is a clear choice for moving forward as it balances between private profit-serving initiatives and public needs to conserve biodiversity and sustainable tourism.

3.1.1.1.4 Policies Affecting Development Trends & Regulatory Frameworks

The current trends outlined above show that changes are needed in local and national policies and regulations. An alternative framework for tourism development is required, one which integrates biodiversity needs and marries it to satisfying community development and participation. This is the basis for work in Phase II in collaboration with the local community and relevant stakeholder institutions.

3.1.1.1.5 Biodiversity Information Systems & Facilities and Interpretation Development

Biodiversity databases store taxonomic information which provide information on the biodiversity of a particular area or group of living organisms. They may store specimen-level information, species-level information, information on nomenclature, or any combination of the above. Most are available online.

The "Biodiversity Information Standards (TDWG)" (formerly The International Working Group on Taxonomic Databases) is a non-profit scientific and educational

³⁷ http://portal.oas.org/en/sedi/dedtt/itc2011/pres/Arthur_Smith.pdf

association that is affiliated with the International Union of Biological Sciences. The organization was formed to establish international collaboration to promote the wider and more effective dissemination of information about the World's heritage of biological organisms for the benefit of the world at large.

The Biodiversity Information System for Europe (BISE) for instance contributes to the improvement of the knowledge and evidence base for the European Union's environmental policy. For Jordan, while much information does exist on individual areas, and within select NGOs and public sector agencies it is not streamlined or readily accessible which means that it is not well integrated into private sector developments and planning efforts. There is very well-developed mapping of biodiversity assets and systems especially by the RSCN in Diebeen that could be the start of an overall information system for Jordan though this is not yet in existence.

3.1.1.1.6 Best Practices

A series of questions within the Best Practices include:

1. Defining the aim and understanding the context: to better note what kind of natural environment is to be protected within the Jerash, Petra and Wadi Rum localities, and how tourism is the correct means for the purposes of protection
2. Required and preferred stakeholder involvement: including the identification of all needed stakeholders for consultation, and defining effective working relationships
3. Outlining known baseline conditions: to identify existing studies and projects of relevance, determine heritage and nature assets, consider financing schemes of these projects
4. Describe what makes the project special: noting what is special about the location, how its values are recognized and communicated, and what protection measures are in place
5. Outlining the issues: to fully describe why protection is necessary, how recent and urgent the threats are and how tourism in the region actually functions
6. Analyzing the issues: to outline development trends within the tourism industry, prioritize issues and note the negative impacts that will occur without the project
7. Principles or objectives guiding action: to develop clear statements to guide future actions and seek agreement on those from key partners
8. Ideas and options: to refine options available and work through ideas with decision-makers, look at the benefit to stakeholders, consider project design

including training and education, commitments to follow-up after implementation.

9. Implementation considerations: action plan, monitoring and evaluation methods, additional factors for consideration with project timeline, financing issues are clear and have well defined indicators of success
10. Statement of directions: describing the projects its aims and implementation in two paragraphs and outlining the follow-up

There are many well-defined "best practice" guides, one of which was developed with UNEP looking specifically at mainstreaming biodiversity within tourism developments. The project worked with businesses, governments, NGOs and community leaders to incorporate biodiversity conservation practices into the tourism industry. It had pilot efforts in the Cayo District (San Ignacio) of Belize and Mindo and Galapagos in Ecuador. The project developed models for good practices, provided workshops and published materials to guide businesses and communities³⁸. The project produced four toolkits outlining good practices for marine and tropical forest tourism:

- A Practical Guide to Good Practice for Marine-Based Tours with a Particular Focus on the Gálapagos - www.rainforest-alliance.org/tourism/documents/galapagos_guide.pdf
- A Practical Guide to Good Practice for Tropical Forest-Based Tours - www.rainforest-alliance.org/tourism/documents/good_practice.pdf
- Guide to Best Practices for Sustainable Tourism in Tropical Forests Lodging Business - www.rainforestalliance.org/tourism/documents/tropical_forest_eng.pdf
- Guide to Good Practices for Sustainable Tourism in Marine-Coastal Ecosystems Lodging Businesses - www.rainforestalliance.org/tourism/documents/marine_coasta_eng.pdf

The project's successes include:

- Four manuals developed with stakeholder participation.
- A strategy to ensure broad attendance of tour and lodging operators at seminars and workshops organized by the project.
- Training of more than 1,200 tourism industry stakeholders.
- Training of more than 400 people in one-day seminars and 587 people in two-day seminars in Ecuador.
- Training of 206 people in one-day seminars and 100 in two-day workshops in Belize.
- Evidence that the project induced lodging and tour operators to adopt some of the recommended best practices.
- A study on Economic Gap Analysis conducted for each country.
- A corps of businesses dedicated to sustainable tourism practices developed by the project.

³⁸ http://www.unep.org/dgef/Portals/43/news/facts/GEF%20Folder%20Inserts_18.pdf

3.1.1.1.7 Consultation & Participation

Within a community participation plan, key stakeholders should be identified and described in terms of their (a) long-term interest in the managed economic growth of tourism destinations, (b) concerns for biodiversity conservation, (c) degree of control and influence on the sustainable use and protection of their natural resource assets and (d) commitment to collaborative management processes involving local communities. In this way an initial stakeholder map of institutions and local stakeholders can be drawn. A draft attempt is seen in the table below:

Here please refer to the stakeholder agency and partnership that was included in the report introduction.

Consultations may also be expanded to include talks with international and regional development donors, private sector businesses, NGOs and consultants to:

- a) Identify target areas for future investments
- b) Describe major policy and planning goals
- c) Determine specific projects funded or in the pipeline related to tourism-related developments in key development areas

If one were to begin to draft a community participation plan it would begin as follows:

1. Identifying geographical locations and hubs of interest
2. Developing guides for participation to ensure that each correctly captures local conditions and is succinct enough to be practical. These guides will include key questions and will be tested to ensure that they are appropriate.
3. Organizing and Conducting Focus Groups: Within target areas to ensure that social impacts are explored sufficiently, detailed focus groups will be held. Organization will include calling local leaders, visiting prior to the focus group and distributing flyers and leaflets where appropriate. It might be the case that each village/town be completed within one working day. In the case where breakout focus groups are required; these might run-over into the next day. Separate groups for males and females and across various professions may be required in order to ensure fair representation. Meeting locations will be arranged at locally known and available halls, at no additional cost. For each of the focus groups minutes of meeting will be written in full.
4. Key Stakeholder Interviews: Are important especially for institutions, a sample may include:

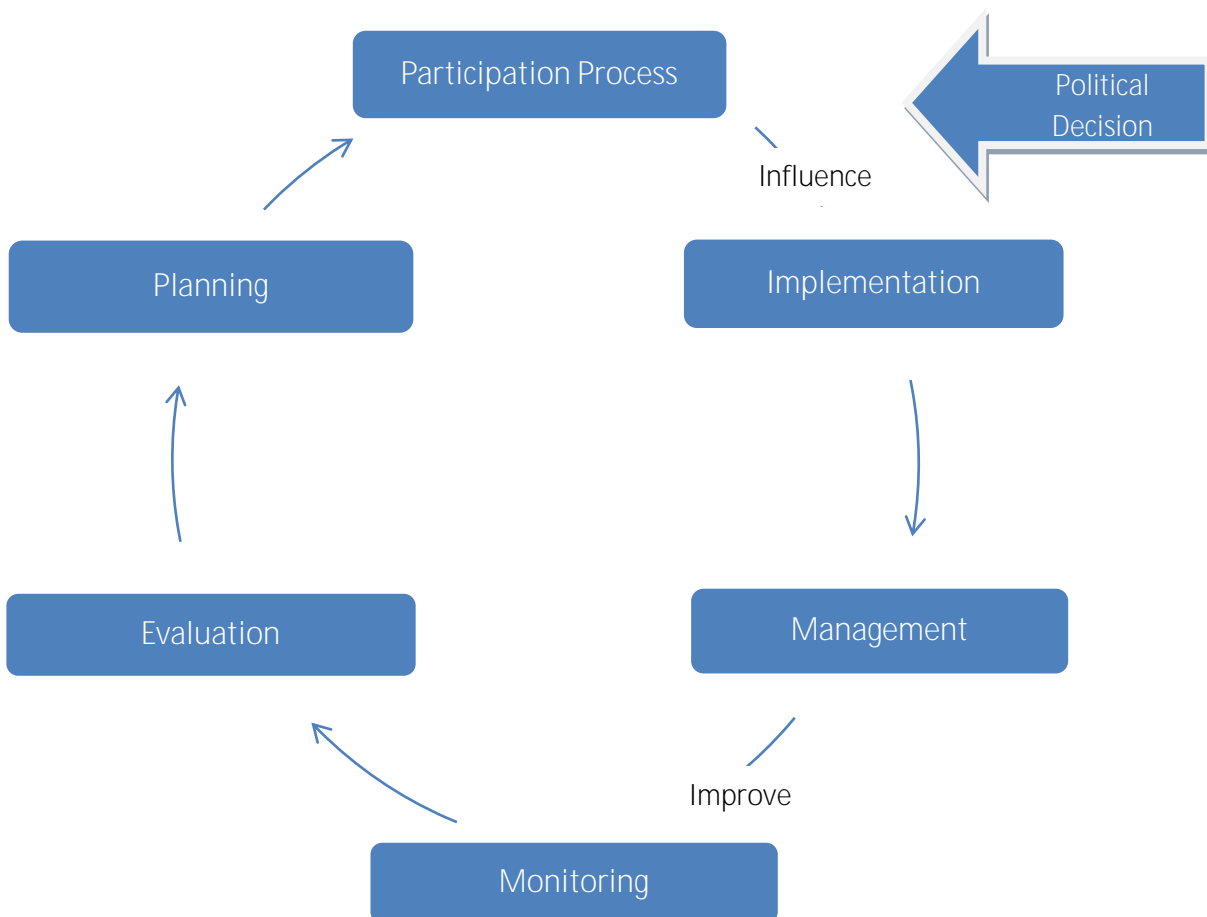
Figure 11: Sector and Main Stakeholders

Sector	Main Stakeholders
Tourism	Jordan Tourism Board Ministry of Tourism Royal Society for the Conservation of Nature Other local NGOs Municipalities Hotels
Education and Labor	Ministry of Education Ministry of Higher Education Vocational Training Corporation Local Schools Ministry of Labor National Employment Center
Health	Ministry of Health Local Health Centers Local Hospitals
Housing	Housing and Urban Development Corporation
Social Development and NGOs	Ministry of Social Development Ministry of Planning and International Cooperation King Abdullah the Second Fund for Development Jordan Hashemite Fund for Development Development and Employment Fund National Fund for Supporting Youth and Athletic Movement National Aid Fund Noor Al Hussein Foundation Other Local NGOs and Cooperatives
Water and Irrigation	Ministry of Water and Irrigation Jordan Water Authority Jordan Valley Authority
Microfinance	Sample of the Seven Microfinance Organizations
Agriculture	Ministry of Agriculture Agriculture Credit Corporation Management Fund for Agricultural Risk
Industry and Economy	Ministry of Industry and Trade Chamber of Industry Chamber of Commerce Free Zones Corporation Industrial Estates Jordan Investment Board ASEZA ADC Development Zones Commission
Infrastructure	Ministry of Transport Public Transport Regulatory Commission Ports Authority

	Jordan Maritime Authority Aqaba Railway Corporation Royal Jordanian Navy
Gender Issues	Ministry of Social Development Microfund for Women Jordan River Foundation
Politics	Governors Ministry of Interior
Environment and Ecology	Ministry of Environment Royal Society for the Conservation of Nature Diving Center Royal Marine Conservation Society
Lands	Department of Lands and Survey

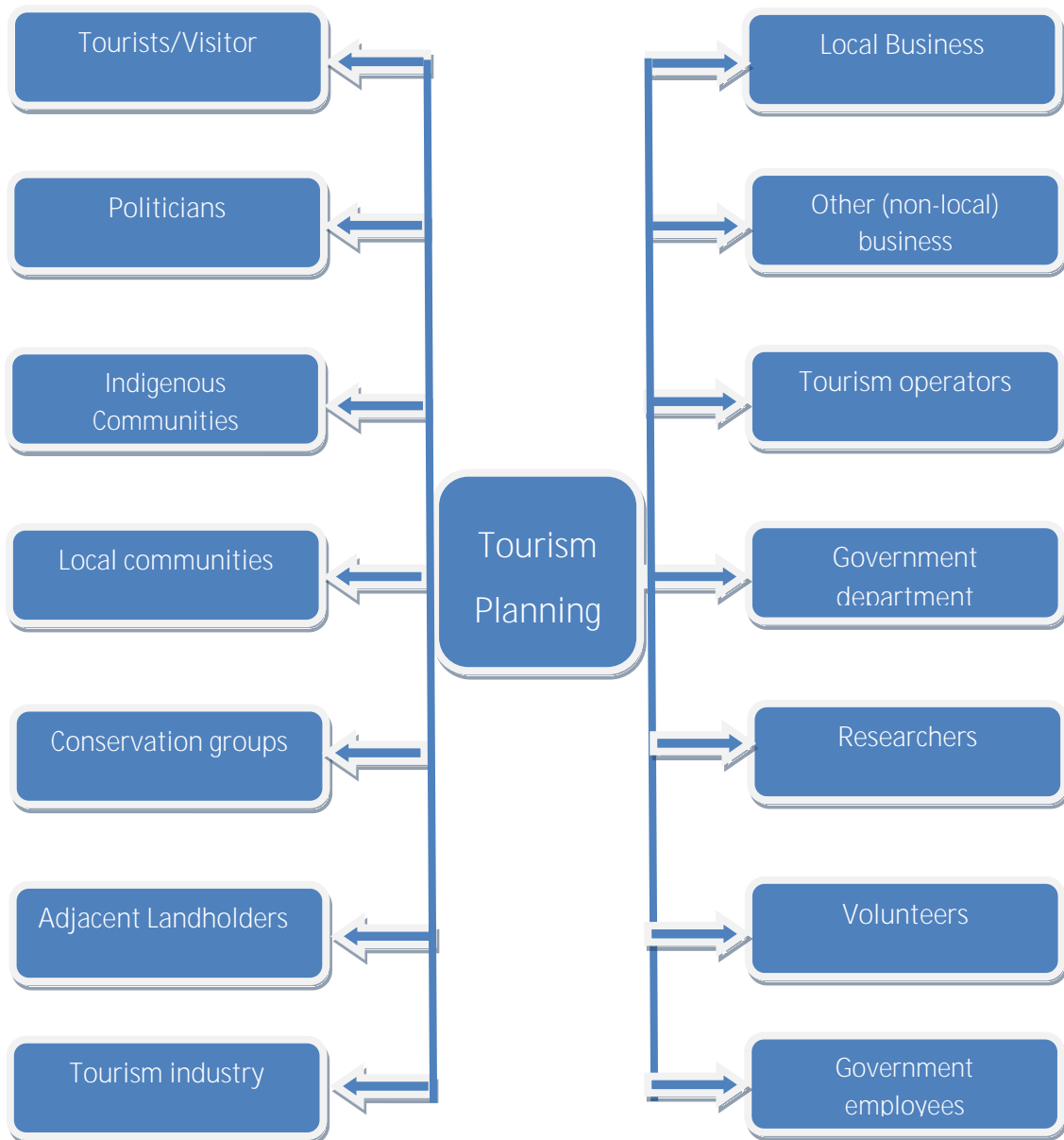
The two diagrams below outline the type of stakeholder participation required:

Figure 12: Community Participation Process³⁹



³⁹ Inspired by: http://www.surf-nature.eu/fileadmin/SURFNATURE/Publications/Sustainable_Tourism_Thematic_Booklet.pdf

Figure 13: Community Stakeholders⁴⁰

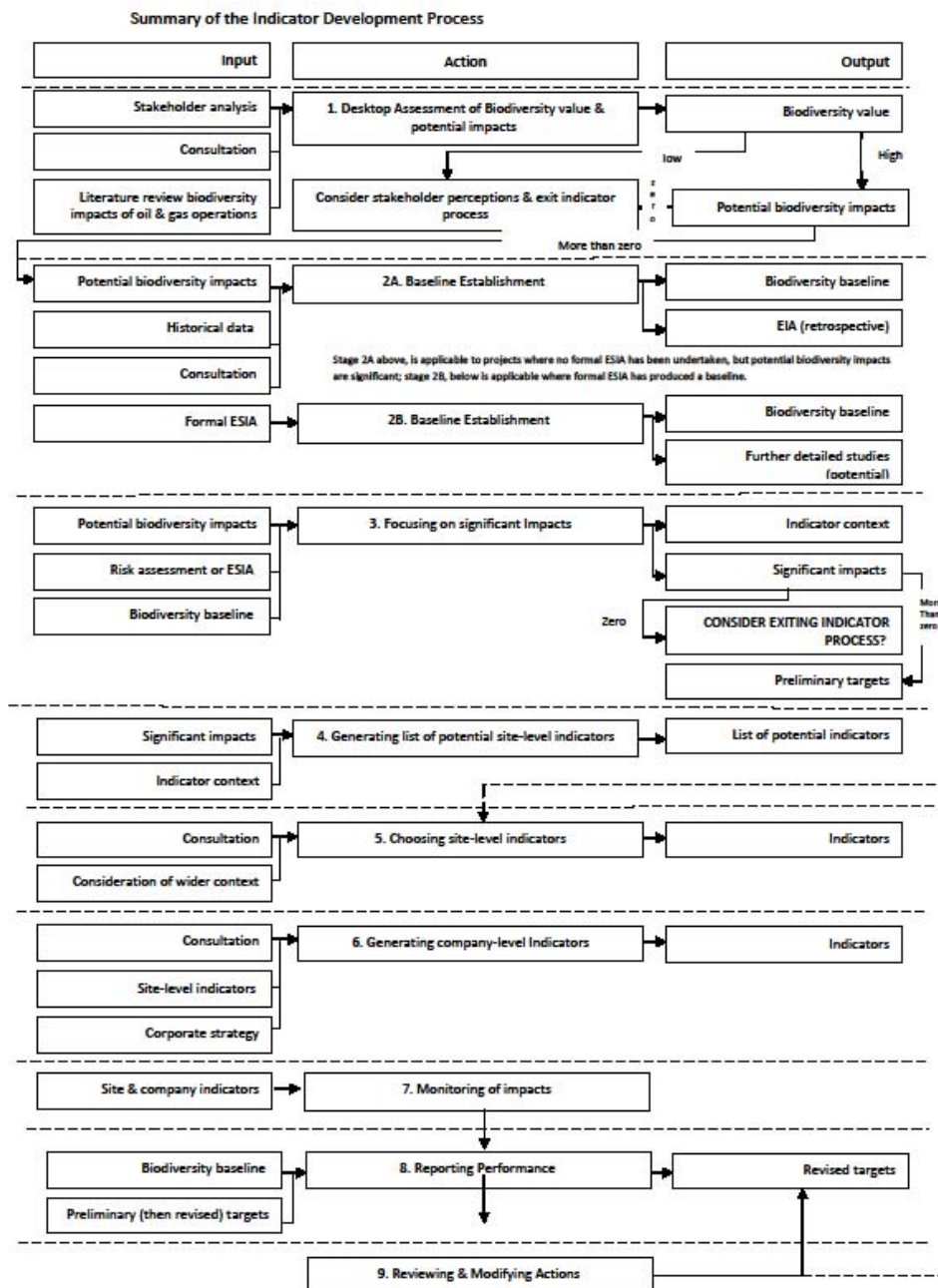


⁴⁰ Inspired by: http://www.surf-nature.eu/fileadmin/SURFNATURE/Publications/Sustainable_Tourism_Thematic_Booklet.pdf

3.1.1.1.8 Monitoring & Sustainability Indicators

Indicators must be able to show the effects of change. There must be clear, discernable, outcomes from the inputs made to the system⁴¹:

Figure 14: Indicator Development Process



⁴¹ The Energy and Biodiversity Initiative, Biodiversity Indicators for Monitoring Impacts and Conservation Actions

The directory tables on the following pages contain examples of indicators covering species, habitats, management commitment and process-output subject areas. Each has its own strengths and weaknesses. Some may be suitable for measurement of impact or actions at a site level, others also suitable for assessment of performance across the whole company. It is strongly recommended that these indicators should not be used “off-the-shelf.” **They are offered as examples only, and the process outlined in Section 4** is essential for the development of appropriate and relevant indicators that are optimized for monitoring impacts and conservation (and that take into account the specific circumstances relevant to particular sites or companies).

They are grouped according to the following category types:

- Species indicators.
- Habitat indicators.
- Management indicators.
- Industrial process indicators⁴².

Please see Annex 7 for more information on how to develop these indicators further.

⁴² The Energy and Biodiversity Initiative, Biodiversity Indicators for Monitoring Impacts and Conservation Actions



LEGAL & INSTITUTIONAL

Photo credit @ UNHABITAT TEAM

3.4 Legal component

Urban planning in Jordan has evolved substantially in recent decades, but the regulatory framework has not kept pace with developments on the ground. New planning methods have been introduced by various actors, including municipal governments, and economic zone authorities. These methods incorporate many internationally recognized good practices, such as demand driven planning, stakeholder participation, and environmental and social impact analysis. The laws and regulations governing for physical planning in Jordan, however, have not been brought up to date to reflect these changes. The planning system in Jordan today is characterized by legal, institutional, and spatial fragmentation.

3.4.1 Legal Background

Legally the laws and regulations set by Ministries applies to the whole kingdom and thus share the same legal framework unless specified by the law especially for some of the independent entities such as ASEZA, PDTRA and special development zones. These entities might be totally independent and have their own laws and others still rely on Ministries laws. Also these entities might have full dependence and their own laws in certain sectors and still rely on the national laws in other sectors.

For a full understanding of these issues this section will try to map the legal framework for the project local authorities and highlight the overlap between legal systems and procedures or the gaps in certain legal frameworks and procedures.

The team has investigated the laws and regulations that are related to the land use, biodiversity, tourism and socio-economy components of this report for the following entities:

- Ministry of Municipal Affairs MOMA
- Ministry of Environment MOE
- Ministry of Agriculture MOA
- Ministry of Tourism MOTA
- Ministry of Energy and Mineral Resources MEMR
- Ministry of Finance MOF
- Ministry of Industry and Trade MIT
- Aqaba Special Economic Zone Authority ASEZA
- Petra Development and Tourism Region Authority PDTRA
- Wadi Rum
- Department of Land and Survey
- Natural resources Authority
- Water Authority of Jordan

A list of their laws and regulations in table 33 summarizes the laws concerning the projects and their regulations or amendments, their application and the areas that they influence the different sectors.

The Land Use sector

Jordan:

There are a set of laws and regulations that govern and guide urban planning in Jordan.

These include:

- Cities, Villages and Buildings Zoning Law, No. 79 of 1966 (“the Planning Law”) and amendments
- Law on Sub-divisions within Municipality Areas (Law no.11 of 1968 amended by Law no. 9 of 1984);
- Decision no. 535 of the Higher Planning Council-1987;
- The Regulation of Construction and Zoning for Cities & Villages (no. 19 of 1985); and its amendments
- Regulation No.6 in 2007 for a Land use Map
- Expropriation Law (no.12 of 1987) and amendments thereto.
- Municipalities law 13 in 2011
- Regulation 70 of 2001 /The regulation of area divided among partners ; issued in accordance with paragraph 6 of article 2 of the common immovable property No 48 of 1953
- Aqaba special economic zone law number 32 for the year 2000
- Regulating and licensing regulation in ASEZ
- ASEZ Zoning and Building License Regulation No.32 for the year 2004
- ASEZ Environment Protection Regulation No. 21 for the year 2001
- Environmental Protection Law NO. 52 for the year 2006
- Environmental impact assessment Regulation No. 37 for the year 2005
- Regulations No. (29) of 2005 Natural Reserves and National Parks Regulations
- Tourism law and its amendments No. 20 for the year 1988

Institutionally, there are 3 levels of planning authorities in Jordan. The lowest level is the Local (city) Planning Council (art. 9 of Law 79/1966) at municipal level. The Local Planning Councils are responsible for preparing the structural and detailed plans with the technical support of the Ministry Urban Planning Department; approving the division plans according to the approved plans; and issuing development and buildings licenses pursuant to the Law.

At medium level there is the District (cities and villages) Planning Council (art. 8 of Law 79/1966) at Governorate level. The District Planning Council is responsible for approving the detailed plans; and examining any appeal against the regional, structural and detailed plans at governorate level and submit them with recommendations to the Higher Planning Council.

The supreme planning authority in Jordan is the Higher Planning Council (art. 5 and 6 of law 79/1966) which is responsible for declaring the towns planning areas, expansions and amendments; approving regional plans and town structural plans; examining any appeal against the decisions of District Committees; and approving the regulations and draft laws proposed by the Urban Planning Department relevant to planning affairs.

According to Law 79/1966, the institutions responsible for preparing the plans are:

- At local level: The Local Planning Councils for preparing the structural and detailed Plans with the support of the UPD of the Ministry (Art. 9).
- At national level, the mandate to prepare the *structural plans* for the cities and the Regional plans is charged to the Central Cities and Villages Planning Department at the Ministry of Municipal Affairs (MOMA);

Regional and Structure Plans require the approval of the Higher Planning Council. Detailed Plans are approved by Municipal Council or Local Committees for municipal areas. In practice, Detailed and Structural Planning is under jurisdiction of the Higher Planning Council. The Regional Plan forms the basis for the Structure and Detailed Plans. The contents of Structure Plans and Detailed Plans are very similar, except that they vary in scale. In practice, a fourth level of planning exists that is used to guide new development that includes:

- Zoning Plans (Al-Tantheem) established by the Cities, Villages and Buildings Planning Law, No. 79 of 1966 and amendments (and Regulation of Urban and Rural zoning and Buildings No.19 of 1985 and its amendments) usually refer to zoned areas within municipal zoning map and are updated periodically. Al- Tantheem can apply ordinances as established in the 1966 Planning Law and amendments or include ordinances as special regulations specific to that Plan (see below, Special Regulations)
- Subdivision Plans (Al-Taqseem) established by Law No. 11 of 1968 (Al-Taqseem Law) are applied on a per-basin basis. In this Plan, one-third of Al- Taqseem land will be designated for public purposes (i.e., roads, social facilities, parks). Al- Taqseem can be applied to areas that have existing zoning or to areas without zoning. Zoning, however, is not a prerequisite for Taqseem approval. Generally speaking, Al-Taqseem should respect any approved plans or zoning within and around the area to be subdivided, especially in proximity to approved roads.

Higher Planning Council is headed by MOMA Minister. It has another 8 members: GAM Mayor, MOPWH Secretary General, MOH Secretary General, MOPIC Secretary General, HUDC Director General, Head of Engineering Syndicate, and the MOMA Planning Director. Regional Committee has been formed as a committee formed of 4 representing local public works, health, planning, and law headed by the Governor / Mutasarref. A fifth member from the Local Committee joins when discussing issues related to it.

Procedures:

Regional Committee/ Liwa'eyya consider objections and makes recommendations to Higher Planning Council. For Detailed Plans and Structural Plans, adoption procedures start at Local Committee level. The Local Committee receives objections and makes recommendations to Regional Committee which studies all objections and then takes the decision. The decision is published as required and will be adopted after 15 days. Approvals outside zoned areas are conducted by a sub-committee within the Governorate with recommendations from MOMA directorate.

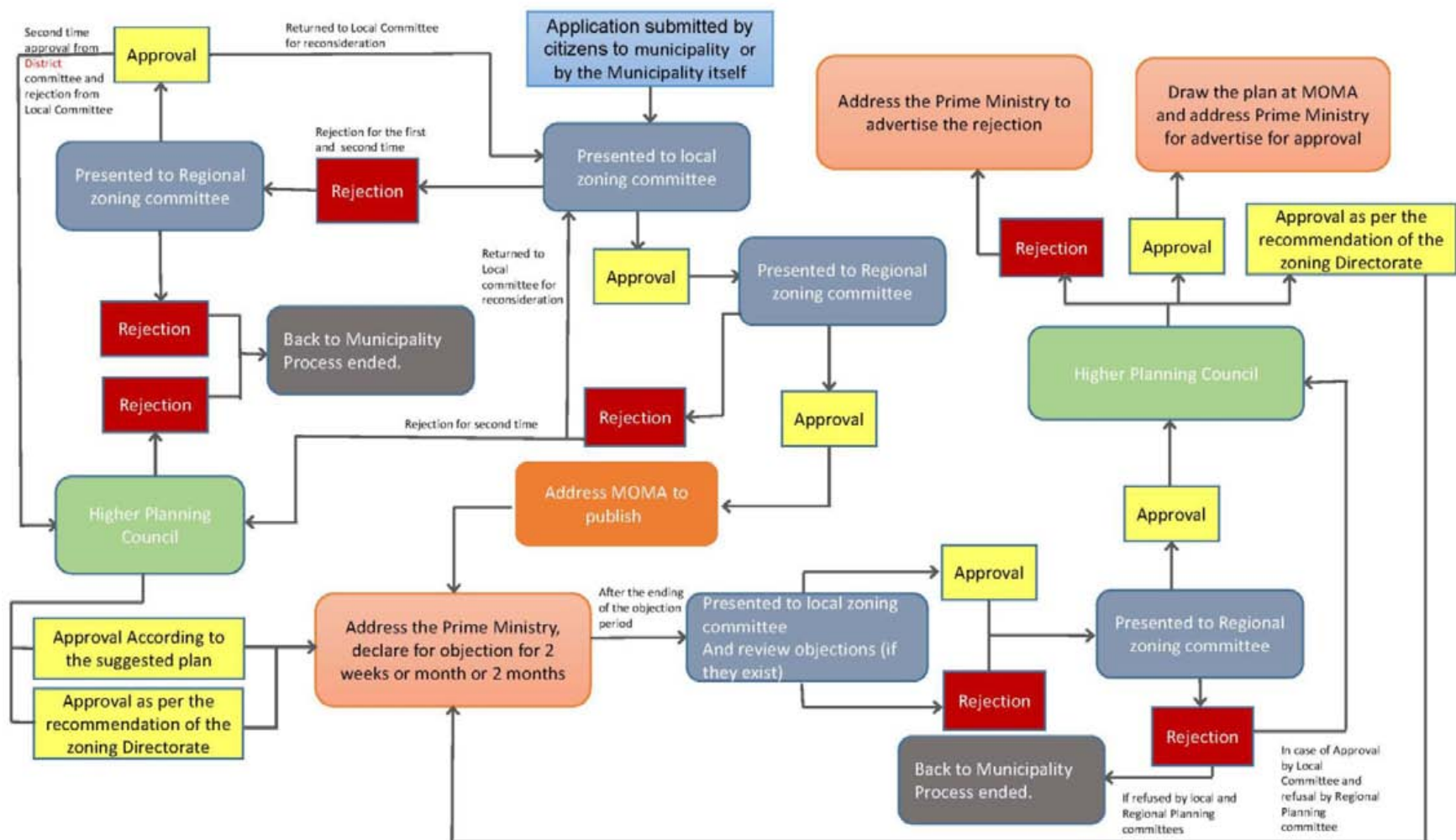
- Land outside the zoned areas: applications are made to the Regional (Liwa'eyya) zoning Committee, then to MOMA for final approval. In territory that has been zoned, Local Committees review subdivisions and make recommendations to the Liwa'eyya Committee, the Liwa'eyya or Regional zoning Committee makes a recommendation to MOMA where final approvals are published within local newspapers and official gazette.

- Licensing a facility within zoned areas: The investor submits the application to the zoning directorate at MOMA; investments division which analyzes the situation and survey. If the project is Touristic or housing decisions are made within the Zoning directorate, if Industrial then a letter is sent to the Ministry of Environment. The higher planning council reviews the application and decision made by the zoning Directorate and thus declares its decision. In case of industrial projects the higher planning council requests the decision of the licensing committee at the Ministry of Environment who in its turn depends on the land use map of 2006 and Law.

Processing an application in un-zoned land is more lengthy and complicated. This is where the Municipal boundary expansion poses a risk as lands within Municipal boundaries are easy to be zoned and thus application process easier

- Changes or additions to the existing zoning: are called Ta'adeel Al-Thanteem (i.e., changing the zoning status). Zoning is not required to be part of any previous Structural or Detailed Plan. It can be a result of such activities, but there is no condition (such as providing services) for such approvals. Appeals follow the same process as approvals with final decision residing at the Higher Planning Council for applications within or outside zoned areas.

Figure 15: Changes or additions to the existing zoning



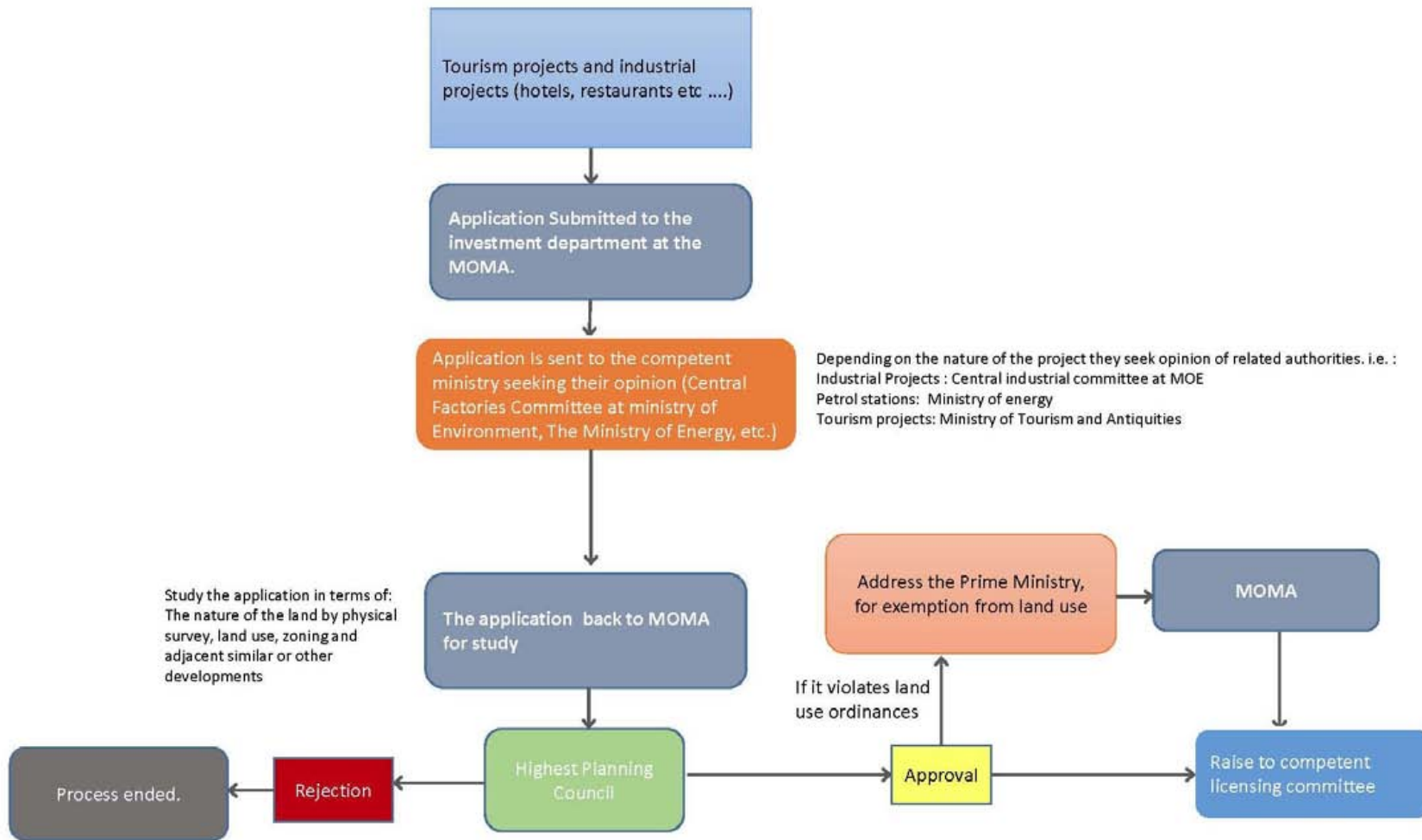
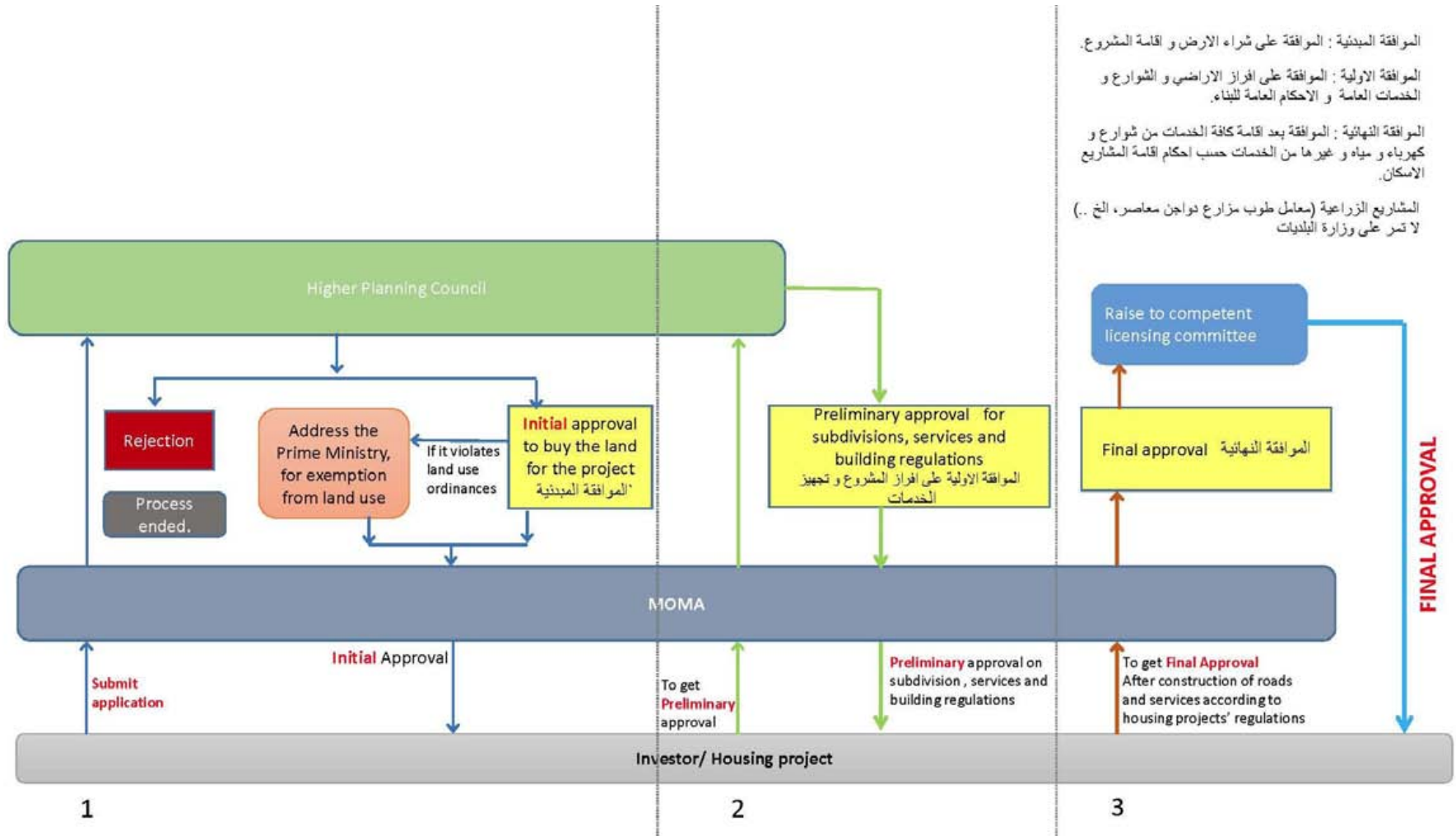


Figure 16: Tourism or Industrial application process outside zoned land

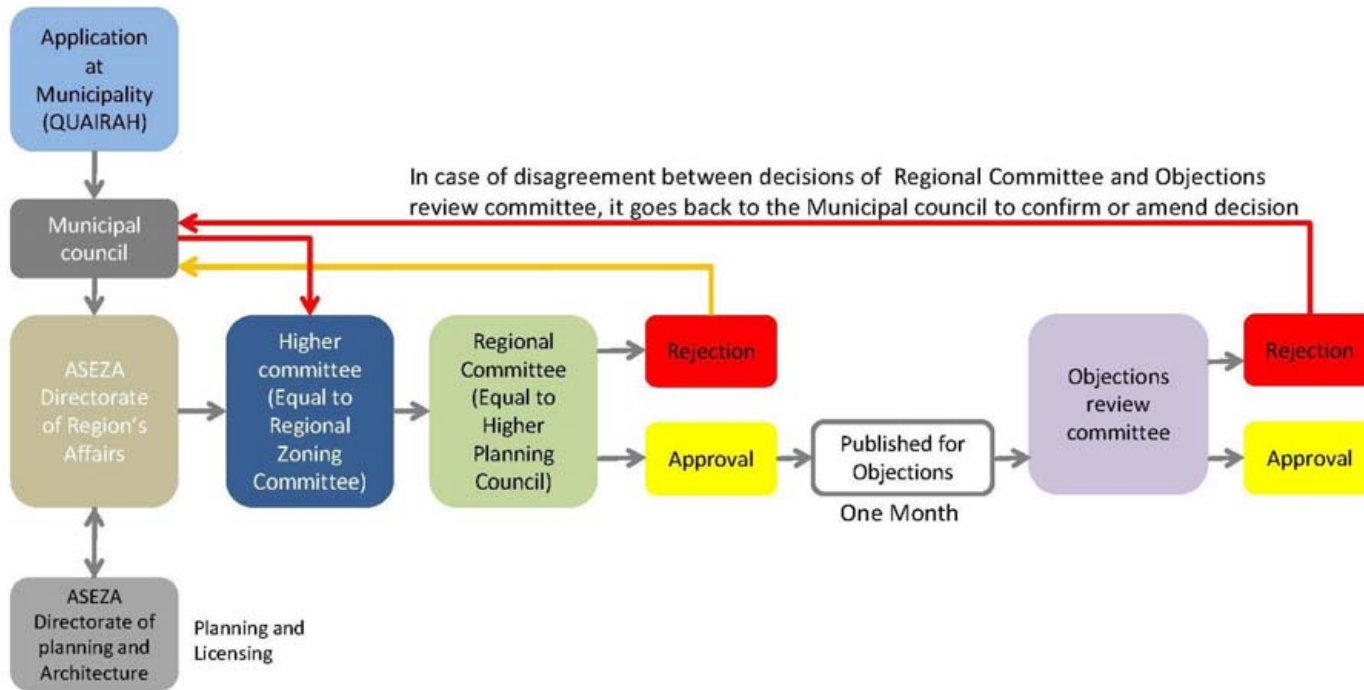


الموافقة المبدئية : الموافقة على شراء الارض و اقامة المشروع.
الموافقة الأولية : الموافقة على افراز الاراضي و الشوارع و الخدمات العامة و الاحكام العامة للبناء.
الموافقة النهائية : الموافقة بعد اقامة كافة الخدمات من شوارع و كهرباء و مياه و غيرها من الخدمات حسب احكام اقامة المشاريع الاسكان.
المشاريع الزراعية (معامل طوب مزارع تواجن معاصره الخ ..)
لا تمر على وزارة البلديات

Figure 17: Housing development application process outside zoned land

As for ASEZA, the procedure is different as the Higher committee equals the Regional Zoning Committee, and the Regional committee equals the Higher Planning council for the villages that are under MOMA Jurisdiction but managed by ASEZA. Wadi Rum has not Municipal council and thus the process is only through Higher committee and Regional Committee as indicated in figure 15 below:

AI QUAIRAH APPLICATION PROCESS



WADI RUM APPLICATION PROCESS



Figure 18: Application processes in ASEZA

- Municipal boundaries: can be extended through a lengthy approvals process beginning with **Municipal Council, Governor or Mutsarrif, MOMA and finally, Prime Minister's Council**. Al Tantheem (i.e., zoning) requires municipal land to begin the process. The technical team at the municipality prepares the Zoning Plan (Al Tantheem) for local zoning committee approval. The Zoning Plan is then taken to the Liwa'eyya Committee (Governorate) then to MOMA for review and approval. After publication and 60-day review period, Local and Liwa'eya zoning Committees give approval on any changes and, lastly, the Higher Planning Council gives final approval.

Existing Regulations

All of zoning ordinances designated within the Study Area are contained within the Cities, Villages and Buildings Zoning Law, No. 79 of 1966 ("the Planning Law") and amendments, and the majority apply the Regulation of Urban and Rural Zoning and Building Regulation No.19 of 1985 and its amendments, with the exception of ASEZ.

The Higher Planning Council has also approved Regulation No.6 in 2007 for a Land use Map of all non-zoned land of Jordan. Main emphasis of the regulation and map is the retention of environmental and agricultural lands. However, many approvals have been given for scattered housing projects between settlements. Also of note is inclusion of industrial uses within Rural and Rangeland designations. The regulation and map does not refer to any growth projections and does not indicate requirements for roads, infrastructure, social facilities, and housing. The Prime Minister was granted the possibility of approving different uses if proved to be suitable or/and the Land Use Plan was not accurate enough in the area.

As for ASEZA, the Aqaba Special Economic Zone Law classifies the region as a regional zone according to the Cities, Villages and Buildings Zoning Law, No. 79 of 1966 ("the Planning Law") and thus the 210commissioners' **council has the same authority and roles of the local and regional zoning committees and the Chief commissioner the same responsibilities of the Minister (Article 43 ASEZ law)**. The same for PDTRA, where the Petra Development Tourism Regon Authority Law for the year 2009 **article 8; the commissioners' council has the same authority and roles of the local and regional zoning committees and the Chief commissioner the same responsibilities of the Minister**. As mentioned above PDTRA follows Regulation of Urban and Rural Zoning and Building Regulation No.19 of 1985 and its amendments.

Special Regulations

The special regulations that exist within the Study Area address housing projects, residential height limitations and minor variances of setback requirements or/and heights relaxations. In addition, minor variances are applied along main commercial streets in the form of minimal front set-back requirements.

Existing Standards

Standards for social and community facilities are regulated by the Ministry of Health, Ministry of Education and Civil Defense. Additional requirements in land under the authority of the Ministry of Municipal affairs (i.e., un-zoned lands) are governed under the Decision No. 452 for the year 1994 of the Higher Planning Council and the last amendment #36 (2009) of the Regulation of Urban and Rural Zoning and Building Regulation No.19 of 1985 for the Housing Projects. The only requirement as stated within the Regulation includes the allocation of up to 20% of developable area for roads; minimum of 8% should be allocated for public uses (Mosques, Parks, Public Buildings, Nurseries, Health Centers, and post offices).

- ASEZA: is governed by the law of Aqaba special economic zone and its amendments number 2 for the year 2000, Also the Aqaba special economic zone authorities in Aqaba bylaw 2001. It has other bylaws and regulations concerning investments, Environmental damage assessment. In addition the Cities, Villages and Buildings Zoning Law, No. 79 of 1966 ("the Planning Law") and amendments applies to the whole kingdom and thus to ASEZA.

- PDTRA: It is governed by the Cities, Villages and Buildings Zoning Law, No. 79 of 1966 (“the Planning Law”) and amendments, and is following the Regulation of Construction and Zoning for Cities & Villages (no. 19 of 1985); and its amendments. There is a new draft Law for PDTRA that is not finalized yet and other Regulations that are either under development or have been declared recently, some applied and some in the process to be applied i.e. Land Management regulation 2012, Protection area management regulation, investment regulation, economic activities regulation and zoning and licensing regulation...etc.

3.4.2 Context

Jerash Governorate: It is composed of five municipalities which contain several communities that were previously Municipalities and were amalgamated into these five; Greater Jerash, Bab Amman, Burma, Mi’rad, Al Naseem Municipalities. These Municipalities are responsible for various development applications within their boundaries; i.e. expanding zoned lands, changing zoning or approving development applications. Outside the boundaries of these municipalities are un-zoned lands which are under the Jurisdiction of the Ministry of Municipal affairs. Municipal zoned areas are governed by the Cities, Villages and Buildings Planning Law, No. 79 of 1966 (“the Planning Law”) and amendments, and Regulation of Urban and Rural Zoning and Building Regulation No.19 of 1985 and its amendments.

The Higher Planning Council has also approved Regulation No.6 in 2007 for a Land use Map of all non-zoned land of Jordan whether inside or outside municipal boundaries..

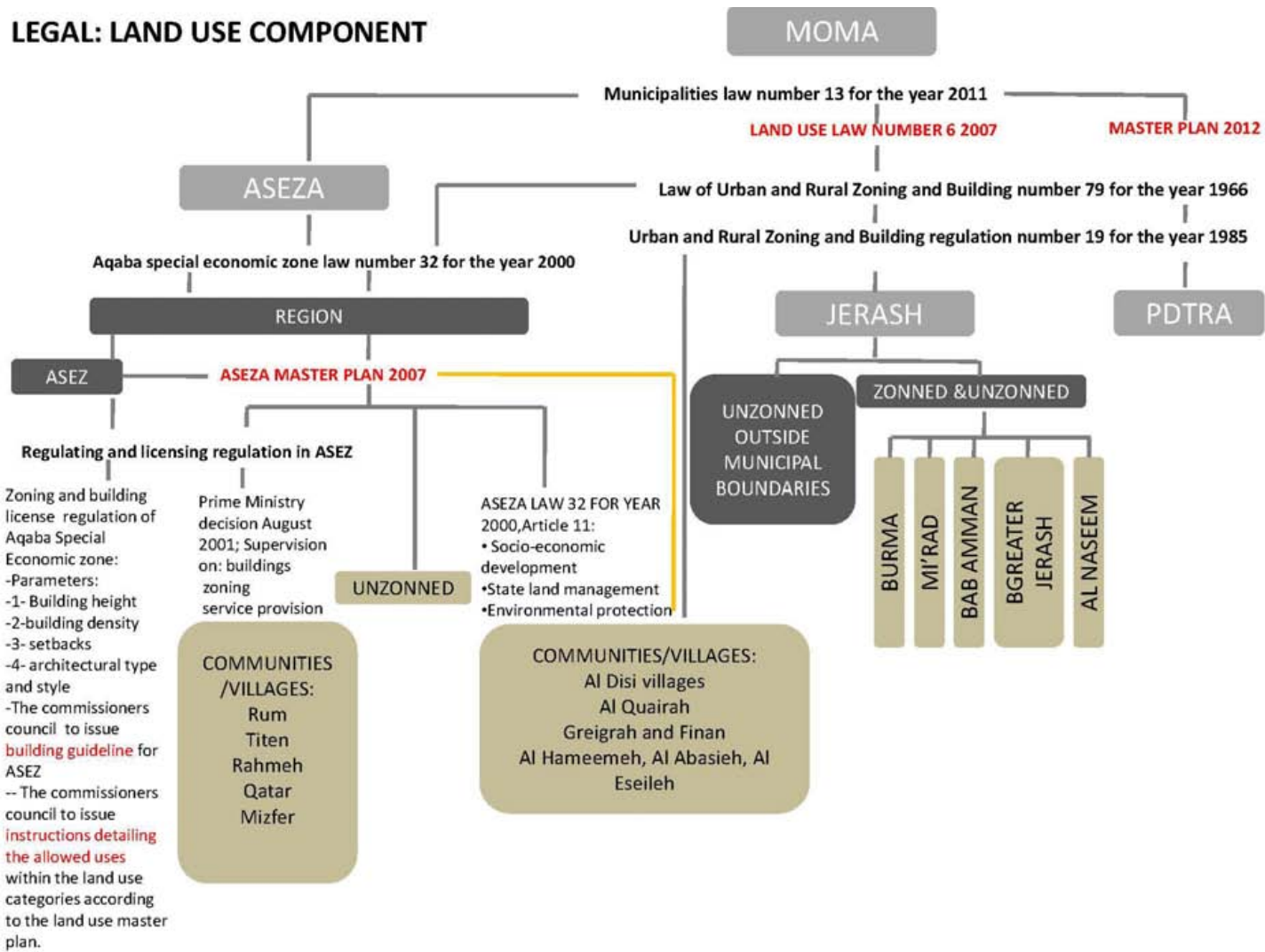
PDTRA has a draft law and several bylaws related to land management, park management, financial, investment, economic activities and zoning and licensing. Some of these bylaws are endorsed and some will be endorsed soon. Yet PDTRA follows **MOMA’s Regulation of Urban and Rural Zoning and Building Regulation No.19 of 1985** and its amendments.

ASEZA contains two different types of jurisdictions, ASEZ and some of the settlements; Rum, Titen, Rahmeh, Mizfer and Qatar are under the jurisdiction of ASEZA and its laws, bylaws and regulation. While the other settlements /villages; Al Deeseh, Al Quairah, Qreiqrah and Faynan, Al Rashidieh, Hameimeh, Abbasieh and Eseileh under the Jurisdiction of MOMA and managed by the directorate of Region affairs at ASEZA.

ASEZA endorsed a land use plan for whole region in 2007 which was prepared by Dar Al Omran, thus **the villages under MOMA’s jurisdiction** which are supposed to follow land use 2006 in their expansion are actually guided by ASEZA Land use plan of 2007.

The figure (15) explains the different governance structures and regulations that are binding land use development within these project authorities.

Figure 19: legal framework for the Land use component



Environmental governance and legal framework is derived from the Jordanian Law for the Protection of the Environment number 52 for the year 2006 as it is applied in the whole kingdom and a reference for ASEZA law number 32 for the year 2000 which is the base for ASEZ environment protection regulation number 21 for the year 2001.

Accordingly the Ministry of Environment is the implementer of the Jordanian Law for the Protection of the Environment number 52 for the year 2006 in Jerash Governorate, while ASEZA is responsible for the Aqaba region based on article 52 from ASEZA law number 32 for the year 2000 which states that the commissioner council is responsible of the protection of the environment in ASEZ. The chief commissioner assumes the responsibilities of the Minister of Environment specified in the law for protection of the environment.

Also Article 53 from ASEZA law number 32 for the year 2000 states that the Chief commissioner, the council members and the authority employees have the right to inspect/ adjust any environmental offenses committed in the region (Iqleem) contrary to the provisions of the ASEZ law (32) for the year 2000.

Accordingly ASEZA is responsible for the whole region. As for PDTRA although it does not have its environment regulation yet according to article 5 of the PDTRA law for the year 2009; PDTRA has the authority to protect the environment, water sources and biodiversity.

LEGAL: ENVIRONMENT COMPONENT

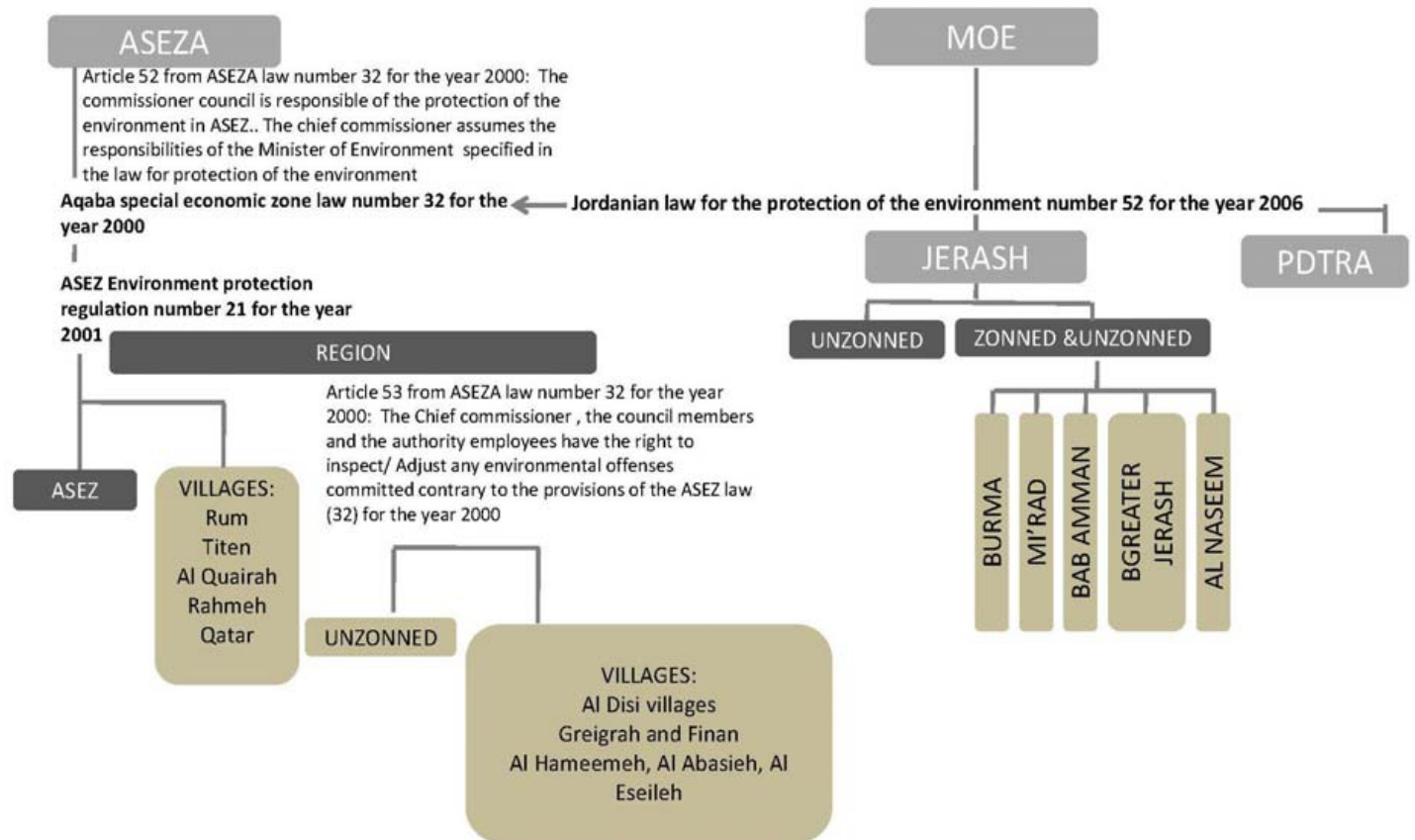


Figure 20: framework for Environment regulations

Tourism Governance: The main governing entity is the Ministry of tourism and antiquities which handles licensing of touristic facilities i.e. hotels and touristic restaurants, tour agent offices and tour guides. It also manages the tourist centers promotion and marketing, **employees' awareness and capacity development**, strategic planning and planning and design and implementation of tenders (mainly tourism projects upgrading the infrastructure and aesthetic elements in tourist sites mainly city centers or major tourism sites). Below are the different actors in the tourism projects:

Ministry of Tourism and Antiquities (MOTA)

MOTA is considered as the main government organization involved in tourism and its development, This Ministry aims at encouraging and developing tourism and promotion of tourism resources and investments in order to enhance its contribution to national economy, and spread mutual understanding among nations.

The Department of Antiquities (DOA)

The Department of Antiquities of Jordan (DOA) is the official institutional authority mandated by law to be responsible for the protection, conservation and presentation of antiquities in Jordan. The principal policy of the Department of Antiquities is to protect antiquities, and to consider conservation measures that do not require physical intervention to the remains as the first choice where possible. The second policy is regarding the presentation of antiquities, including research, survey, excavation and site management.

Jordan Tourism Board (JTB)

This board was established as a marketing representative on both local and international scales

Inbound Tourism Association (JITOA)

The Jordan Inbound Tour Operators Association (JITOA) was established in 2003 to enhance the professionalism and profitability of its members through effective representation in tourism industry and government affairs, education and training, and by identifying and meeting the needs of inbound tourism.

Jordan Hotels Association (JHA)

Jordan Hotel Association is a non-profit association representing over 400 hotels (Classified and Unclassified) throughout Jordan.

Jordan Tour Guides Association (JTA)

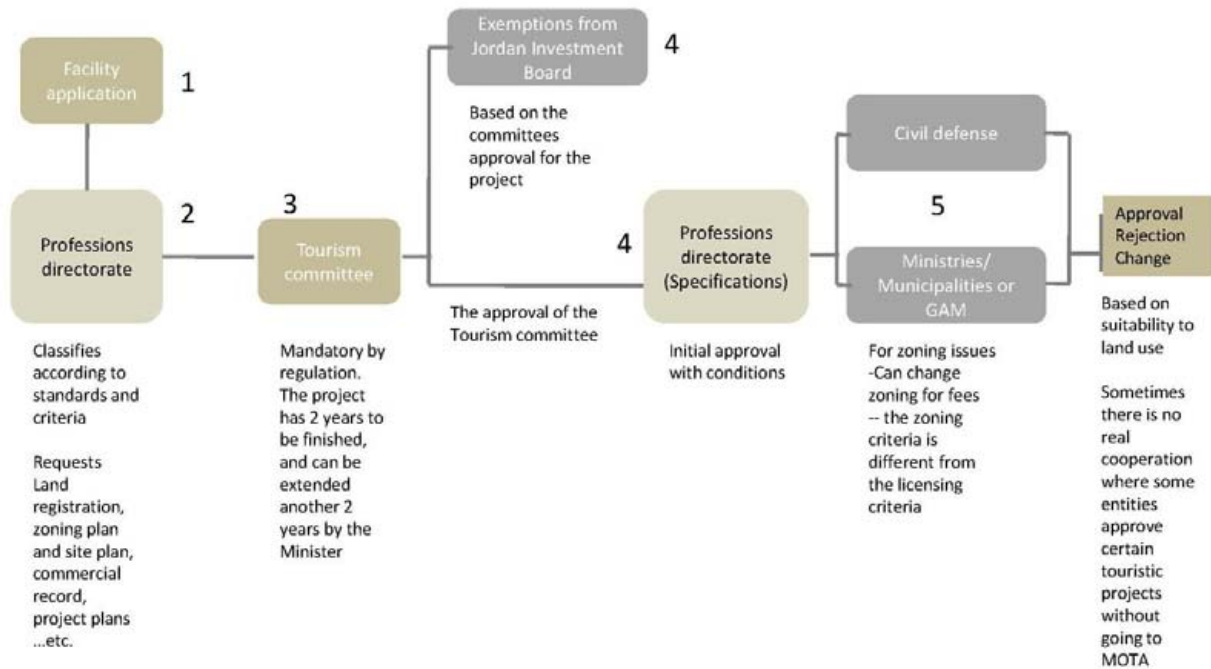
This association was established to supervise and improve the career of tour guiding in Jordan through the training of its members (guides) and providing them with necessary health and social rights and insurances.

The Ministry of Tourism has prepared with USAID the “standard operating procedures Manual” that tackles the different steps required, needed documents and divisions or directorates involved in the process of:

- Licensing hotel facility or renewing
- Licensing or renewing license for touristic restaurant
- Licensing or renewing license for tour operating offices
- Licensing or renewing of license for tour guides
- Licensing or renewing license for crafts shop

As it is obvious mainly the Ministry handles the tourism profession licensing, classification, monitoring and penalties.

TOURISM FACILITY APPLICATION PROCESS



3.4.3 Work Methodology

The work methodology for this sector focused on three different types: desktop review, group meetings and one to one meetings.

- Desktop review of available laws and regulations for the various Ministries and authorities that are involved in land use alterations, development applications review and approval and environmental concerns.
- Group meetings with the various directorates and divisions of the authorities of the project localities. These meetings served as a platform for highlighting process deficiencies or success and mapping the various types of interaction or lack of it between the different directorates within the same authority. Gaps were highlighted in these meeting through detailed questions and evaluation.
- One to one interviews were conducted with local teams of the project localities to understand the management mechanism and authority and legal procedures for Boundary expansion, additional zoning, development application review within zone and un-zoned lands, environmental governance and measures. Procedures were very helpful in mapping out processes of certain alterations and development, defining involved entities and directorates within authorities, legal reference in decision making and the level of interaction between these entities and authorities.

3.4.4 Presentation & Preliminary Assessment of Laws, bylaws and regulations

The team arranged the collected laws, bylaws, regulations and guidelines from the different authorities involved in the land use process, investment and environment. They were compiled into an inventory that specifies the legal source, authorizing entity, date of issuance and status (endorsed, amended, canceled or in the process of being ratified). Further the team rapidly assessed these references and created summaries Annex 2. From these summaries the relevance of these laws, regulations and references were highlighted in a matrix Annex 3 to facilitate comparison and analysis.

Table 29: Inventory of Laws and Regulations related to project sectors

Area	Code	Document	Released by	law State	Year	Additional Notes
Ministry of Environment	ME1	قانون رقم 12 لسنة 1995 قانون حماية البيئة	وزارة البيئة	ملغى	1995	
	ME2	قانون حماية البيئة المؤقت رقم ١ لسنة 2003	وزارة البيئة	ملغى	2003	يلغى (قانون حماية البيئة رقم ١٢ لسنة ١٩٩٥) على أن تبقى الأنظمة الصادرة بمقتضاه سارية المفعول إلى أن تعدل أو تلغى أو يستبدل غيرها بها .
	ME3	قانون حماية البيئة الأردني رقم 52 لسنة 2006	وزارة البيئة	معمول به بتاريخ 2006-10-6	2006	يلغى قانون حماية البيئة رقم (12) لسنة 1995 على أن تبقى الأنظمة الصادرة بمقتضاه سارية المفعول إلى أن تعدل او تلغى أو يستبدل غيرها بها.
	ME4	نظام تقييم الاثر البيئي لسنة رقم 37 لسنة 2005	وزارة البيئة	معمول به بتاريخ 2005-5-16	2005	صادر بموجب الفقرة أ من المادة 23 من قانون حماية البيئة المؤقت رقم 1 لسنة 2003
	ME5	نظام صندوق حماية البيئة	وزارة البيئة	معمول به	2009	صادر بمقتضى المواد 16 و 17 و 25 من قانون حماية البيئة رقم (52)

Table 29: Inventory of Laws and Regulations related to project sectors

Area	Code	Document	Released by	law State	Year	Additional Notes
	ME6	نظام الرقابة والتفتيش البيئي رقم (65)	وزارة البيئة	معمول به	2009	صادر بمقتضى الفقرة (أ) من المادة (25) من قانون حماية البيئة رقم (52) لسنة 2006
	ME7	نظام إدارة المواد الضارة والخطرة ونقلها وتداولها	وزارة البيئة	معمول به	2005	*صادر بمقتضى البند (7) من الفقرة (أ) من قانون حماية البيئة رقم (1) لسنة المادة (23) *يلغى نظام ادارة المواد الضارة و 2003 الخطرة و تداولها رقم (43) لسنة 1999 على ان تبقى التعليمات الصادرة بموجبه نافذة المفعول الى ان تعدل او تلغى.
	ME8	نظام المحميات الطبيعية والمتنزهات الوطنية	وزارة البيئة	معمول به	2005	صادر بمقتضى البند (6) من الفقرة (أ) من المادة (23) من قانون حماية البيئة رقم (1) لسنة 2003
	ME9	نظام حماية التربة	وزارة البيئة	معمول به	2005	صادر بمقتضى البند (10) من الفقرة (أ) من المادة (23) من قانون حماية البيئة رقم (1) لسنة 2003
	ME10	نظام حماية المياه	وزارة البيئة	معمول به	2005	صادر بمقتضى البند (3) من الفقرة (أ) من المادة (23) من قانون حماية البيئة رقم (1) لسنة 2003

Table 29: Inventory of Laws and Regulations related to project sectors

Area	Code	Document	Released by	law State	Year	Additional Notes
	ME11	Regulations for the Protection of the Air	وزارة البيئة	معمول به	2005	صادر بمقتضى قانون حماية البيئة المؤقت رقم (1) لعام 2003 .
	ME12	تعليمات ادارة وتداول النفايات الخطرة لسنة 2003	وزارة البيئة	معمول به	2003	صادر بمقتضى قانون حماية البيئة المؤقت رقم (1) لعام 2003 .
	ME13	Management of Solid Waste Regulations	وزارة البيئة	معمول به	2005	Issued by Virtue of Sub-paragraph 8 of Paragraph A of Article 23 of the Environmental Protection Law No. (1) of 2003
	ME14	تعليمات تنفيذ نظام المحميات الطبيعية والمتنزهات الوطنية واسباس وشروط انشاء المحميات	وزارة البيئة	معمول به	2005	صادر بمقتضى البند 6 من الفقرة أ من المادة (23) من قانون حماية البيئة المؤقت رقم (1) لعام 2003
	ME15	تعليمات اختيار مواقع النشاطات التنموية	وزارة البيئة	معمول به	2012	صادرة بموجب احكام الفقرة (د) من المادة (4) من قانون حماية البيئة رقم (52) لسنة 2006
	ME16	التعليمات الخاصة للجنة الاستشارية للبيئة لسنة	وزارة البيئة	معمول به	2007	

Table 29: Inventory of Laws and Regulations related to project sectors

Area	Code	Document	Released by	law State	Year	Additional Notes
	ME17	مسودة مشروع قانون حماية البيئة	وزارة البيئة	لم يتم تصديقه	/	
Ministry of Agriculture	MA1	قانون رقم (44) لعام 2002 قانون الزراعة (قانون مؤقت)	وزارة الزراعة	معمول به	2002	(قانون مؤقت)
	MA2	2009 law of livestock fund support	وزارة الزراعة	معمول به	2009	
	MA3	قانون حماية الاصناف النباتية الجديدة 2000	وزارة الزراعة	معمول به	2000	
	MA4	Registration system of new plants varieties 2002	وزارة الزراعة	معمول به	2002	
	MA5	نعليمات الشروط والاسس الواجب توافرها للغابات والاراضي الحرجية رقم ز/9	وزارة الزراعة	معمول به	2008	صادر بموجب الفقرة (1) من المادة (42) من قانون الزراعة المؤقت رقم 44 لسنة 2002

Table 29: Inventory of Laws and Regulations related to project sectors

Area	Code	Document	Released by	law State	Year	Additional Notes
	MA6	تعليمات تنظيم ادارة الحراج الحكومي والاشجار الحرجية النامية على اراضي الخزينة رقم ز/1	وزارة الزراعة	معمول به	2013	صادر بموجب الفقرة (1) من المادة (27) من قانون الزراعة المؤقت رقم 44 لسنة 2002
	MA7	تعليمات تحسين أراضي المراعي وتطويرها والمحافظة عليها واستغلالها رقم ز/14	وزارة الزراعة	معمول به	2008	صادر بموجب المادة (37) من قانون الزراعة المؤقت رقم 44 لسنة 2002
	MA8	تعليمات الاستثمار في الحراج الخاص لسنة 2003	وزارة الزراعة	معمول به	2003	صادر بموجب المادة (27) من قانون الزراعة المؤقت رقم 44 لسنة 2002
	MA9	تعليمات ترخيص وتنظيم مزارع الدواجين والمفرخات رقم ز/4	وزارة الزراعة	معمول به	2003	صادر بموجب المادة (43) من قانون الزراعة المؤقت رقم 44 لسنة 2002

Table 29: Inventory of Laws and Regulations related to project sectors

Area	Code	Document	Released by	law State	Year	Additional Notes
	MA10	تعليمات ترخيص وتنظيم مزارع الابقار رقم ز/5	وزارة الزراعة	معمول به	2003	صادر بموجب المادة (43) من قانون الزراعة المؤقت رقم 44 لسنة 2002
	MA11	تعليمات حماية الاراضي الزراعية رقم ز/17	وزارة الزراعة	معمول به	2014	صادر بموجب الفقرة 1 من المادة 3 من قانون تلغي هذه الزراعة المؤقت رقم 44 لسنة التعليمات (تعليمات حماية الأراضي الزراعية وأي تعليمات أو قرارات رقم (ز/ 8) لسنة 2009 سابقة تتعارض مع أحكامها
	MA12	تعليمات حماية الطيور والحيوانات البرية وتنظيم صيدها والاتجار بها رقم ز/34	وزارة الزراعة	معمول به	2003	صادر بموجب المادة (57) من قانون الزراعة المؤقت رقم 44 لسنة 2002
	MA13	تعليمات ترخيص إنشاء وتشغيل معاصر الزيتون وتعديلاتها رقم ز/15	وزارة الزراعة	معمول به	2012	صادر بموجب المادة (16) من قانون الزراعة المؤقت رقم 44 لسنة 2002
	MA14	تعليمات ترخيص وتنظيم مزارع الابل رقم ز/11	وزارة الزراعة	معمول به	2012	صادر بموجب الفقرة(1) من المادة (43) من قانون الزراعة المؤقت رقم 44 لسنة 2002

Table 29: Inventory of Laws and Regulations related to project sectors

Area	Code	Document	Released by	law State	Year	Additional Notes
	MA15	تعليمات تنظيم وترخيص مزارع تسمين الخراف والجديان رقم ز/7	وزارة الزراعة	معمول به	2012	صادر بموجب الفقرة (1) من المادة (43) من قانون الزراعة المؤقت رقم 44 لسنة 2002
	MA16	تعليمات حماية الاراضي الزراعية رقم ز/8	وزارة الزراعة	ملغى	2009	صادر بموجب الفقرة 1 من المادة 3 من قانون الزراعة المؤقت رقم 44 لسنة 2002
Ministry of Tourism	MT1	قانون السياحة لسنة 1988	وزارة السياحة	معمول به	1988	
	MT2	نظام التنظيم الاداري لوزارة السياحة والآثار رقم 40	وزارة السياحة	معمول به	1996	
	MT3	نظام هيئة تنشيط السياحة و تعديلاته رقم 79	وزارة السياحة	معمول به	2007	يلغى نظام هيئة تنشيط السياحة رقم (62) لسنة 1997 والتعديلات التي طرأت عليه .

Table 29: Inventory of Laws and Regulations related to project sectors

Area	Code	Document	Released by	law State	Year	Additional Notes
	MT4	الإستراتيجية الوطنية للسياحة في الأردن 2015-2011	وزارة السياحة		2011- 2015	
Ministry of Municipal Affairs	MO1	قانون البلديات رقم (29) لسنة 1955	وزارة الشؤون البلدية	ملغى	1955	
	MO2	قانون تنظيم المدن و القرى و الابنية قانون مؤقت رقم 79 لسنة 1966	دائرة الأراضي والمساحة	معمول به	1966	يلغى قانون تنظيم المدن والقرى والابنية رقم 31 لسنة 1955 ويشترط في ذلك ان تبقى جميع المشاريع الموضوعه والرخص الممنوحة بمقتضاه نافذة المفعول وتسري عليها احكام هذا القانون كما لو انها وضعت او منحت بمقتضى احكامه.
	MO3	قانون البلديات لسنة 2011	وزارة الشؤون البلدية	معمول به		يلغى قانون البلديات رقم (14) لسنة 2007 وما طرأ عليه من تعديل على ان تبقى الانظمة والتعليمات والقرارات الصادرة بمقتضاه نافذة المفعول الى ان تلغى او تعدل او يستبدل غيرها بها وفقا لاحكام هذا القانون
	MO4	قانون البلديات رقم 14	وزارة الشؤون البلدية	ملغى	2007	

Table 29: Inventory of Laws and Regulations related to project sectors

Area	Code	Document	Released by	law State	Year	Additional Notes
	MO5	نظام تنظيم استعمال الاراضي	وزارة الشؤون البلدية	معمول به	2007	صادر بمقتضى المادتين (6) و(67) من قانون تنظيم المدن والقرى والأبنية رقم (79) لسنة 1966
	MO6	نظام الأبنية والتنظيم في مدينة عمان رقم (67)	دائرة الأراضي والمساحة		1979	صادر بالاستناد إلى أحكام المادة (67) من قانون تنظيم المدن والقرى والأبنية رقم (79) لسنة 1966.
	MO7	نظام الأبنية والتنظيم للمدن والقرى	وزارة الشؤون البلدية	معمول به	1985	صادر بمقتضى المادة 67 من قانون تنظيم المدن والقرى والأبنية رقم 79 لسنة 1966
	MO8	نظام رقم (90) معدل لنظام الأبنية والتنظيم للمدن والقرى	وزارة الشؤون البلدية	ملغى	2001	يسمى هذا النظام (نظام معدل لنظام الابنية والتنظيم للمدن والقرى لسنة 2001) ويقرأ مع النظام رقم (19) لسنة 1985 المشار اليه فيما يلي بالنظام الاصيل وما طرأ عليه من تعديل نظاما واحدا ويعمل به من تاريخ نشره في الجريدة الرسمية .
	MO9	نظام رقم (13) نظام معدل لنظام الابنية والتنظيم للمدن والقرى	وزارة الشؤون البلدية	ملغى	2007	يسمى هذا النظام نظام معدل لنظام الابنية والتنظيم للمدن والقرى لسنة 2007 و يقرأ مع النظام رقم 19 لسنة 1985

Table 29: Inventory of Laws and Regulations related to project sectors

Area	Code	Document	Released by	law State	Year	Additional Notes
	MO10	نظام رقم (36) نظام معدل لنظام الابنية والتنظيم للمدن والقرى	وزارة الشؤون البلدية	معمول به	2009	يسمى هذا النظام نظام معدل لنظام الابنية والتنظيم للمدن والقرى لسنة 2009 و يقراء مع النظام رقم 19 لسنة 1985
	MO11	نظام منع المكاره ورسوم جمع النفايات داخل المناطق البلدية	وزارة الشؤون البلدية	معمول به	1978	
	MO12	نظام معدل لنظام منع المكاره ورسوم جمع النفايات داخل المناطق البلدية	وزارة الشؤون البلدية	معمول به	2009	نظام معدل لنظام منع المكاره ورسوم جمع النفايات داخل المناطق البلدية لسنة 2009 (و يقرأ مع النظام رقم (1) لسنة 1978 المشار اليه فيما يلي بالنظام الاصيلي
	MO13	نظام (73) الطرق و الارصفة ضمن حدود مناطق البلدية	وزارة الشؤون البلدية	معمول به	2009	
	MO14	تعليمات خاصة بمشاريع الاسكان الاستثمارية	وزارة الشؤون البلدية	معمول به	2008	بقرار مجلس التنظيم الاعلى رقم 96 تاريخ 2008/2/3
	MO15	اعلان احكام التنظيم والابنية للاراضي الواقعة خارج حدود التنظيم	وزارة الشؤون البلدية	معمول به	1994	بقرار مجلس التنظيم الاعلى رقم 452 تاريخ 1994/5/15

Table 29: Inventory of Laws and Regulations related to project sectors

Area	Code	Document	Released by	law State	Year	Additional Notes
	MO16	أحكام وشروط معامل الطوب والحظائر والمعاصر	وزارة الشؤون البلدية	معمول به	1994	
	MO17	نظام ترخيص ومراقبة الاعمار في مناطق التنظيم AECOM التابعة للبلديات	وزارة الشؤون البلدية	غير مصدق	2011	
	MO18	عوائد التنظيم	وزارة الشؤون البلدية	غير مصدق	/	
	MO19	قانون رخص المهن وتعديلاته رقم (28)	وزارة الشؤون البلدية	معمول به	1999	يلغى قانون رخص المهن رقم 38 لسنة 1972
Ministry of Energy & Mineral Resources	MEMR1	قانون تنظيم شؤون المصادر الطبيعية	وزارة الطاقة والثروة المعدنية	معمول به	1968	

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Area	Code	Document	Released by	law State	Year	Additional Notes
	MEMR2	تعليمات محطات المحروقات وصهاريج توزيع المحروقات	وزارة الطاقة والثروة المعدنية	معمول به	1985	صادرة بالاستناد إلى الفقرة (أ) من المادة (٤) وإلى المادة (٧) من نظام تنظيم وإدارة وزارة الطاقة والثروة المعدنية رقم 26 لسنة 1985
Ministry of Finance	MF1	قانون الاعفاء من الاموال العامة	وزارة المالية	معمول به	2006	
Ministry of Industry and Trade	MIT1	قانون تشجيع الاستثمار قانون رقم (16) لسنة 1995 وتعديلاته لعام 2000	وزارة الصناعة والتجارة	معمول به	1995-2000	
	MIT2	نظام رقم (54) نظام تنظيم استثمارات غير الأردنيين	وزارة الصناعة والتجارة	معمول به	2000	
	MIT3	قانون ترويج الاستثمار المؤقت رقم 67	دائرة الأراضي والمساحة	معمول به	2003	

Table 29: Inventory of Laws and Regulations related to project sectors

Area	Code	Document	Released by	law State	Year	Additional Notes
Department of land and Survey	DL1	قانون رقم (14) المحافظة على اراضي وأملاك الدولة	دائرة الأراضي والمساحة	معمول به	1961	
	DL2	قانون إدارة أملاك الدولة وتعديلاته رقم 17	دائرة الأراضي والمساحة	معمول به	1974	يلغى قانون استصلاح الأراضي الحرجية رقم 14 لسنة 1972. يلغى هذا القانون كل ما يتعارض مع أحكامه من الأحكام الواردة في قانون الزراعة رقم 20 لسنة 1973. يلغى قانون إدارة أملاك الدولة رقم 9 لسنة 1968 كما يلغى أي تشريع أردني أو فلسطيني يتعارض مع أحكام هذا القانون. لا تؤثر أحكام هذا القانون على ما ورد في قانون هيئة وادي الأردن رقم 2 لسنة 1973.
	DL3	قانون تسوية الاراضي والمياه رقم 40	دائرة الأراضي والمساحة	معمول به	1952	
	DL4	قانون التقسيم ضمن مناطق البلديات قانون رقم (11)	دائرة الأراضي والمساحة	معمول به	1968	

Table 29: Inventory of Laws and Regulations related to project sectors

Area	Code	Document	Released by	law State	Year	Additional Notes
	DL5	قانون الاستملاك وتعديلاته رقم 12	دائرة الأراضي والمساحة	معمول به	1987	
	DL6	نظام تفويض وتأجير أملاك الدولة وتعديلاته رقم 53	دائرة الأراضي والمساحة	معمول به	1977	
	DL7	نظام المساحة المفترزة بين الشركاء وتعديلاته رقم 70	دائرة الأراضي والمساحة	معمول به	2001	تم التعديل عليه سنة 2007
	DL8	تعليمات اجراءات بيع اراضي منطقة العقبة الاقتصادية الخاصة وتأجيرها وتعديلاته	دائرة الأراضي والمساحة	معمول به	2013	

Table 29: Inventory of Laws and Regulations related to project sectors

Area	Code	Document	Released by	law State	Year	Additional Notes
Natural Resources Authority	NRA1	نظام التعدين رقم ١٣	سلطة المصادر الطبيعية	معمول به	1966	
	NRA2	نظام المقالع رقم 8	سلطة المصادر الطبيعية	معمول به	1971	
WATER AUTHORITY	WA1	قانون سلطة المياه لسنة	وزارة المياه و الري	معمول به	1988	
Aqaba Special Economic Zone	AQ1	قانون منطقة العقبة الاقتصادية الخاصة وتعديلاته رقم 32	دائرة الأراضي والمساحة	معمول به	2000	

Table 29: Inventory of Laws and Regulations related to project sectors

Area	Code	Document	Released by	law State	Year	Additional Notes
	AQ2	نظام صلاحيات سلطة منطقة العقبة الاقتصادية الخاصة في إقليم العقبة رقم 10	منطقة العقبة الاقتصادية الخاصة	معمول به	2001	
	AQ3	نظام رقم (11) تنظيم البيئة الاستثمارية وتطويرها لمنطقة العقبة الاقتصادية الخاصة	منطقة العقبة الاقتصادية الخاصة	معمول به	2001	
	AQ4	تعليمات تشكيل لجنة تقييم الاضرار بالبيئة وتحديد مهامها وتنظيم اجتماعاتها في منطقة العقبة الاقتصادية الخاصة وتعديلاته تعليمات رقم 73	منطقة العقبة الاقتصادية الخاصة	معمول به	2002	
	AQ5	تعليمات رقم 134 المتطلبات الفنية و الهندسية و التنظيمية لمواقف السيارات في منطقة العقبة الاقتصادية الخاصة	منطقة العقبة الاقتصادية الخاصة	معمول به	2008	
	AQ6	تعليمات إجراءات الاعتراض تعليمات رقم 114 على قرارات التنظيم وترخيص الاعمار في سلطة منطقة العقبة الاقتصادية الخاصة	منطقة العقبة الاقتصادية الخاصة	معمول به	2007	

Table 29: Inventory of Laws and Regulations related to project sectors

Area	Code	Document	Released by	law State	Year	Additional Notes
	AQ7	تعليمات اجراءات بيع اراضي منطقة العقبة الاقتصادية الخاصة وتأجيرها وتعديلاته	منطقة العقبة الاقتصادية الخاصة	معمول به	2009	
	AQ8	تعليمات معدلة لتعليمات إجراءات بيع أراضي منطقة العقبة الاقتصادية الخاصة وتأجيرها رقم (143) لسنة 2009	منطقة العقبة الاقتصادية الخاصة	معمول به	2013	تعليمات معدلة لتعليمات إجراءات بيع أراضي منطقة العقبة الاقتصادية الخاصة وتأجيرها رقم (143) لسنة 2009
	AQ9	تعليمات بيع الاراضي و تأجيرها في منطقة العقبة الاقتصادية الخاصة	منطقة العقبة الاقتصادية الخاصة	معمول به	2004	
	AQ10	تعليمات بدل جمع النفايات والنظافة العامة في منطقة العقبة الاقتصادية الخاصة رقم 15	منطقة العقبة الاقتصادية الخاصة	معمول به	2005	
	AQ11	تعليمات رقم 66 عوائد إعادة التنظيم في منطقة العقبة الاقتصادية الخاصة وتعديلاتها	منطقة العقبة الاقتصادية الخاصة	معمول به	2005	

Table 29: Inventory of Laws and Regulations related to project sectors

Area	Code	Document	Released by	law State	Year	Additional Notes
	AQ12	تعليمات تنظيم وترخيص عمل الرواحل والعربات رقم 1 المجرورة بها	منطقة العقبة الاقتصادية الخاصة	معمول به	2005	
	AQ13	نظام رقم (32) لسنة (2004) نظام التنظيم وترخيص الإعمار في منطقة العقبة الاقتصادية الخاصة	منطقة العقبة الاقتصادية الخاصة	معمول به	2004	صادر بمقتضى الفقرة (أ) من المادة (43) من قانون منطقة العقبة الاقتصادية الخاصة رقم (32) لسنة 2000 والبند (14) من الفقرة (أ) من المادة (67) من قانون تنظيم المدن والقرى والابنية رقم (79) لسنة 1966
	AQ14	ظام معدل لنظام التنظيم وترخيص الاعمار في منطقة العقبة الاقتصادية الخاصة لسنة 2008	منطقة العقبة الاقتصادية الخاصة	معمول به	2008	ويقرأ مع النظام رقم (32) لسنة 2004 المشار اليه فيما يلي بالنظام الاصيلي نظاماً واحداً ويعمل به من تاريخ نشره في الجريدة الرسمية .
Petra Region Authority tourism development	P1	قانون سلطة اقليم البترا التنموي السياحي لسنة 2009	سلطة اقليم البترا التنموي السياحي	معمول به	2009	
	P2	قانون سلطة اقليم البترا التنموي السياحي لسنة رقم 36 مؤقت	سلطة اقليم البترا التنموي السياحي	ملغى	2001	أحيل الى مجلس الامة و ادخل عليه بعض التعديلات ليحل محله قانون رقم 15 لسنة 2005

Table 29: Inventory of Laws and Regulations related to project sectors

Area	Code	Document	Released by	law State	Year	Additional Notes
	P3	نظام رقم (78) نظام التصرف بالأراضي المسجلة باسم سلطة إقليم البترا التنموي السياحي	سلطة إقليم البترا التنموي السياحي	معمول به	2010	صادر بمقتضى البند (1) من الفقرة (ب) من المادة (21) والمادة (28) من قانون سلطة إقليم البترا التنموي السياحي رقم (15) لسنة 2009
	P4	نظام رقم (82) نظام إدارة وحماية محمية البترا الأثرية	سلطة إقليم البترا التنموي السياحي	معمول به	2014	صادر بمقتضى البند (3) من الفقرة (أ) من المادة (3) والمادة (34) من قانون الآثار رقم (21) لسنة 1988 والمادة (28) من قانون سلطة إقليم البترا التنموي السياحي رقم (15) لسنة 2009
	P5	نظام ترخيص الأنشطة الاقتصادية في إقليم البترا التنموي السياحي	سلطة إقليم البترا التنموي السياحي	معمول به	2014	صادر بموجب المادة رقم (15) والمادة رقم (28) من قانون سلطة إقليم البترا التنموي السياحي رقم (15) لسنة 2009
	P6	نظام تنظيم البيئة الاستثمارية في إقليم البترا التنموي السياحي	سلطة إقليم البترا التنموي السياحي	معمول به	2014	صادر بموجب الفقرة (ب) من المادة رقم (28) من قانون سلطة إقليم البترا التنموي السياحي رقم (15) لعام 2009

Table 29: Inventory of Laws and Regulations related to project sectors

Area	Code	Document	Released by	law State	Year	Additional Notes
	P7	تعليمات تحديد مهام وصلاحيات المفوضين	سلطة اقليم البترا التنموي السياحي	معمول به	/	صادرة بموجب المادة (8 / ق) من قانون سلطة إقليم البترا التنموي السياحي رقم (15) لسنة 2009
	P8	تعليمات تنظيم أعمال واجتماعات مجلس المفوضين	سلطة اقليم البترا التنموي السياحي	معمول به	/	صادرة بموجب المادة (9 / د) من قانون سلطة إقليم البترا التنموي السياحي رقم (15) لسنة 2009
	P9	تعليمات تنظيم عمل ادلاء السياح في محمية البترا الاثريّة	سلطة اقليم البترا التنموي السياحي	معمول به	2014	صادره بمقتضى احكام الفقرة (ق) من المادة (8) من قانون سلطة اقليم البترا التنموي السياحي رقم (15) لسنة 2009

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Area	Code	Document	Released by	law State	Year	Additional Notes
	P10	تعليمات تنظيم وتشغيل الدراجات رباعية الدفع	سلطة إقليم البترا التنموي السياحي	معمول به	/	صادرة بموجب الفقرتين (و، ش) من المادة قانون سلطة إقليم البترا التنموي (8) من السياحي رقم (15) لسنة 2009
	P11	تعليمات معدلة لتعليمات تحديد اسعار الخدمات المقدمة لزوار محمية البترا الاثرية رقم (1)	سلطة إقليم البترا التنموي السياحي	معمول به	2014	تقرأ مع التعليمات رقم (1) لسنة 2009 والمشار اليها فيما يلي بالتعليمات الاصلية كتعليمات واحدة. و هذه التعليمات غير موجودة لدينا.
Wadi Rum	WR1	نظام تنمية منطقة وادي رم رقم 24	منطقة وادي رم	معمول به	2001	
	WR2	تعليمات رقم (100) خاصة بتنظيم التخيم في منطقة وادي رم	منطقة وادي رم	معمول به	2006	

Table 29: Inventory of Laws and Regulations related to project sectors

Area	Code	Document	Released by	law State	Year	Additional Notes
	WR3	تعليمات رقم (103) خاصة بتنظيم التسلق في منطقة وادي رم	منطقة وادي رم	معمول به	2006	
	WR4	تعليمات رقم (98) خاصة بتنظيم الدخول إلى منطقة وادي رم	منطقة وادي رم	معمول به	2006	
	WR5	تعليمات رقم (104) خاصة بتنظيم عمل منطقة وادي رم المركبات العاملة في	منطقة وادي رم	معمول به	2006	
	WR6	تعليمات رقم 142 لسنة 2009 تعليمات تنظيم تحصيل بدلات الخدمات في منطقة وادي رم وتعديلاتها	منطقة وادي رم	معمول به	2009	
	WR7	تعليمات رقم (102) خاصة بتنظيم عمل المرشدين المحليين في منطقة وادي رم	منطقة وادي رم	معمول به	2006	

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Area	Code	Document	Released by	law State	Year	Additional Notes
	WR8	تعليمات رقم (99) خاصة بتنظيم نقل الزوار في منطقة وادي رم باستخدام الجمال	منطقة وادي رم	معمول به	2006	
Development Zones Commission	DZ1	قانون المناطق التنموية الحرة رقم (2)	هيئة المناطق التنموية	معمول به	2008	
	DZ2	نظام انشاء المناطق التنموية	هيئة المناطق التنموية	معمول به	2008	
	DZ3	نظام رقم 52 التنظيم وترخيص الإعمار في المناطق التنموية والمناطق الحرة	هيئة المناطق التنموية	معمول به	2012	صادر بمقتضى الفقرة (ز) من المادة (46) من قانون المناطق التنموية و المناطق الحرة رقم (2) لسنة 2008

The most relevant regulations were further analyzed to highlight gaps and potentials of practices, articles or responsibilities and authorized activities. Below are the different legal references and enforcement tools :

Table 30: Analysis of relevant Laws and Regulations

General Preliminary Description	The Tourism Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
<p>Municipalities Law number 13 for the year 2011/ MOMA It defines Municipalities and categorize them into three categories:</p> <ul style="list-style-type: none"> - First category, Municipalities that are centers of Governorates or have a population exceeding 100,000 - Second category, Municipalities that are centers of Liwa's or its population exceed 15,000 persons but less than 100,000 - Third category, centers of Qada' or Nahieh with population over 50,000 persons and less than 15,000 <p>Article 5 creating or canceling municipalities Article 6 changing the boundaries of municipalities</p>	<p>Article 3 A- Municipalities are entities that are independent financially, create and cancel and assign the boundaries of its jurisdiction by the authority of this law.</p> <p>Article 5: tackles the establishment of municipality, committees assigned by the Minister, defining the location of a municipality by the Minister.</p> <p>Based on the recommendation of the Minister and the governor the Prime Ministry can decide to expand, decrease, amend any locality or amalgamate municipalities or communities and establish a municipality according to active laws or separate any of them. The Minister can define the location of the municipality based on the recommendation of the director of central zoning directorate. The decision will be forwarded to Minister of finance to be published in the Gazette.</p> <p>Municipal council duties (within municipal boundaries): Planning</p>	<p>Not all Municipalities have the technical capabilities to handle complicated forms of development that target natural sensitive areas.</p> <p>This might create some jurisdiction issues in case of ASEZ , since few municipalities are still administratively lie under jurisdiction of MOMA, more coordination efforts is needed between MOMA and ASEZ in this regard</p>

General Preliminary Description	The Tourism Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
	<p>localities in terms of roads, building licenses, sewage, markets, crafts and industries (defining areas), public transport, open spaces and parks, risk responses, slaughterhouses and cemeteries. Other duties based on this law or any other active legislation in the kingdom</p> <p>Article 40 B : Regulations The Prime Ministry to formulate the required regulations to enable the council of executing their duties and responsibilities.</p> <p>Article 40 F : Consulting with Municipalities for regulations concerning their affairs; if any other governmental entity conducted any of the duties mentioned above as part of its mandate, it should consult with the Municipal council in all its regulations, laws and arrangements that are utilized to conduct or supervise the work mentioned.</p> <p>Article 40 G: unifying legislation: The Minister to integrate and harmonize regulations and definitions created by municipalities based on section B and C of this article. And to do all efforts to unify ordinances of similar municipalities.</p> <p>Article 40 H: The Prime Ministry can issue regulations directly in any topic for</p>	<p>There is no mentioning of environment , tourism or economic development within Municipal council duties.</p> <p>Risk of assigning light industrial activities and slaughter houses in environmental sensitive areas or along water courses.</p> <p>Potential for Environment protection regulations.</p> <p>Local communities' consultation is an integral part of any development or planning decision.</p> <p>A way to ensure no unsustainable</p>

General Preliminary Description	The Tourism Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
	<p>the sake of implementing its provisions. All regulations issued directly by the Prime Ministry are as if issues by this law.</p> <p>Article 40 I: Based on the recommendation of the Governor, the Minister can establish a shared services council for a group of close Municipal councils or villages or communities.</p> <p>Article 40 K: The Municipal council is authorized to establish development projects to benefit the citizens of Municipalities.</p> <p>Article 40 L: Preparation, execution and monitoring plans and programs to ensure sustainable development with the participation of communities. Practicing local characteristics development, management all services and facilities and local projects through partnership with public sector</p> <p>Article 64: The Minister can issue the required instructions to implement the provisions of this law.</p>	<p>regulations are practiced</p> <p>A potential to protect environment, direct tourism development to the right place and ensue socio-economic development.</p> <p>Promotion of sustainable development, yet it requires capable technical personnel to ensure sustainability. Strength is the requirement of community participation.</p> <p>A good potential to try to ensure environment protection actions through Minister instructions.</p>

General Preliminary Description	The Tourism Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
<p>Cities, Villages and Buildings Zoning Law, No. 79 of 1966 (“the Planning Law”) and amendments / MOMA and its amendments</p> <p>Temporary Law: Published in the Official Gazette No 1952 dated 25/09/1966, along with all amendments thereto.</p>	<p>Article 4: The duties of the minister shall include securing the smooth functioning of the following issues all over the kingdom: a) Coordinating the use of the zoning of all lands to the best of public interests. b) That the use of the zoning of lands is in full conformity with the economic organizational plan of the government. c) That the zoning of all urban and rural areas is in line with the government policies regarding the social improvement. d) Monitoring, directing and advising the Local and municipal zoning committees and the joint urban zoning committees and insuring that the decisions and functioning of those are in pursuance with valid Law. e) Announcing the urban and rural zoning areas, the expansion or abolishment of those upon recommendations of the Higher Zoning Council.</p> <p>Article 6: The duties of the Higher Zoning Council shall include: a) Declaring, expanding and modifying the urban zoning areas. b) Approving the regional and zoning maps. c) Ordering the cancellation or</p>	<ul style="list-style-type: none"> • Doesn't link physical planning to economic planning; • Doesn't assign planning responsibilities to lowest appropriate level of government, taking into account necessary technical and managerial capacity to do effective planning and development control; • Doesn't design a planning system that covers the whole country; • Doesn't build in the principle of legal, spatial, and administrative subsidiarity. Lower-level plans to be compliant with higher-level plans; • Doesn't link spatial planning with infrastructure planning and capital programming; • Doesn't link physical planning to historic preservation and tourism development; • Doesn't Analyze and anticipate social, economic, and environmental impacts of development and make adjustments to plans as required; • No incorporation of project development cost and financing; • Doesn't designate institutional arrangements for implementation.

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	<p>modification of any license issued in pursuance with this Law where the Council establishes that the license was issued in an illegitimate manner and it is contrary to the construction maps, regulations, orders and instructions. Ordering the cancellation or modification of any license to the extent deemed appropriate by the Council in the following cases:</p> <p>In cases where the license is related to he construction of a building or any other operation provided the order is rendered prior to the end of the operations.</p> <p>in cases where the license is related to changing the purpose of land use provided that the order does not drastically affect the building or any other construction process. It is stipulated that, where a cancellation or a modification of a building license was issued through an order made in accordance with this article, all parties having interests in the land lot shall explain the expenses they bore due to the commencement of construction in the land or due to the loss caused as a result of cancellation or modification in an application to the minister within three months as of the date of rendering the order. The minister shall have to direct the zoning committee that issued the license to pay the person/persons a</p>	

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	<p>fair indemnity against the expenses and the loss, nevertheless, an indemnity shall not be paid against a loss that was caused by a decline in the deriving benefits of the land due to cancellation or modification.</p> <p>e) Examine any appeal made against a decision of a municipal committee made in accordance with this Law.</p> <p>f) Approving Laws and regulations proposed by the zoning department in relation to zoning affairs.</p> <p>g) Appointing a secretary for the Council to be responsible for writing down and keeping the events and decisions of the Council.</p> <p>Article 8: The duties of the District committees shall include the following:</p> <p>a) Approving the detailed zoning maps.</p> <p>b) Examining objections filed against the regional, framework and detailed maps in their respective Districts and making recommendations on such issues to the Higher Zoning Council.</p> <p>c) Examining appeals files against the decision of the Local Zoning Committees in their respective Districts, decisions made in this regard shall be conclusive. However, where a disagreement between the two committees takes place, the Local committee may forward the issue to the Higher Zoning Council</p>	

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	<p>whose decision shall be conclusive.</p> <p>d) Making orders and implementation directives where the District committee practices the authorities of the committee according to Law.</p> <p>Article 9: The committee shall, in pursuance with the provisions of this la, take all necessary measures to ensure the implementation of the provisions of this law or any approved project and the provisions of and regulation issued/ or deemed issued in pursuance with his law, and shall also have the following duties:</p> <p>a) Prepare the structure and the detailed zoning maps and may, for this purpose, seek the assistance of the zoning department.</p> <p>b) Approve the subdivision maps as per the approved zoning maps.</p> <p>c) Issue the building and construction licenses in pursuance with the valid law.</p> <p>d) Monitor the construction works within its area and ensure the conformity to conditions and the provisions of this law.</p> <p>e) Issue the implementation notifications and ensure their implementation.</p> <p>f) Regulate the construction of buildings and demolish of those, expansion and ordering of the roads and all issues</p>	

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	provided for under the provisions of this law.	
<p>The Regulation of Construction and Zoning for Cities & Villages (no. 19 of 1985); and its amendments / MOMA</p> <p>The provisions of this regulation apply on all lands and building projects within zoned areas in the kingdom with the exception of zoned land of GAM.</p>	<p>Article 4: The regulation defines the minimum plot area and dimensions in any zoning or taqseem project:</p> <ol style="list-style-type: none"> 1. Residential zones: Special, regular, attached, popular attached, green, rural, high areas 2. Commercial zones: central, neighborhood, local, linear, showrooms. 3. Crafts and industrial zones: crafts, light industry, medium industry 4. Agricultural establishments 5. Agricultural residential 6. Building projects: industrial complexes, commercial and office complexes, hotels, high res, res communities, high mixed use buildings, large industries. <p>Article 6 B: the specialized committee can reduce the restrictions for the existing building prior to 2/5/1985 in certain cases, on condition that it does not exceed 50% in residential areas A and B and special...etc commercial, industrial, warehouses and areas outside zoning, and 75% in popular residential and C and D.</p> <p>Article 11: Residential zones are for residential purposes and any other use specified in the endorsed zoning plan.</p>	<p>There is no specific use designation for the various tourism activities beyond hotels which are categorized among building projects. The same can be said about the environment as there is a need to specify sensitive areas in a clear land use category with associated provisions and guidelines.</p> <p>-Absence of land use designations and permitted uses related to natural and cultural heritage systems that will contribute to biodiversity protection ;</p> <p>-Core Areas(, haraj lands, Forests, Archeological sites, watercourses, including unbuilt Natural High and Low Discharge Major Wadis and Minor Wadis</p> <p>- Private Areas treed areas, or meadows or other environmentally significant areas located on privately owned land.</p> <p>-Environmentally Sensitive Area: slopes more than 30%, high and very high vulnerability areas for</p>

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	<p>Article 13 A: The Higher planning council can approve the establishment of any cooperative housing project or investment outside the Municipal boundary.</p> <p>Article 13 B: Projects mentions in section A are not allowed in land with trees or with a mineral, water, historic or cultural value.</p> <p>Article 13 C: Cooperative housing projects land must be connected to a minimum 12 meter public road and connected to infrastructure.</p> <p>Article 15 A: The Higher planning council can reconsider its decision regarding Housing, commercial or investment projects in case of one year passed and project not finished, stopped for one year and requirements were not met and if it did not correspond to set conditions.</p>	<p>groundwater resources, ridgelines, Important Bird Areas, RSCN water bird locations,, simibuilt and semi built wadis, water harvesting points and water reservoirs including their buffer zones, in addition to buffer zones for Haraj Designated Land, Forest and Tree Areas and Protected Areas</p> <p>This encourages development outside zoned areas and thus consumption of agricultural lands and encouraging sprawl as these projects usually target large plots outside zoned or municipal areas where the prices of land are cheaper yet on the expenses of being distant from services and thus creating cost for infrastructure and commuting</p> <p>Lands with trees, minerals, water or historic and cultural value are not the only valuable assets of land and this article does not ensure the protection of biodiversity.</p> <p>This is a potential to correct some of the decisions that might be harmful to the environment or have no added socio-economic value to the local communities.</p>

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<p>Regulation No.6 in 2007 for a Land use Map / MOMA</p> <p>For purposes of implementing the provisions of this article, lands shall be categorized, in terms of validity for agriculture and as explained in the land use map, into the following:</p> <p>6. Sector of agricultural areas (A).</p> <ul style="list-style-type: none"> d. First class agricultural areas (A1); these are plain lands with high agricultural qualities and fit for all types of agriculture. e. Second class agricultural areas (A2); these are semi plain lands fit for all types of crops. f. Third class agricultural areas (A3); well fit for trees. 	<p>In (A) areas the following uses are permitted:</p> <ol style="list-style-type: none"> 1. All types of <u>agriculture works</u> such as poultry and cattle keeping, preparation, sorting and packing of agricultural items for human and animal consumption. 2. <u>Residential use</u>: Investment agricultural units shall be permitted with an area of no less than 4 donums per each agricultural unit in areas (A1) and (A2). No more than 15% of the area of each land lot but not exceeding 1000 square meters. Rural residential units are permitted with an area of no less than 2 donums per each unit in areas (A3) 3. <u>Public utilities</u>: including private telecommunication stations or for companies that require a specific location in terms of heights and frequencies. Public services unit, clean water pump stations and waste water stations, power generating stations, Agricultural products store and distribution centers, oil and gas works, gas 	<p>The land use classifications are Agricultural, Rural, Marginal, Desert and forest which are based on the soil classification in terms of suitability for cultivation and production. There is no criterion for taking into consideration the natural heritage and biodiversity in the classification procedure nor there types of classification to accommodate such. As much as the soil type might be suitable for agricultural uses or poultry and cattle keeping, yet there might be a sensitive area that has a link to a larger area and thus might get affected from the allowed uses which are not harmful for agricultural purposes but might be harmful for certain species.</p> <p>Some of the allowed residential uses in various sectors set building limitations to be maximum 15% of land area but not to exceed 1000 square meter plus services and ancillaries. In many areas people are using these standards to build villas or second homes that are merely for residential purposes and not agriculture which transforms the land use structure in certain areas.</p> <p>Public utilities as telecommunication</p>

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<p>7. Sector of rural areas (B).</p> <ul style="list-style-type: none"> d. First class rural areas (B 1). e. Second class rural areas (B2). f. Third class rural areas (B3). 	<p>stations.</p> <p>4. Special uses, including horse, cattle and poultry stables and accessories, retail agricultural products shops.</p> <p>B1: Same as A in addition to public institutions or governmental buildings. Private uses include Olive Mills, retail agriculture and horses' stables and accessories.</p> <p>In addition, collaborative and investment residential are permitted with an area of no less than 2 donums in accordance with the valid zoning provisions</p> <p>B2: in addition to the permitted uses in (B 1) areas; the following are permitted in (B2) areas:</p> <ul style="list-style-type: none"> c. Investment residential projects and cooperative residential projects. d. Medium and light industries within the limits of the provisions of the agricultural areas and in accordance with the valid environmental law. <p>B3: Separate residential buildings.</p>	<p>stations or companies that requires specific location with o specific limitation on the nature, structure and locations pauses a risk on Biodiversity system as some of the best telecommunication locations might be core environmental locations at the same time.</p> <p>Olive mills allowed in B1 areas which are first class rural areas, there should be more restriction on the locations of the mills as they have affluent discharge that might affect nearby water tables, springs and wells. Residential projects are considered attraction nodes for growth and thus will encourage more development around them or keep residents excluded from services.</p> <p>B2 areas permit for investment residential projects and cooperative residential projects. Such projects should be within built up areas in proximity to soft and hard infrastructure services. The current trends are allowing such projects in exclusion from existing communities and away from services. These projects are considered attraction nodes for growth and thus will encourage more development around them or keep residents excluded from services. This allowed usage will be</p>

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<p>8. Sector of marginal areas (C).</p> <ul style="list-style-type: none"> d. First class marginal areas (C1), fit for forests and pastures. e. Second class marginal areas (C2), fit for pasturing. f. Third class marginal areas (C3), fit for forests and pasturing. <p>9. Sector desert areas (D).</p> <ul style="list-style-type: none"> a. First class desert areas (D1), those are the lands that can be utilized during the rainy season and fit for pasturing, in particular valleys and lower areas. No construction, whether temporary or constant is allowed there with view of 	<p>Investment and cooperative residential projects.</p> <p>Investment and tourism projects.</p> <p>Government buildings and service centers.</p> <p>Expansion of urban areas.</p> <p>Medium and light industries</p> <p>Any other use as per the approval of the competent zoning committees in cooperation with the competent authorities.</p> <p>C1-C3: In addition to uses permitted in areas (A) and (B), the following uses are permitted in areas (C1) and (C2):</p> <ul style="list-style-type: none"> - Private projects that require standards as available in these areas, and parts thereof may be utilized in cultivation near water springs. - Telecommunications stations and power stations. - Water and sewage pumping stations. - Metallurgy of natural resources and oil wells works. - Industrial zones. <p>D: The following uses are permitted:</p> <ul style="list-style-type: none"> - The various residential buildings. - The various installations. - Gas stations and travel set off stations. - Medium and light industries, 	<p>allowed in B3 and C sectors thus encouraging development almost in very large areas that are not developed and away from existing services.</p> <p>B3: In addition to allowed uses in B2 it also allows separate residential building which encourages sprawl and unplanned growth. Also according to the approval of the competent zoning committees in cooperation of competent authorities any other uses can be allowed which is a loose end that can permit uses that are harmful to the nature and biodiversity.</p> <p>C1-C3 Allow private projects, telecommunication stations and industrial zones.</p> <p>D: Allows various residential buildings, installations, medium and light industry , industrial projects and zones ...etc</p> <p>Accordingly, due to the unsuitability of the soil for agricultural purposes, the Biodiversity assets of the different areas have been marginalized and not taken into consideration in the classification types or in the allowed</p>

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<p>preserving public safety.</p> <p>b. Second class desert areas (D2), those are dry lands that can be used for seasonal cultivation upon availability of water.</p> <p>c. Third class desert areas (D3) , those are mud and salty and places of gathering sedimentations from higher desert areas and no construction, whether temporary or constant is allowed there with view of preserving public safety.</p> <p>10. Forests sector : areas planted with forest trees</p>	<p>industrial projects and industrial zones.</p> <ul style="list-style-type: none"> - Telecommunication stations and power generating stations. - Purification stations and garbage gathering areas in geological layers accommodating water so as not to pollute underground water. - Water and sewage pumping stations. - Metallurgy of natural resources. - Gas and oil works. <p>Forest:</p> <p><u>Agricultural works</u> including saplings and flowers. Intensive and protected cultivation (green houses). Trees and field crops. Planting forest trees. Industrial uses related to extracting raw materials from the forest trees.</p> <p><u>Uses permitted upon the approval of the council:</u></p> <p>private and public health clinics. Special educational facilities for the handicapped.</p> <p>Tourism projects presented on the basis of advance studies (resorts) on private and treeless areas. Camping centers. Parks and gardens.</p> <p><u>Residential uses:</u> One or two residential units with an area of no more than 15% of</p>	<p>uses or any restriction to be enforced taking into consideration site context and connectivity with other environmental systems.</p> <p>Tourism projects, mainly resorts are allowed on treeless lands. Yet within forest. These tourism projects have direct and indirect influences on nature and biodiversity that should be taken into consideration.</p> <p>Although Munatey Dibeena project (Dubai Capital) was approved on May 17th 2007 on the basis of moving trees with certain percentage of removed trees not to exceed (30-40) and a penalty of 1000JDs for any removed tree above the specified number. That decision was modified on November 20th 2008 which had reduced conditions and restrictions from the previous one increasing the number of allowed trees to be cut to 202 and no mentioning of penalties in case the number was exceeded, they only need the approval of the Ministry of Agriculture for that purpose, and commit in planting 10,000 trees in a</p>

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	<p>the area of the land lot provided the total building area does not exceed 1000 square meters and two storey height.</p> <p><u>Public services:</u> Government or private telecommunication stations or for companies that require a specific location in terms of heights and frequencies. Water tanks and treatment stations. Power generating and distribution stations. Water and sewage pumping stations.</p> <p><u>Special uses:</u> Horse stables and accessories in owned lands. Metallurgy of natural resources and the limited environmental impact. Gas and oil works.</p> <p><u>Temporary uses:</u> temporary agricultural experiment stations. Temporary residential units.</p>	<p>location specified by the Ministry of Agriculture. Such a project did not only have the direct physical impact on the reserve and existing eco systems, but also it had social impact on the local communities as it was excluding them as clientele and beneficiaries; fencing 30% of the forest land for private investment. Also the project construction affected the network within the reserve,</p>
<p>Expropriation Law (1) No. 12 for the year 1987 and amendments</p> <p>As Per the Prime Ministry decision to implement a project for public benefit</p> <ul style="list-style-type: none"> - Expropriation of properties - Procedures - Responsibilities and duties - Compensations - Annual interests for compensations 	<p>Article 3: No Property to be expropriated unless for implementing a project that is for the public benefit and for a fair compensation</p> <p>Article 4: Expropriation either fully or the right to dispose or benefit to be utilized for a specified period or an easement of rights or</p>	<p>Public benefit is a priority yet fair compensation is not necessarily applied in all cases.</p>

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<p>- Procedures for Compensation</p>	<p>any restriction on the use of the property rights.</p> <p>Article 5: Based on the request of the expropriating entity If it was a Ministry, governmental entity or formal institution or Municipalities, the Prime Ministry can decide to allow the usage of the expropriated property for any public benefit.</p> <p>Article 11: The expropriation for opening or widening roads or for establishing a governmental housing project, expropriation should not exceed 25% of land area for roads and not more than 25% of the expropriated land for housing project purposes.</p> <p>Article 17: If the Prime Ministry was convinced by the reasons provided by the expropriating entity of the need of immediate put hands on ownership, it can issue the decision for immediate action without waiting for the expropriation procedures with the exception of procedures of article 4</p> <p>Article 20: If the expropriating authority (nongovernmental, formal institutes or Municipalities) did not initiate the work on the project for which the property was expropriated within 3 years (for controlled and reasonable circumstances), the owner can claim back the ownership of the property.</p>	<p>This does not insure just actions for the citizens as changing the use of the land to something different than the reason it was expropriated for</p> <p>Equitable process to ensure that if the reason for which land was expropriated for is not eminent then the land owner can claim back his property.</p>

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<p>Law on sub-division within Municipality areas (1) No.11 for the year 1968/ amended by law no.9 of 1984 / Taqseem</p> <p>This law applies to municipal councils of the various Municipalities, GAM, Jerusalem and any commission that serves its mandate.</p> <p>Prime Ministry's permission required to municipal councils' action of taqseem</p> <p>Methods of evaluation and procedures</p> <p>Objections</p> <p>Distribution</p> <p>Original and new values to divided areas</p> <p>Distribution schedules and transfer of rights</p>	<p>Article 3: Based on the recommendation of the municipal council and the local committee the Prime Ministry can issue a decision allowing the division of any area within the jurisdiction of the council or have been added to it as a zoning area and to subdivide it according to a plan prepared by the council that includes the properties boundaries and their existing situation and the situation proposed after finalizing:</p> <ul style="list-style-type: none"> - Roads, plazas, parking, parks, playgrounds, schools, bridges, stairs, markets and any needed establishments. - Locations of governmental entities, municipality, worship places, schools, hospitals, charity organizations, antiquities, arts centers and any other public benefit or public good activities. - Zoning ordinances - Compensation in case of using more 1/3 of the properties for public facilities to be distributed among right owners. <p>Article 6: The municipal council to conduct a survey to calculate the divided land in the new plan.</p>	<p>This process solves so many issues especially with very narrow strips of land where it combines and re-define the lands in a way to ensure developable forms. It has been very effective in Irbid Yet in practice this is almost allowing zoning of land outside zoned areas and in some cases municipal boundaries in the name of taqseem, where the lands get treated as zoned lands in terms of development rights but formally are not zoned, financially not obliged and encourage leap frog development.</p> <p>Surveys usually cover cadastral values but not environmental values.</p>
<p>Aqaba special economic zone law number 32 for the year 2000</p> <p>The establishment of the zone is to enforce the financial capacity of the kingdom through attracting economic activities and investments</p>	<p>Article 10 B: According to this law (regardless of what is specified in other legislations) the Authority is responsible for example:</p> <p>-Organizing and Monitoring economic</p>	<p>This defines the role of ASEZA in terms of land use governance and legislation in the area. As ASEZA plays the role of MOMA in the region with its</p>

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<p>Article 4 based on the recommendation of the commissioners’ council, the Prime Ministry issues a decision defining the boundary of ASEZ. And it can amend the boundaries according to authority’s work and public benefit necessities.</p> <p>ASEZA is responsible for:</p> <p>The rehabilitation and development of the zone to attract investments and creating an advanced investment area to encourage industries, commerce, tourism and services in the area.</p> <p>B-Increasing the employment opportunities for Jordanians and cooperation with investment entities to train and raise the capacity of the labor force and provide priority in employment opportunities.</p> <p>C-Increasing the role of public sector through participation in the development of the area, including provision of infrastructure and public utilities.</p> <p>D- Encourage competition in economic activities</p> <p>E- Planning and designing projects for the development of the area</p> <p>F- Protection of the Environment</p> <p>G- Encourage registered institutes on research and development</p>	<p>activities</p> <ul style="list-style-type: none"> - Issuing permissions and certificates regarding economic activities -Zoning of cities and villages and buildings - Municipal affairs - Protection of the environment, water resources, nature and biodiversity. <p>Article 11 A: ASEZA is responsible for the region social and economic development. The region State property management. Environment Protection.</p> <p>Article 11 B: Commissioners’ council duties and responsibilities: Prepare the overall policy for the development of the area to be approved by Prime Ministry. Defining investment zones and Land uses. Same responsibilities of Municipal council’s, and the chief commissioner has the same responsibilities as the Minister.</p> <p>Article 43 A: The Aqaba Special Economic Zone and the Region are considered a regional zone according to the Urban and Rural and Buildings law and the regulations prepared accordingly. The Commissioners council has the authority of the higher planning council and Regional planning and local committees. Based on the placement on the council the Prime Ministry to issue specific regulation that defines zoning and building principles and related issues in the area.</p> <p>Article 44 A: according to the Prime Ministry decisions, treasury land within ASEZ is to be transferred to ASEZA</p> <p>Article 44 C: Based on a regulation to be issued specifically the authority has the right to utilize Government land that is not</p>	<p>own law and regulations yet governed by MOMA’s Municipalities law number 13 for the year 2011 and Law of Urban and Rural Zoning and Building number 79 for the year 1966</p> <p>This article defines ASEZA’s governance as the whole region in terms of social and economic development excluding Wadi Araba as per Jordan valley authority law.</p> <p>ASEZA’s Land use and investment zones authority is within ASEZ according to this law</p> <p>This article defines the regional zone as the region where the commissioners’ council takes the role of higher planning council and regional planning and local committees.</p> <p>Since investment is a priority then most probably these public lands will be utilized to encourage investments and economic activities.</p>

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	<p>registered in the name of treasury in renting and investment.</p> <p>Article 52: The commissioners council is responsible for the protection of the environment and ensure sustainable development within ASEZ according to specific principles and standards. ASEZA has the authority of the public institute for the protection of the environment, and the Chief commissioner has the Minister's authority mentioned in the Environment Protection Law</p> <p>Article 53: The Chief commissioner , the council members and the authority employees have the right to inspect/ Adjust any environmental offenses committed in the region contrary to the provisions of the ASEZ law (32) for the year 2000 with the exception of irregularities related to antiquities and customs.</p>	<p>The responsibility of protecting the environment falls within the responsibility of ASEZA and the environment directorate which requires high caliber of team members to deal with all environmental impact assessments and monitoring for the large investment projects in the area.</p> <p>This article defines the authority of ASEZA employees to the region which entails the environmental responsibility of the region is within ASEZA</p>
PDTRA Law of 2009	<p>Article 5: The authority aims to develop the region in the tourism, economic, cultural and social aspects and to contribute in community development, some of its authorities:</p> <ul style="list-style-type: none"> -Management and development of tourism in cooperation with the national and international institutes and committees that are related to economic and touristic development in the region. -To offer the investment environment required to practice the various economic activities and organize them in order to reach the efficient use for available resources and encourage competition. -Contribute in formulating a comprehensive strategy with specific parameters for the protection for archaeological sites, maintenance and renovation in collaboration with the Department of 	

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	<p>Antiquities.</p> <ul style="list-style-type: none"> -Define valuable heritage sites and buildings, documents and develop them, preserve them and define the areas that have special characteristics that can be utilized for touristic purposes. -Improve the social conditions of the community and related institutes through supporting the establishment of projects in the field of crafts, traditional industries, cultural arts and supporting services for tourism in the region. To define the parameters and standards related to its regulation. -Contribute in the protection of the environment, water sources, natural resources and biodiversity. To establish the required parameters in cooperation with relevant entities in relation with the Environment Law and the instructions and regulations derived from it. <p>Article 8: Commissioners' council duties and responsibilities:</p> <ul style="list-style-type: none"> -Defining the investment areas in the region and the potential land uses in it in relation to sectors. -issuing licenses and certificates and approvals for economic activities in the region and its supervision -Issuing permits for festivals and activities in the region. <p>-municipal council's responsibilities.</p> <ul style="list-style-type: none"> -Higher planning council, Regional zoning committee and local zoning committee authorities and responsibilities. 	
<p>ASEZ Zoning and Building License Regulation No.32 for the year 2004 This regulation tackles mainly the main parameters of building heights, building density and aesthetics and architectural styles of buildings.</p>	<p>Article 6: building heights for buildings and detailed heights for commercial buildings.</p> <p>Article 7: Addendums to buildings in relation to building heights.</p>	

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	<p>Article 8: Building density; basements, attics..etc</p> <p>Article 9: Setbacks: a.Setbacks and its special building regulations to be prepared for each zoning area in the detailed zoning plans b.For the sake of unifying the Architectural style the commissioners council can specify specific front setback to be corresponding to the area it is in. c. Row buildings are allowed thus canceling side setbacks on the condition that the project land to be owned by the same entity and to abide with side setbacks with neighboring plots that are not part of the project.</p> <p>Article 10: Design provisions</p> <p>Article 13: Land subdivision</p> <p>Article 50: The commissioners' council to issue a guideline for the buildings in ASEZ for the purpose of explaining zoning plans in all its levels. It is to include building provisions and land uses, defining zoning divisions, detailed building provisions and the road hierarchy and categories.</p> <p>Article 51: The council to issue instructions to detail the allowed uses within the land uses defined in the general master plan.</p>	<p>This does not ensure uniformity of provisions as some development projects will get exceptions and thus no definitive parameters to regulate.</p> <p>No guideline was presented to the team as a reference explaining the zoning plans in all its levels, the ASEZA team have prepared a booklet of decisions made throughout the year to be utilized as a reference for similar developments.</p>
<p>ASEZ Environment Protection Regulation No. 21 for the year 2001 The authority can stop any activity that is threatening or harming the water quality.</p>	<p>Environmental impact assessment: Article 9 B: The authority can demand from the project owner to conduct an environmental impact assessment depending on the nature, location or the expected impact of the project. Article 22: The authority has to inspect and supervise the approved facility through the project cycle or during construction to ensure abiding by the requirements set.</p>	

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	<p>Environmental inspection: Article 25 A: The supervision and monitoring of environmental practices B: Restrict the project with the approved plan to ensure environmental requirements. Article 32: After receiving the final auditing report the directorate has to put a plan in agreement with the developer to ensure application of recommendations.</p> <p>Annex 7: The required expertise in the environmental impact assessment team: Air quality, weather expert, agro-economic expert, soil expert, civil eng., geology expert, minerals expert, mining expert, Hydrology expert, water pollution control expert, marine engineer, water quality expert, chemist, sanitary system, sea, forests, wild life, plants, animals and species preservation experts. Sociologist, archaeology, architect, social planner, demographer, urban planner, transportation and economic experts</p>	<p>These specialties are required to conduct the environmental impact assessment for certain facilities, the big concern is the capacity of the environment directorate and other involved directorates within ASEZA in relation to all these specialties to ensure proper assessment of the submitted study.</p>
<p>Environmental Protection Law NO. 52 for the year 2006</p> <p>-Ministry of Environment is the competent Authority to protect the Environment, its duties are all concerned with this main objective, including setting policies, coordination with other entities on local, regional and international levels, observation and supervision, licensing of various development activities, setting penalties for violations of the law, bylaws, regulations in detail.</p>	<p>Article 7: upon the written nomination of the Minister from the expert employees they are granted the Judicial police authority that grants them the right to enter any facility (industrial, commercial, crafts, agricultural or any facility, institute that might influence the environment, to ensure the correspondence of its activities to the approved environmental conditions. Article 13 A: existing facilities and institutions commit to conduct and environmental impact assessment for its projects and submit it to the prime ministry for the most suitable decision in case its activities affect the environment. Article 13 B: Before the application of this</p>	<p>Article 4 from the Environmental inspection and supervision regulation no. 65 for the year 2009 Inspection is defined as: 1-Periodic inspection: where owner of facility is notified in writing min 3 days before assigned visit to be conducted within the working hours of the facility 2-follow up inspection: to ensure the repair of the environmental abuses that have been detected in the periodic inspection which have been agreed upon with the owner to be amended within a specific timeframe. 3-Sudden inspection: this is as a</p>

General Preliminary Description	The Tourism Sector Related Issues and Impact on Biodiversity	General Discussion & Critique
	<p>law the Minister can demand and facility of institution that affect the environment by its activities to conduct an environmental impact assessment if there is a need for it.</p> <p>Article 14 A: based on the nomination of the general director, the minister can approve environmental projects and studies submitted by formal institutions and public entities and NGOs for funding agencies. Based on the commitment to submit periodical monitoring reports technically and financially.</p> <p>Article 14 B: The ministry has the right to environmentally supervise these projects and ensure its proper implementation.</p> <p>Article 20: This law does not prevent application of harsher penalties specified in other active laws.</p> <p>Article 22: The Minister can delegate his responsibilities specified in this law to the general director or the Governor.</p> <p>Article 23: based on the approval of the Prime ministry, the Ministry can delegate in writing any of its duties and responsibilities to any of the ministries or related voluntary institutes and organizations.</p>	<p>response to a complaint or a detected or reported environmental pollution or due to emergency situation due to exceeding the allowed technical specifications.</p> <p>Despite the specified above the inspector has to obtain the Minster's approval prior to inspecting the facility after clarifying the reasons. For personal justified reasons the owner of the facility can postpone the inspection visit to the facility for a period that does not exceed 5 days and this could be done once.</p>
<p>Environmental impact assessment Regulation No. 37 for the year 2005</p> <p>Environmental Impact Assessment (EIA) is any procedure the aims to define the influences of the different stages of a certain project and the description of these influences, studying them to define the influence of the whole project on the socio-economic aspects and define the means of reducing environmental influences. Such a study is usually done at the</p>	<p>Article 6: The technical committee reviews the TOR and EIA of submitted by the owner of the project to give its recommendation for the Minister to give the needed decision.</p> <p>Article 8 B: Project are classified according the following categories:</p> <p>1.First category: requires a full EIA (annex2,5)</p>	

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<p>phase of conducting the feasibility study and planning and design of the project. Any project whether industrial, agricultural, commercial residential, tourism or development should get the required environmental approval.</p>	<p>2.Second category: initial submission and based on to decide the need for EIA (Annex 3,4) 3.Third category: Does not require EIA Article 9 D: The owner of the project has to submit the Minutes of meeting, entities that participated in it, the Terms of Reference (TORs) for the EIA, names of experts who will prepare it, their technical experience and the level of effort. The specialized committee in the ministry forwards it to the technical committee. Article 9 E: within a week the technical committee reviews the reports, the period can be extended in agreement with owner of the project. It submits its recommendations to the Minister to make the suitable decision and notify the owner. Article 10: If the Minister approves the TOR the owner has to start the draft EIA for which he will be responsible for the accuracy of its contents. Article 17: The Ministry should periodically supervise and monitor the commitment of the project with the conditions and requirements in the approval through the establishment or dismantling of the project.</p>	<p>In Practice, This doesn't always happen due to lack of resources(technical, human resources)</p>
<p>Regulations No. (29) of 2005 Natural Reserves and National Parks Regulations A zone with protection for the area that includes a special environmental system or rare species threatened of extinction and needs protection to ensure sustainable biodiversity.</p>	<p>Article 4: Based on the nomination of the Minister and the technical committee the Prime Ministry can change the boundary of reserve areas. Article 6: The ministry coordinates with relevant entities to nominate the</p>	<p>Environment protection, especially the reserves does not necessarily mean expropriation of private land within the reserves as this will constitute a huge financial burden that will sentence the protection process as</p>

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<p>The regulation includes the methods and procedures of establishing a reserve and the required studies to be included in the application for establishing a reserve or changing its boundary.</p>	<p>expropriation or renting of privately owned lands within reserves. Otherwise owners have the right to develop their lands in a way that does not contradict with the environmental protection goals and the management plan of the reserve.</p> <p>Article 8: with respect to other legislations the Minister can declare an area as a habitat for rare species wether plants, animals of aesthetic value regardless of the area and declare it a special reservation area to be governed and administered according to the Minister directives.</p> <p>Article 9: With respect to other legislations, no person is allowed to perform any activities within the reserve to utilize its resources unless it was approved by the reserve management according to principles and terms based on the directives of the Minister.</p>	<p>undoable. There are other means of handling private land ownership within environmentally sensitive areas ranging from transfer of development rights, incentives and de-incentives...etc that will be discussed in the socio-economic section of this report.</p> <p>In practice the privately owned lands are developing their lands without following article 6 concerning that development should not contradict with environmental preservation goals and the reserve management plan.</p> <p>Article 8 is a potential positive tool to define sensitive areas, their nature and preserve them as one of the options utilized currently.</p> <p>Although it is specified in the regulation, yet illegal behaviors are increasing in the reserve areas and this is due to lack of enforcement and penalties application.</p>
<p>Tourism law and its amendments No. 20 for the year 1988 It is for tourism sites, lands, buildings and mineral water resorts that are defined by the Prime Ministry based on the nomination of the Minister</p>	<p>Article 3 A: Protection and development of tourism sites, investing them directly and indirectly, including its management and supervision of infrastructure provision and major constructions.</p> <p>Article 3 B: licensing of tourism professions and its classification</p> <p>Article 3 D: preparing comprehensive inclusive programs to promote tourism, implement and supervision in cooperation with relevant entities.</p>	<p>The law is mainly concerned with tourism activities and sites and does not tackle tourism facilities and activities in relation to location and surrounding land uses and its integration with the environment.</p>

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	<p>Article 3 F: Organizing and encouraging investment in tourism sector as per the general policy prepared by the National Tourism council</p> <p>Article 6: the National tourism council is responsible for :</p> <ul style="list-style-type: none"> A- Preparation of the general tourism policy in the kingdom and approval of plans and programs required for its implementation, especially tourism sites development. B- Recommending the definition of tourism sites in Jordan C- Suggesting laws and regulations for tourism D- Any other issues related to tourism the Minister selects to preview. <p>Article 14 A: According to this law the Jordan Tourism board is established as an independent entity management and financially and it is to promote and encourage tourism within the kingdom and internationally.</p> <p>Article 14 G: The Prime Ministry based on the Minister's nomination can establish committees or management entities for the sites and tourism facilities with specified structural and financial states aiming to develop and sustain these sites and their facilities, their roles and responsibilities to be defined in a regulation.</p>	
<p>Instructions organizing investment in private forestry No.z13 for the year 2003 and its amendments. Investment requests in the agricultural directorates, procedures, logistics and exceptions. The organizing of vegetation types; documentation, registration ..etc</p>	<p>Article 10.afforested trees planted within less than 4-meter distance from bearing trees in privately-owned plots may be removed provided that the latter are proved to be productive and have been planted before no less than two years,</p>	<p>Article 4 – of environmental inspection No. (65) for the year 2009 A. Environmental Inspection is divided into the following:</p>

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<p>It organized investment and issues restrictions for the privately owned lands and lands included in land development project. It issued conditions and parameters for investment in privately owned lands that are treed and not included in the Ministry of agriculture projects for replacing trees with productive trees. Tackled coal production applications, their procedures, process of application and restrictions.</p>	<p>the following shall be excluded from removals: A. Grafted wild trees such as olives, pears, carob, hawthorn and others for which light pruning is only allowed for grafting and composition. B. trees and shrubs growing within broken or rocky or steep areas or those growing around the plot. C. large trees of a diameter exceeding 25 cm may be light pruned; this shall be done from the branching areas and at a height of no less than 50 cm.</p> <p>Article 13 Trees and plants growing at the roadsides or that prevent the access of the land owner to his adjacent land may be removed subject to compensation of 15 Jordanian Dinars for each tree of less than 5 years of age, and 35 Jordanian dinars for trees between 5-10 years, 50 Jordanian Dinars for trees between 11-15 years and 70 Jordanian Dinars for trees of more than 16 years. As for natural / wild trees, a compensation of 100 Jordanian Dinars shall be paid for each tree of more than 16 years, provided that the production of such trees (if any) is sold with the earnings directed to the treasury and provided that the total number of trees removed does not exceed three from each row or within a distance of six meters, whichever is less.</p> <p>Article 17 Investment in privately owned plots with forested trees and shrubs covered by participatory land development or the Yarmouk River Basin project or any other similar projects shall be as follows: 1. privately owned land linked to public forestry: A. the density of trees shall not exceed 35 % with the exception of spaces covered by dense forest trees, density refers to coverage of soil by trees. B. slope ratio does not exceed 25%</p>	<p>1- Periodic Inspection: Facility owner shall be notified in writing three days in advance, provided that inspection is conducted during the official working hours of the facility. Subsequent inspection: amendments of environmental breaches detected during the periodic inspection, for which an agreement with the facility owner has taken place for amendment within a specified period of time shall be inspected 3- Spot check: shall be conducted following a reported or detected notification or environmental contamination or as a result of a state of emergency emanating from exceeding the allowed limits at the entity.</p> <p>B- Notwithstanding the provisions of section (A) of this article, the inspector may access the facility after obtaining a special permission from the minister justifying the purpose of the environmental inspection.</p> <p>C- The facility owner may, and for proper and justified reasons, request postponement of the environmental inspection or propose an alternative date provided that it does not exceed five days and for one time only..</p>

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	<p>C. A copy of the land title and sketch developed by the surveyor and the proposed land use plan shall be enclosed with the application.</p> <p>2. Privately owned land not connected to the public forestry:</p> <p>A. Density of forest trees shall not exceed 30 % with the exception of spaces covered by dense forest trees.</p> <p>B. slope ratio does not exceed 25%</p> <p>C. Surface rock space does not exceed 50 % and of a deep soil.</p> <p>3. The above is subject to the following:</p> <p>A. the owner shall submit a surety bond and commit to the cultivation of land with bearing trees for two consecutive seasons from the date of the investment license. A total amount of 100 Jordanian Dinars shall be paid for each forest tree removed in the case of non-compliance.</p> <p>B. forestry supervisor shall monitor those who fail to comply with paragraph (A) above.</p> <p>C. Forest trees obstructing digging areas for planting bearing trees may be removed while those obstructing supporting walls shall not be removed and may be trimmed.</p> <p>D. Forestry supervisor shall participate in each inspection and sign the inspection report.</p> <p>E. Any other regulations stipulated by the administration of any project with which the land is covered provided that such regulations do not contradict with these regulations.</p> <p>Article 18 Investment in privately owned plots with forested trees and shrubs and that are not covered by the projects of the Ministry of Agriculture for their replacement shall be subject to the following:</p> <p>A. phased implementation if the total area exceeds 4 acres.</p> <p>B. Lands should be of deep soil.</p>	

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	<p>C. Slope ratio does not exceed 25 % and the land is suitable for cultivation.</p> <p>D. Density of forest trees does not exceed 30 %.</p> <p>E. Rocky surface does not exceed 50 %</p> <p>F. privately owned lands with forest trees and a total area of more than 4 acres with phased implementation, provided that the total area of cultivated land does not exceed 4 acres per phase per plot.</p> <p>G. the owner shall submit a surety bond and commit to the cultivation of land with bearing trees for three consecutive seasons. A total amount of 100 Jordanian Dinars shall be paid for each forest tree removed in the case of non-compliance. This shall be the responsibility of the forestry supervisor.</p> <p>H. Forest trees obstructing digging areas for planting bearing trees may be removed while those obstructing supporting walls shall not be removed and may be trimmed.</p>	
<p>Agricultural Land Protection Regulations No. G/17 for the year 2014</p> <p>Outlining agricultural land use regulations according to land fertility. These also outline the technical committees formulated to review all applications submitted for any sort of earthmoving.</p>	<p>Article 4 No entity may change the status of agricultural land use except in accordance with the regulations of the Cabinet upon the recommendation of the supreme council in accordance with the applied land use regularization.</p> <p>Article 10 Agricultural soil resulting from multi-purpose drilling operations, whether from privately-owned land or government-owned land or forestry or as a result of road expansion within the plan or beyond may be used for the purposes set forth.</p> <p>Article 11 Agricultural soil resulting from multi-purpose drilling operations, whether from</p>	<p>Arable lands are classified in terms of fertility and adequacy for cultivation:</p> <p>A. arable Land referred to as (A)</p> <p>B. rural land referred to as (B)</p> <p>C. Marginal/ range land referred to as (C)</p> <p>D. Desert dry land referred to as (D)</p> <p>E. Forest land (forestry)</p> <p>Although the designation categories are the same as the Land use map and regulation of 2007, yet the criteria of setting these classifications is not identical.</p>

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	<p>privately-owned land or government-owned land or forestry or as a result of road or infrastructure expansion within the plan or beyond may be used in the production of various industries.</p> <p>Article 12 Cement factories shall not receive or use agricultural soil in the cement industry.</p> <p>Article 13 The Minister may grant the status of officer of the law to the employees of the Ministry of Agriculture for inspection, observation and documentation of any breach of these regulations in accordance with the authority granted to them in Article 64 of the Agriculture Act No 44 for the year 2002.</p>	
<p>Olive press establishment and operation regulations and amendments No. g/152 for the year 2012 under Article 16 of the temporary Agricultural Law No 44 for the year 2002</p> <p>Outlining the olive press licensing committees, their representation and responsibilities. It also outlines the necessary documentations for press licensing applications, and the regulatory, environmental, and safety conditions and other conditions related to the protection of water sources required for licensing olive presses.</p>	<p>To license any of the purposes set forth in Article (3) paragraph C:</p> <p>1. Purpose / First time establishment of olive press Regulatory requirements</p> <p>A. the total area for the establishment of the olive press shall not be less than 4000 sqm, and conforms with topographic and regulatory provisions. The committee may allow a maximum extension of 2.5 %.</p> <p>B. the designated plot shall be located beyond the zoning boundaries and with a minimum distance of 500 meters from the nearest zone. The committee may allow a maximum extension of 10 %.</p> <p>C. The location of the olive press shall not contradict with the adopted land use regulations and classifications No. 6 for the year 2007 and the related amendments</p>	<p>The environmental regulations tackle olive press sensitivity in terms of proximity to residential areas, sensitive areas which are universities, hospitals and military camps. It restricts discharge in water courses and not to contradict with land use 2007, which does not classify water courses according to their importance neither classifies other important biodiversity aspects other than forests.</p>

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	<p>within the current and future master plans for all regions of the kingdom after approval and ratification by the cabinet.</p> <p>D. olive presses may be established within the classified areas (A3, A2, A1, B3, B2, B1, C1, C2, C3) provided that their location is not included within the future urban trends// plans.</p> <p>E. The location of the olive press shall be on a planned or occupied road with a minimum space of 10 meters, or an agricultural road with a minimum space of 8 meters. In the absence of this criterion, the applicant shall assign and pave the road to ensure access to the location.</p> <p>F. Reference to the district committee for classification and licensing to obtain the necessary license.</p> <p>G. Cutting forest and / or durable olive trees for the establishment of the olive press is prohibited without the approval of the concerned authorities.</p> <p>In addition to compliance with the regulatory conditions; the following shall be applied:</p> <p>A. securing adequate entry and exit points along with adequate space for loading and offloading purposes and parking.</p> <p>B. The location shall be surrounded by a stone or concrete wall, or otherwise the installation of a spiky wire from all sides except the front area (with a stone or concrete wall) with a minimum height of 1.5 meters and in compliance with the public safety measures.</p>	

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	<p>C. A paved road to the press location. Regulatory requirements</p> <p>A. the total area for the establishment of the olive press shall not be less than 4000 sqm, and conforms with topographic and regulatory provisions.</p> <p>B. securing adequate entry and exit points along with adequate space for loading and offloading purposes and parking.</p> <p>The location shall be surrounded by a stone or concrete wall, or otherwise the installation of a spiky wire from all sides except the front area (with a stone or concrete wall) with a minimum height of 1.5 meters and in compliance with the public safety measures.</p> <p>Environmental Regulations</p> <p>A. The location of the olive press shall be at a minimum distance of 750 meters from any residential locality consisting of 15 occupied houses or more.</p> <p>B. The location of the olive press shall be at a minimum distance of 1 KM from the sensitive areas such as schools, universities, hospitals and military camps.</p> <p>C. The olive press shall not be located in proximity with main valleys and streams and within a minimum distance of 350 meters from the main valley streams feeding water bodies and within a minimum distance of 25 meters from sub-streams.</p> <p>D. The location of the olive press shall be at a minimum distance of 500 meters from facilities producing gaseous pollutants or</p>	

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	<p>dust.</p> <p>E. The committee may allow a maximum extension of 10 % of the areas specified in paragraphs (A, B, D) taking into account the wind direction in the area.</p> <p>F. Two holes with a minimum capacity of 60 m for each production line of a total capacity of (1) tons/hour shall be installed to ensure wastewater flow from the first hole to the other, with the installation of an additional hole of a minimum capacity of 60 m for each new production line of a total capacity of (1) tons/ hour, the walls of these holes shall be of solid concrete with a cement ceiling or a metal lid. The ceilings shall include adequately distributed vents and need to be cleaned periodically.</p> <p>G. a designated area for pressed olive residues with a minimum space of 200 sqm for each production line with a production capacity of 91) tons / hour, and with a minimum space of 50 sqm in the event of a higher production capacity. This area shall be paved and surrounded by a fence with a minimum height of 2 meters. The water produced with the residues shall be collected through the designated</p> <p>In addition to compliance with the regulatory conditions; the following shall be applied:</p> <p>A. Submission of a technical report from the designated architectural office identifying the locations of the concrete holes and pressed olive residue area as outlined in paragraphs (f, g) which have been built</p>	

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	<p>under its supervision in accordance with the approved sketches for this purpose, in addition to the submission of a copy of such sketches to the committee.</p> <p>B. Disposal of olive mill wastewater accumulated in the holes to a designated landfill during pressing season and for a period of no longer than one month after the end of the season.</p> <p>C. Liquid or solid residues resulting from olive pressing shall not be disposed during or after the pressing season in streams and valleys, or sewage networks, or ditches. Alternatively, these residues shall be disposed in landfills in coordination with the local administrative officers in the respective provinces and governorates.</p> <p>D. Should the entrepreneur express willingness to install a wastewater treatment plant, the regulations of the competent authorities shall be adhered to.</p> <p>E. Disposal of pressed olive residues during the pressing season shall be within a maximum period of six weeks after the end of the season in an environmentally safe method through its disposal in the designated locations or re-use for other environment friendly purposes and is subject to licensing by the competent authorities.</p> <p>F. Provision of a catalogue or a technical bulleting indicating the production capacity for each line or the production lines intended to be built up.</p>	

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Mining Regulation for the year 1966	<p>Maintenance and Protection</p> <p>Article (62) A detailed geological, physical and hydrological study should be carried out for the area in which mining shall take place to include the following :</p> <p>a – Thickness of the mineral to be extracted, its distribution, gradient, distance from the surface and hardness.</p> <p>B – Vertical cross sections every 200 meters showing the type of rocks, thickness, hardness and gradient over and under the minerals to be extracted.</p> <p>C – Cracks and folds which may affect the nature of mining in the area.</p> <p>D – The highest underground water table which may be found in the area and how far from ground surface.</p> <p>E – Main water course in the area and the highest level to which the water table may rise in these courses calculated on basis that the rate of annual rainfall is 1000 mm.</p>	<p>These categories should be added to most of the industrial and major development projects prior to approval of such projects.</p>

3.4.5 Data Gap Analysis

Key issues in the planning and urban development sector that will require further attention:

- The existing planning law and regulations are out of date. They do not reflect either sound, modern urban planning methods or the realities of urban development on the ground in Jordan today.
- The present Planning Law is old (1966) and taken from an out-dated British model of structural planning with implementation based on zoning and buildings standards that are now outmoded. It is still temporary in nature, meaning that it has never been approved by a Parliament. Its substantive provisions do not pay sufficient attention to social issues, natural and cultural heritage and the location of different economic activities so as to further efficient economic development, as well as not sufficient attention paid to local community participation in the planning preparation and implementation process. Its existing regulations are not comprehensive but concentrate rather on such physical development parameters such as plot area ratios and setbacks.
- In addition, the present Planning Law does not adequately recognize the use of a wide variety of tools beyond zoning and building licenses to guide growth, such as infrastructure investment and financial incentives.
- There is no specific use designation for the various tourism activities beyond hotels which are categorized among building projects. The same can be said about the environment as there is a need to specify sensitive areas in a clear land use category with associated provisions and guidelines.
- Absence of land use designations and permitted uses related to natural and cultural heritage systems that will contribute to biodiversity protection; Core Areas (, haraj lands, Forests, Archeological sites, watercourses, including unbuilt Natural High and Low Discharge Major Wadis and Minor Wadis. Private Areas treed areas, or meadows or other environmentally significant areas located on privately owned land.
Environmentally Sensitive Area: slopes more than 30%, high and very high vulnerability areas for groundwater resources, ridgelines, Important Bird Areas, RSCN water bird locations,, simibuilt and semi built wadis, water harvesting points and water reservoirs including their buffer zones, in addition to buffer zones for Haraj Designated Land, Forest and Tree Areas and Protected Areas
- As a result of the emphasis on zoning, it has been difficult to control building and restrict it to specified urbanized areas in municipalities, especially in Amman and several other larger municipalities. The result has been ineffective use of land, with low-density urban areas and urban sprawl.
- There is neither formal nor effective coordination between the Planning Law and infrastructure planning in municipalities in urban areas.
- Present planning law and regulations do not provide clarity and transparency for investment. This creates substantial economic costs to the society as a whole as

development opportunities are missed or delayed. There is a disconnection between spatial planning and economic planning.

- Despite these deficiencies in the formal legal framework, there are a number of ongoing and recent planning exercises that are based on sound, up-to-date planning methodology. These exercises can serve as examples of the types of planning that a new regulatory framework should enable and in fact require.
- The new and modern planning exercises now taking place in GAM, the Aqaba Special Economic Zone, the Development Zones, PDTRA, and under the auspices of MOMA in certain municipalities have introduced new types of plans, such as Metropolitan Growth Plans, Area Plans and Community Plans. These plans do not fit into the definitions set out in the Planning Law of 1966..
- There is a great variation in the institutional capacity of the actors responsible for urban planning and development control in Jordan. The institutional requirements for implementing planning methods that are codified into the future regulatory framework must be consistent with the institutional capacities of the entities responsible for using them.
- The institutional capacity of planning entities can be increased over time through training and technical assistance. Such training and technical assistance will allow incorporation of more sophisticated planning methods into the future regulatory framework.

3.5 Institutional component

This chapter will analyze the institutional setup of the local authorities governing the different localities and the capacity of their technical teams as they are provided by these entities.

3.5.1 Work Methodology

The project team conducted meetings with the different local authorities of the project areas and discussed the institutional framework of these entities, concentrating on the directorates and divisions related to:

- Environment,
- Planning,
- Zoning,
- Licensing,
- Revenues (financial)
- Legal
- Social / community
- Tourism
- Investments
- Human resources
- Infrastructure
- Cultural heritage
- Land and properties
- Public works
- Geographic Information System (GIS)

The team discussed the cooperation process between different directorates or divisions in issues related to the topics mentioned above. Certain shortcomings and gaps were highlighted, in addition to issues related to local authorities team capabilities to handle these sectors and development affecting them, the types of trainings offered to them and the needed trainings.

3.5.2 Presentation & Preliminary Assessment of Data, Structures, and Teams

3.5.2.1 Jerash Governorate:

The team visited the five Municipalities within Jerash Governorate and requested information regarding the organizational structure of the municipality, the team and their educational and professional backgrounds, the trainings taken by the team members and their training needs.

Mi'rad municipality: The Municipality has provided a list of the team members, their academic degrees and their positions at the Municipality, the needed trainings and the achievements of the Municipality (Projects)

Team members; **Mi'rad municipality was constituted of 226 employees from which 148** were either non classified or Garbage collectors, drivers, workers and guards with degrees less than high school.

The remaining 80 are of higher academic degrees from which 30% were technical and the remaining were; legal, administrative and financial. The team structure did not include any environmental, tourism, social background personnel. From the team structure of the municipality it is very obvious that it is service oriented and not planning or environmental capable entity.

As for the team academic backgrounds, very few were specified in specialty and thus were difficult to assess in terms of suitability to the position assigned and responsibilities at hand.

Training needs concentrated on:

- GIS
- Quantity surveying
- Project management
- Building control
- AutoCAD
- Total station
- CPA
- ICDL
- English conversation
- Preparation for TOEFEL exam
- Warehouse and storage management
- Accounting
- Feasibility studies for investments
- Advanced management

Burma Municipality: The Municipality has provided a list of its team with the academic background, major and job title, no training needs were provided nor organizational structure.

The municipality has 47 employees plus 21 workers. 44% of the employees did not finish high school (tawjihi); **mainly work as drivers, guard, service...etc with the exception of 2 surveyors** and one building control. The Municipality has one drafts person and no engineers as zoning issues and procedures are supervised by a surveyor who is employed on a special contract.

The Mayor of Burma emphasized the need for technical personnel in his team as this is a major issue concerning zoning, licenses, regulations and development. The Municipality still uses an old hard copy zoning map that is updated manually by the surveyor and electronic updates are to be done at MOMA whenever they are provided. The head of zoning division has a bachelor in sports, one surveyor by a special contract and the municipality depends on the line Ministry

office of MOMA but it has not been efficient. The Municipality does not have line offices in the different communities within its border

Training: No training needs were submitted by the municipality as there are no technical teams responsible for zoning applications and development, and any other training would be more towards administrative and linguistic concentration. The Municipality does not have the updated **structural plans as they don't have the capacity to update them and rely on MOMA** for this purpose.

Bab Amman municipality: The Municipality provided a list of municipality employees with academic background and job titles and the training attended. The Municipality has 104 employees from which 27 have a high school or higher degrees, out of these 11 technical members (3 surveyors, 3 building control, 1 agriculture, 1 zoning, 1 public works). Technically the municipality does not have more than one person to handle zoning and land use issues, no environmental specialist.

Bab Amman Municipality indicated that it has established a development directorate as per the directives/regulations of MOMA, yet it is not activated.

Training: The already taken trainings by the Municipal team concentrated mainly on management, computer technique, financial and skills, with some technical courses taken by head of zoning and surveyors.

Al Naseem Municipality: The Municipality provided the structure of the Municipality and its teams, academic background, and trainings taken. The municipality has two directorates according to the data provided; administrative affairs (4 employees) and municipal technical affairs (4 employees). This does not represent the whole municipal team capabilities yet the personnel provided have adequate qualifications for their responsibilities.

Training: the list of training taken by the team members provided are adequate to their roles in the Municipality and specialty. The municipality listed the needed trainings for its employees as the following:

- Municipal project management
- Community interaction
- Creative thinking
- Health controllers field skills
- AutoCAD
- GIS
- Feasibility studies
- **Road network projects' supervision**

Greater Jerash municipality: No organizational structure and no **employees'** data have been provided.

3.5.2.2 PDTRA:

Founded in 2009, Petra Development Tourism Region Authority (PDTRA) is a legal, financial **and administrative independent authority that aims to develop the region's tourism, economy, society, culture and community.**

The Authority is managed by a board of commissioners that consists of five members including the president and vice president with a member who is authorized to manage the Petra Reserve as indicated in figure 17 below:

The members are appointed by the Prime Ministry and approved by His Majesty King Abdullah.

سلطة اقليم البترا التنموي السياحي

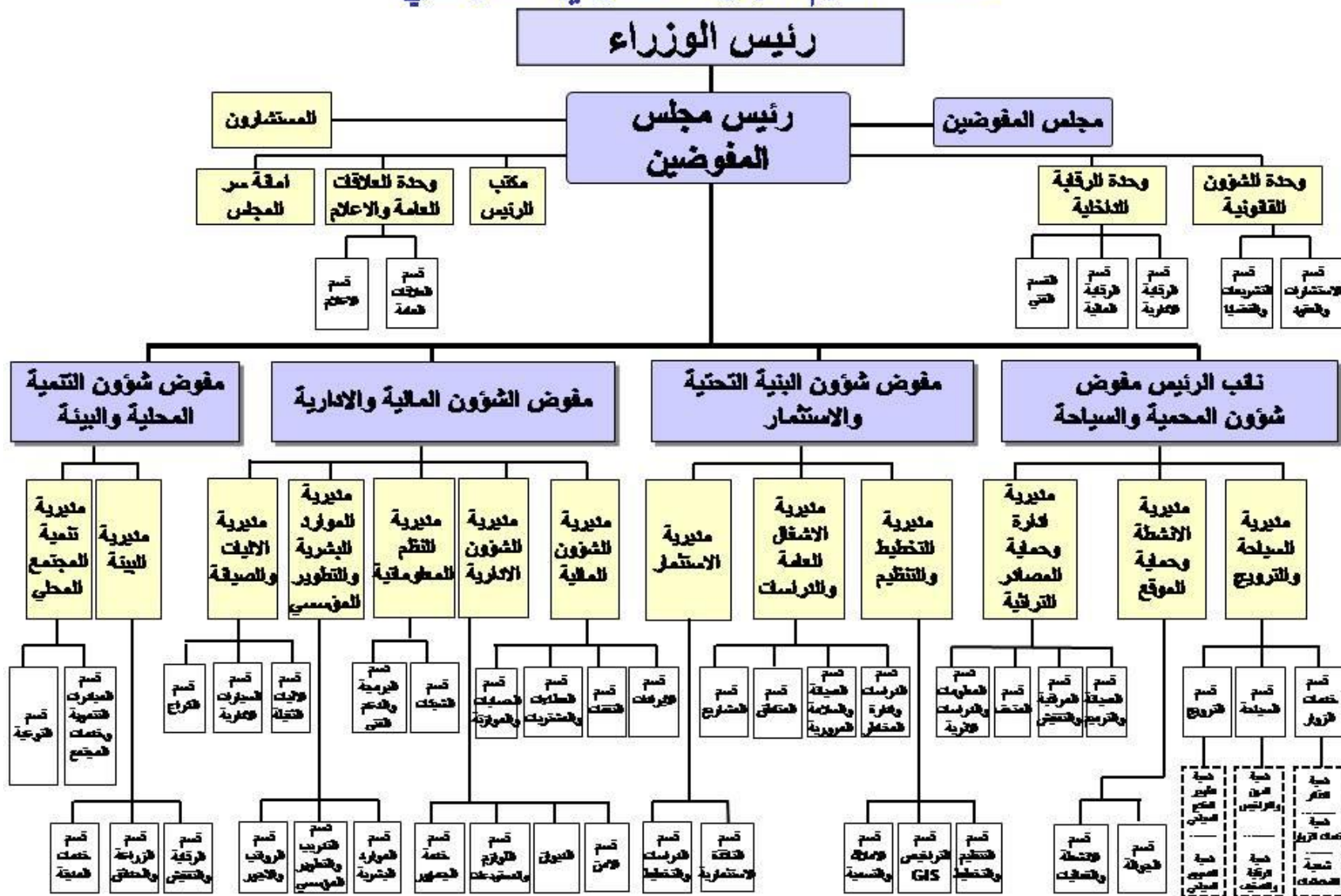


Figure 21: PDTRA organizational Structure

PDTRA provided a list of its 104 employees with their academic backgrounds, specializations and job titles. No training information was provided within this phase of the project. During the team meetings with the PDTRA the team requested information regarding the directorates highlighted in red in figure 18 below as they tackle the most relevant issue in regard to the project:

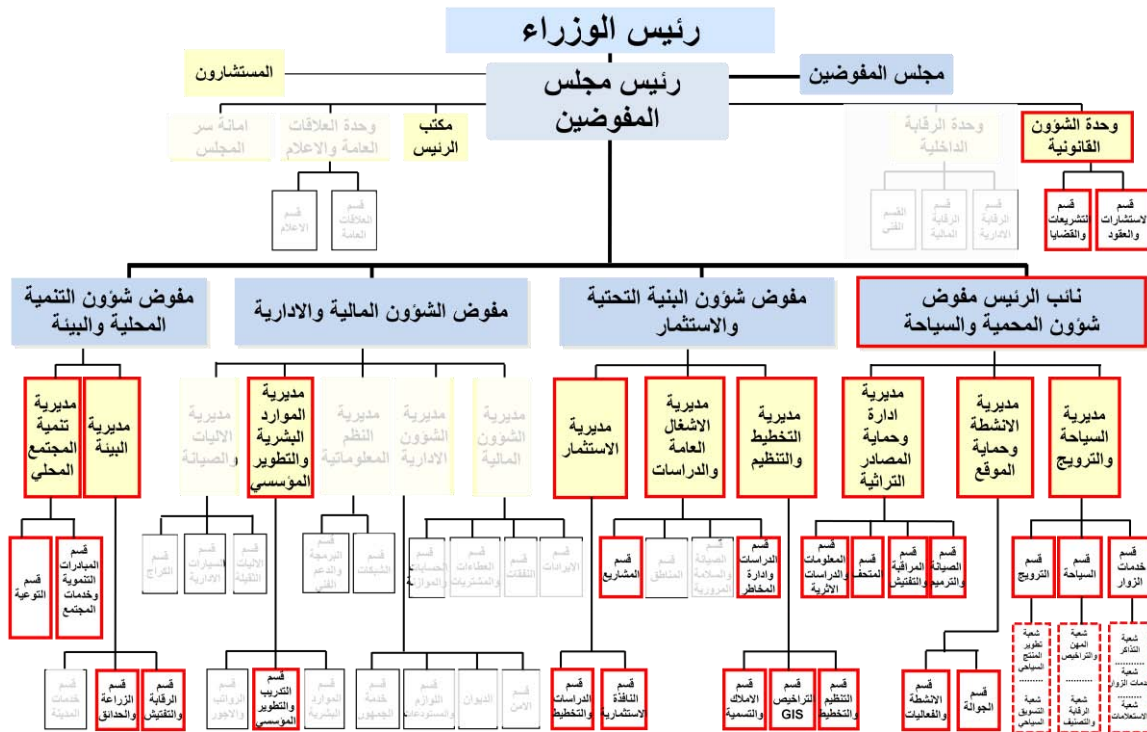


Figure 22: Highlighted specialties

According to the information provided below is an assessment of academic degrees in the most relevant sectors:

Sector	Degree	Employees number	Percentage according to directorate	Bachelor	Diploma	Tawjihi	Below tawjihi
Investment	Bachelor	4	67%	11%	8%	5%	75%
	Diploma	1	17%				
	Tawjihi	1	17%				
	Less than tawjihi						
			6				
Environment	Bachelor	4	5%				
	Diploma	1	1%				
	Tawjihi	2	2%				
	Less than tawjihi	75	91%				

tawjihi					
		82			
Planning and zoning	Bachelor	4	22%		
	Diploma	7	39%		
	Tawjihi	3	17%		
	Less than tawjihi	4	22%		
		18			

Employees with degrees below Tawjihi are mainly drivers, guards and workers and thus they distorted the percentages of the authority. Nevertheless it is very obvious that the authority has limited numbers of qualified technical personnel, mainly they are heading divisions with no qualified or suitable successors for them to ensure institutional continuation.

According to PDTRA team and authority, there is a shortage of qualified individuals and need for specialized training to build the capacity of the team. PDTRA did not submit its training requirements yet it is obvious that there is a need to train the teams on the integration of the different disciplines in the decision making process and be aware of the impacts of major developments on the environment and the society.

3.5.2.3 ASEZA:

The authority is administered by a commissioners council constituted of six members headed by the chief commissioner of the authority, each of these commissioners is responsible of administering and regulating regulatory, legal and planning activities in the region.

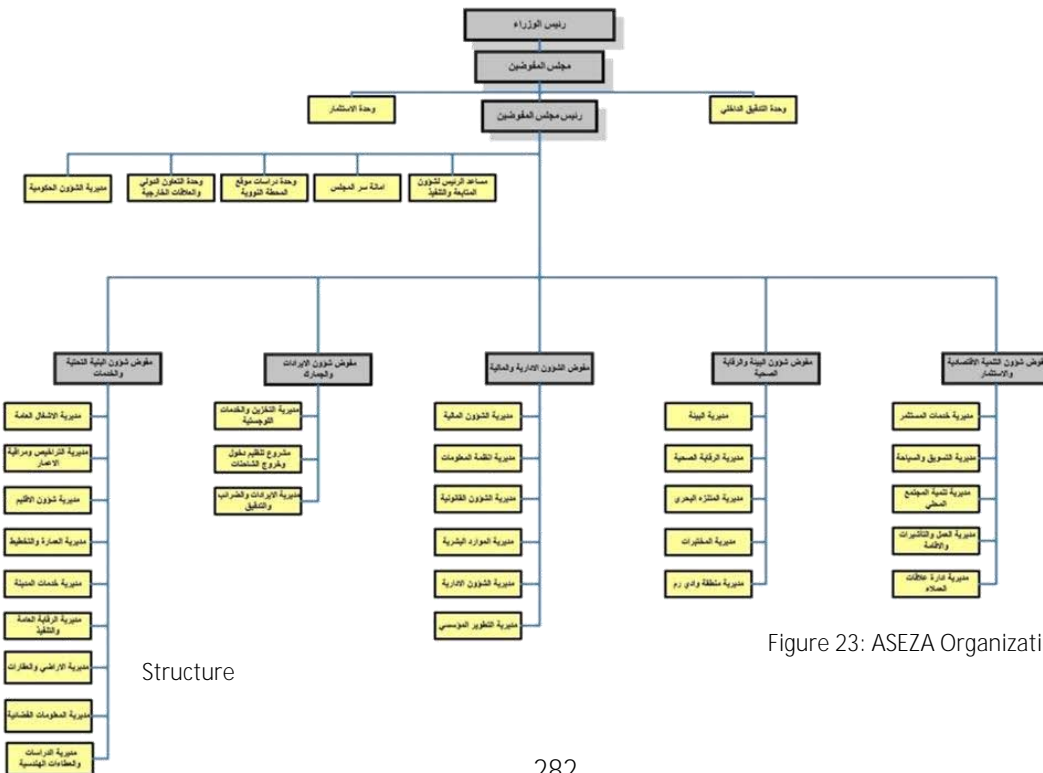


Figure 23: ASEZA Organizational

Referring to the organization structure of ASEZA, the project team highlighted the directorates that are most relevant to the project with special emphasis on Wadi RUM which is administratively a directorate within ASEZA under the commission of Environment and health affairs.

ASEZA has the authority over ASEZ, RUM, Titen, Rahmah, Qatar and Mizfer. Al Quairah and Al Disi villages are considered the center for different localities, they are not under the authority of ASEZA yet it is supervised environmentally and administratively through the directorate of regional affairs within ASEZA, which **deals with the villages that are within MOMA's jurisdictions**. Administratively all decisions has been reviewed by the commissioners council for issues related to these villages which follow **MOMA's regulations and laws**.

By practice and not mandatory the Governorate resolves to ASEZA for issues related to these villages that do not fall under the legal jurisdiction of ASEZA.

The villages that are reviewed by the regional affairs directorate are 16 villages with a regional area larger than ASEZ. Yet the responsible team for reviewing and forwarding the different applications of these localities/communities is not sufficient and need capacity building in multi-disciplinary sustainable approaches to protect the environment besides training and **capacity building with MOMA's regulations and changes**.

There is a need for a regional planning committee to handle issues regarding the localities that **fall within MOMA's jurisdiction**.

Since ASEZA is responsible for the protection of the environment for the region by ASEZA Law, the team evaluated the directorate of Environment structure and team experiences. The Environment Directorate at ASEZA has five divisions; Environmental monitoring and studies, approval and EIAs, water resources management, Chemical safety and inspection and Environmental checking. The number of employees in these divisions ranges from 4-7 and the majority has either bachelors or Masters Degrees in chemistry, agriculture, biomedical assessment and marine biology, with very few Diplomas and high school degrees. Although the team members have the academic qualifications yet they do not cover all the required specialties in the EIAs and will have some shortcoming in reviewing these assessments especially in the agricultural economy, soil, geology, mining, hydrology, biodiversity, social **science ...etc**.

Institutionally digitized data is not connected to all directorates the issue that creates mix up and delay processing of information. There is a vision to link ASEZA data base with the Royal Jordanian Geographic center, so far all attempts are pending.

Training: it has been highlighted that trainings within ASEZA are not necessarily distributed according to specialty, need and possibility of implementation. This issue has to led to having employees attending certain specialized trainings and not having the tools in their work environment to implement the acquired knowledge which results in not benefiting of the training course and its application possibilities.

ASEZA shared with the project team some of its envisioned training needs for some of the divisions of the authority as some other directorates and divisions did not submit the required information. Accordingly the needed emphasis areas of training provided by ASEZA for the zoning and planning divisions are:

- ii. community-based planning workshop
- iii. Concepts and principles of The landscape conservation systems:
- iv. Supporting women's activities that promote the increased involvement of female in resource management.

As the team has emphasized the need for trainings relevant to the context of their roles and responsibilities and to be distributed according to a certain system to ensure justice and efficiency. Also there was an emphasis on the need for capacity building of employees of MOMA's laws and regulations and the new approaches in master planning.

RUM

As a directorate administered by ASEZA, Rum's role lies in the implementation of regulations within the reserve area and its buffer zone. The Organization structure of Rum indicates that it has five divisions dealing with:

- Environment Tourism
- Environment protection
- Community socio-economic development
- Administrative and financial affairs
- Crafts center

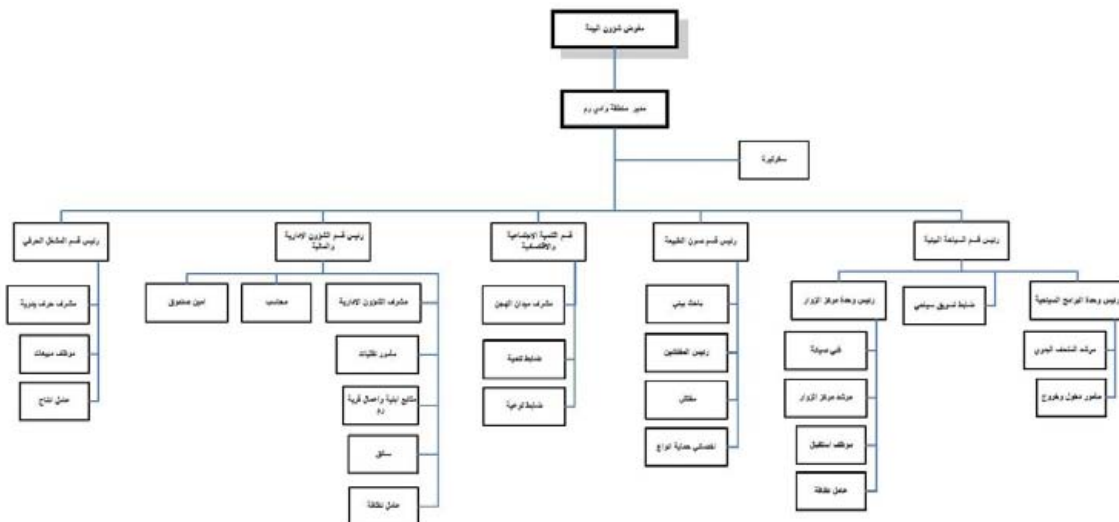


Figure 24: Rum Organizational Structure

The division of Environmental tourism is the link between the law, the tourist guides and the community.

The local community is involved in creating tourist activities and implementing them. In that regard targeting the local community in capacity building programs will benefit the environment and the community at the same time through the local knowledge and environmental assets.

The Rum team emphasized the need to select training topics that are connected to their context to enable learning through application and linked to certain outcomes to ensure benefiting from these training courses/emphasis.

The local community have linked the nature with income generating activities, thus several unstudied trainings that were not contextualized to the community needs and environment have failed previously.

Investment projects get the approval from ASEZA with a vision for investment sometimes without even consulting with Rum management the issue that poses a threat and have raised concerns from UNESCO. Some of these approved projects have created sentiments from the local community; therefore they should be coordinated with Rum administration to insure inclusivity and approval of the local community.

It has been voiced that ASEZA has not provided enough support to Rum in the social awareness concerns. Rum development fund revenues go to ASEZA and not for community development **as this issue is absent on the authority's agenda. There is a strong believe for the necessity for the independence of RUM from ASEZA with a continuous collaboration.**

Training needs:

Rum has identifies some training needs that are derived from their context and their assessment of the shortcomings of previous training programs; they have defined the criteria for the needed trainings as the following:

- 3- Elevate the capabilities of the team (Environment, tourism, development and management)
- 4- Sustainability in developing the environmental and human resources
- 5- Building local capacity to be transferred to the local community

Also they have provided training requirement details i.e. topic of training and expected outcome, mainly concentrating on:

- Exposure to case studies for practices of international nature reserves in biodiversity management, economic and social empowerment for the reserve residents, protection and types of qualitative preservation, environmental promotion and tourism sites management.
- Linguistic needs for continuous local training

- Training of licensed trainers from the local team in the areas of; development and training, awareness, development planning, environmental tourism, film production and montage, project management, financial management, legal management.

In general for most local authorities training is offered based on the available training programs from various entities and team selection is not institutionalized according to certain criteria to ensure proper and efficient use of these training programs. In many cases the employees search for trainings to enable them to get extra knowledge or get a break from work and not necessarily according to needs or specialty.

It is recommended for the training procedure to be structured on thorough assessment of the needs of the institutions and the specialized teams, and to formulate a framework for the required trainings, their types, the teams that should be offered and expected outcomes that serve the institutional goals and mission to better utilize the acquired knowledge in raising the capacity of the institution and thus

3.5.3 Data Gap Analysis

Most of the data requested regarding institutional set up and team structures and capabilities was not ready and required preparation or update. Some of the local authorities did not provide their data and will be highlighted in this section.

Based on the assessment that was conducted during the meetings with the different localities and the data provided by their teams, table 34 below highlights the required information that was not provided during this phase of the project:

The types of information required from all authorities will be regarding their mandate, team, and capabilities of their teams, shortcomings and needs. Also there is a need to map the procedural relation between these divisions in practice to find any strengths or gaps.

Table 31: the required information not provided yet

Sector	Authority	Directorates	Divisions	Types of information
Institutional	PDTRA	مديرية السياحة والترويج	قسم خدمات الزوار	Academic background, professional background, years of experience, trainings taken, needed training.
			قسم السياحة	
			قسم الترويج	
		مديرية الأنشطة وحماية المواقع	قسم الجواله	
			قسم الأنشطة والفعاليات	
		مديرية ادارة وحماية المصادر التراثية	قسم الصيانة والترميم	
			سم المراقبة والتفتيش	
			قسم المتحف	
			قسم المعلومات والدراسات الأثرية	
		مديرية التخطيط والتنظيم	قسم التنظيم والتخطيط	
			قسم التراخيص GIS	
			قسم الأملاك والتسمية	
		مديرية الأشغال العامة والدراسات	قسم الدراسات وادارة المخاطر	
			قسم المشاريع	
		مديرية الإستثمار	قسم النافذة الإستثمارية	
			قسم الدراسات والتخطيط	
مديرية الموارد البشرية والتطوير المؤسسي	قسم التدريب والتطوير المؤسسي			
	قسم الزراعة والحدائق			
مديرية تنمية المجتمع المحلي	قسم المبادرات التنموية وخدمات المجتمع			
	قسم التوعية			

RUM	مفوض شؤون التنمية الإقتصادية والإستثمار	مديرية تنمية المجتمع المحلي	Academic background, professional background, years of experience, trainings taken, needed training.
	مفوض شؤون البيئة والرقابة الصحية	مديرية البيئة	
		مديرية منطقة وادي رم	
	مفوض الشؤون الإدارية والمالية	مديرية أنظمة المعلومات	
		مديرية الشؤون القانونية	
		مديرية الموارد البشرية	
	مديرية شؤون البنية التحتية والخدمات	مديرية شؤون الإقليم	
		مديرية العمارة والتخطيط	
		مديرية الرقابة العامة والتنفيذ	
		مديرية الأراضي العامة والتنفيذ	
		مديرية الأراضي والعقارات	
		مديرية المعلومات الفضائية	
		مديرية الدراسات والعطاءات الهندسية	

Sector	Authority	Directorates	Divisions
Institutional	Greater Jerash Municipality	All directorates that deal with	Land use, zoning, licensing, environment, heritage, Environment and Human resources
		Institutional structure showing the different directorates and divisions	
	Burma Municipality	Institutional structure showing the different directorates and divisions	
	Bab Amman Municipality	Institutional structure showing the different directorates and divisions	

4. Annexes

Annex 1 : Summaries of the obtained Studies and data

Annex 2 : Summaries of Laws and Regulations

Annex 3 : Relevance of Laws and Regulations to project components

Annex 4 : Survey Format Analysis

Annex 5 : Framework and Action Plan for Community Consultation

Annex 6 : Market Based Instruments

Annex 7 : How to develop indicators