



## A Proposed Management and Governance Classification: A case study in El Hassana Dome Protected Area

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### ABSTRACT

The IUCN has established six main categories regarding the proper management of protected areas worldwide and recognizing four main governance types in describe of their jurisdiction. This paper aims to develop a proposed model for the management and governance of El Hassana Dome Protected Area in the light of the IUCN guidelines, as well as the following research work and the official published data regarding the protected area. There was no clarity with the published data of the protected area, as it was regarded as a geological protected area, or category Ia as a strictly preserved area with minimal to no human activities and in a case, as category II national park which requires the existence of an Eco system with its vital processes to conserve alongside the recreational activities. The author will implement this article through many approach, such as; reviewing and analyzing those unique aspects of the ICUN adopted management categories, also it used the comparing approach to the data available regarding the biotic and abiotic assets of the chosen sample protected area of “El Hassana Dome protected area” to deduce its suitable true nature of management and the governance type that would be applicable by Egyptian law. The mentioned protected area is with geological theme and scarce in biotic assets with heavy urban aspects and extreme human modification upon the protected area. It is concluded that the ‘Hassana Dome protected area’ on the light of formal available data would be best suited to be managed as Category III, which is natural monument or feature and governed under the umbrella of the Egyptian law as a shared governance type laying the ground work for future research regarding its management system as whole.

## Introduction:

Despite the overwhelming growth of the both numbers and size of protected areas worldwide in the late decades (West et al., 2008) the critical issues remains; as a large number of it is yet to be fully managed. The IUCN defined a protected area as: *“A clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values”*. an agreed upon definition by the European environment agency (*An Introduction to Europe's Protected Areas — European Environment Agency*, n.d.) based on this specific definition a protected area –if not yet been declared as such should be clearly defined space with boundaries, with a legal frame work to direct its governance matters, with the aim of natural conservation implemented in its master management plan, Based on the IUCN guideline for protected area management categorizes, Each category is decided upon main factors such as, Primary objective , Other objectives, Role in the landscape/seascape, Distinguishing features , What makes the category unique, Issues for consideration, and the major fall behind of marine protected areas in comparison to the in land protected areas Protected areas are a crucial block in the nowadays social building as it proves a type of commitment for environmental issues such as climate change, monitoring strategies and protecting the ecosystem services (Sarat Babu Gidda, 2005) that may be provided by the protected areas network which had been scattered around the globe, they don't have the uniformity attribute by any means as some are highly fragile sites with no human activity allowed, while on the other hand some sites are shaped primary or have acquired their value through accumulated effect of human activities

throughout the years, many contains features of earth history and the process of its formation, while other sites mainly provide controlled space for species conservation and evolution and its as well as the variety in the management aims and objectives they are governed by a variety of governance types and stakeholders. The IUCN protected area management categories are a global framework, which is recognized by the Convention on Biological Diversity, summarizing the vastly wide array of approaches into six main categories that can never be more than an approximation to the reality of the current protected areas issues concerning the management , Although the guidelines are based on the presumed preexistent management objectives there are some purposes they can be used at with the approval of IUCN to be used in that manner Purposes that IUCN supports and actively Encourages Facilitating planning of protected areas and protected area Systems to provide a tool for planning protected area systems and wider bioregional or Eco regional conservation planning exercises. (Dudley, 2008)

## Research aim

This research aims to determines a specific Management category, and governance type to apply on El Hassana Dome protected area based on discussion and analyzing the categorization system of protected areas as formalized by the IUCN, Then assessing the attributes of the case study protected area discussed “El Hassana Dome protected area”

## Methodology

This research used a comparing approach between the IUCN<sup>1</sup> WCPA<sup>2</sup> Guide lines and Management Categories to decide the best suited management category for the chosen sample ‘El Hassana Dome Protected area’. Categories are distinguished by their main objective, other secondary objectives,

<sup>1</sup> An Abbreviation for International Union for Conservation of Nature

<sup>2</sup> An Abbreviation for world commission on protected areas

distinguishing features, role in the landscape or seascape, unique points and actions that are compatible or incompatible (Dudley, 2008). also the author uses analyzing approach to deduce the proper governance type as allowed by the Egyptian law

As a starting point it is necessary to review the main IUCN defined Categories with their unique aspects and specialties to differentiate between each category (management, or governance):

**Category (Ia);** which is a strictly protected area that meant to be set aside civil development plans for the main purpose of conserving biodiversity, or\ and geological, and geomorphological features in which human activities are prohibited or limited and controlled to maintain the conservative values, it may present a scientific research reference able area (*IUCN Category Ia - Strict Nature Reserve Definition* | *Biodiversity A-Z UN Environment Programme*, n.d.)

<b>Category Ia</b>	
<b>Primary objective</b>	Conservation of outstanding ecosystems or species regardless of its geographical scale as well as Geodiversity features which was formed without human interference or minimum
<b>Other objectives:</b>	<ul style="list-style-type: none"> <li>- Preservation of ecosystems, spices, and Geodiversity in an undisturbed state</li> <li>- Ensure the existence of the highly required examples of natural environment</li> <li>- minimizing the negative effect by thoughtful planning of only approved activities</li> <li>- Conservation of cultural and spiritual elements that's associated with the natural ones</li> </ul>
<b>Distinguishing features</b>	<ul style="list-style-type: none"> <li>- the area should host a near perfection complete set of native species with ecological value, or have the potential of recovering them naturally or by time bound intervention</li> <li>- have a complete and compatible set of ecosystems and accompanying Eco processes or has the potential to restore hose processes with minimum effort management that would compromise the main objectives</li> <li>- Intact and without modern human intervention</li> <li>- does not require an on-going intervention to achieve its goals</li> <li>-be surrounded when feasible to do so by land that contributes to the achievement of its aims</li> <li>- Suitable as a monitoring site for recording human activities and its effect</li> <li>- Its management requires a low traffic visitation</li> <li>- Capability to be managed to ensure low impact and disturbance especially marine ecosystems, as well may be a sacred site,</li> </ul>
<b>Contribution in conservation efforts</b>	<ul style="list-style-type: none"> <li>- conserving an aspect of richness for the earth that will not last without a strict system</li> <li>- Acts as a monitoring tool for the human impacts on the Long-term</li> <li>- presents the opportunity to study the pristine environmental condition</li> <li>- protecting the eco system services</li> </ul>

<b>Aspects of uniqueness for the category</b> (Dudley, 2008)	
<b>category Ib</b>	Generally less strict and not subjected to mass tourism like category Ib Category II, combines ecosystem conservation, and recreation usually suitable for zoning on a large scale
<b>Category III</b>	usually centered on a specific natural feature, thus that feature conservation is the primary objective, thus its more centered than the Ia category which considers the whole ecosystem and the following processes
<b>Category IV</b>	considers shards of ecosystems, and habitats, thus requires continuous management intervention to maintain, while Ia should be self-maintaining
<b>Category V</b>	mostly cultural land scape, or sea scape that were affected by human activities over time, thus relying on continuous intervention to keep their qualities, many of V categorized protected areas has a permanent human settlement within, which is not combatable with the category Ia
<b>Category VI</b>	this specific category depends on sustainable use of resources to maintain biodiversity, which is not combatable with the Ia

**Category Ib: Wilderness area:** Vast undisturbed or slightly disturbed areas that conserved their natural aspects without permanent or large human habitation, which are protected and managed so as to preserve their natural condition.(*IUCN Category Ib - Wilderness Area Definition| Biodiversity A-Z UN Environment Programme*, n.d.)

<b>Category Ib</b>	
<b>Primary objective</b>	Long-term protection of ecological integrity of natural areas, that are not disturbed by mainstream human activities, with an underdeveloped infrastructure, with the natural elements and processes, are dominant, so that future generations could experience it
<b>Other objectives:</b>	<ul style="list-style-type: none"> <li>- To provide public access for masses with minimal negative effects on the natural qualities</li> <li>- empowerment tool for indigenous local communities to maintain their traditional way of life in terms of low density and conservation aims not being disturbed</li> <li>- To conserve the relevant cultural, and potential spiritual and immaterialist attributes of local and indigenous communities</li> <li>- To present opportunities for low-impact educational and research activities, that can't be conducted outside the wilderness area</li> </ul>
<b>Distinguishing features</b>	<p>the area should generally:(<i>IUCN Management Categories — European Environment Agency</i>, n.d.)</p> <ul style="list-style-type: none"> <li>- Lack of modern infrastructure, industrial activities, and facilities</li> <li>- recognized with an advanced state of pureness, with unique stat of the original ecosystem with a complete native or rather near-complete fauna, and flora ecosystems, with undisturbed prey-predator relationships, including large mammals</li> </ul>

	<ul style="list-style-type: none"> <li>- has a suitable size to provide protection for ecological elements, services, provides a buffer shield against climate change and maintenance of evolutionary process</li> <li>- a site with that offers the opportunities for isolation, and solitude experience felt on reaching the site with simple means of travel, or highly regulated ones</li> <li>- a site that's free from unnecessary human use or existence, that decreases the value presented by the ecological aspects, though human presence is not the deciding factor of category Ib, the main objective is biological intactness and the lack of advanced permanent infra-structure, or extreme industries, the category can include areas such as : <ul style="list-style-type: none"> <li>- disturbed areas that has the potential to be restored to a wilderness state</li> <li>- Small areas that may be expanded to \ or play a role in other larger wilderness area</li> </ul> </li> </ul>
<b>Role in the landscape/seascape</b> (Quigg, 1978)	<ul style="list-style-type: none"> <li>- in more than a way this category has its similarities with the category II national parks as they share the protection of large , functional ,and active ecosystems or at the very least a site where numerous or unique aspects of an ecosystem</li> <li>- Protection of large pure areas where ecosystem process may continue undisturbed by human activities including development and mass tourism</li> <li>-protection of a specific species or ecological community of specimen that require large areas of habitat to maintain their vital processes</li> <li>- The provision of a cluster of rare species to help in the process of repopulating the sustainably managed area surrounding the protected area</li> <li>- offers the opportunity for a limited and regulated touristic acts to experience wilderness</li> <li>- Provision of opportunities to respond to climate change</li> </ul>
<b>Aspects of uniqueness for the category</b> (Dudley, 2008)	
<b>Category Ia</b>	Strict and limited, that often smaller than category Ib, also with rare human inhabitation in category Ib
<b>Category II</b>	Categories Ib and II of protected areas are often Akin in size With a shared aim of protecting functional active ecosystem Functioning ecosystems but they differ in the matter of visitation as category II includes in their plan the use of visitors and the implementation of necessary infrastructure but whereas Ib usually visitor use is limited for those with resources and skill to survive aidless
<b>Category III</b>	Aims towards preserving a specific natural feature, which is contrast to category Ib. Category III of protected areas are almost always quite small and with the joint aim with category II, it encourages visitors even in large numbers; Ib protected areas on the other hand are mostly larger and discourage anything but special visitation
<b>Category IV</b>	Usually smaller in size of the whole site and meant for incomplete Functional ecosystems, most of this category sites require management intervention on

	regular bases to keep their Associated biodiversity aspects thus all of its attributes are Incompatible for category Ib.
<b>Category V</b>	this specific category consists of cultural landscapes and seascapes which is shaped usually by long exposure of human activities and intervention a combined usually by stable human settlements, while category Ib should be in an intact an natural state as may be possible and would contain cultural land scape on the condition its meant to be restored to their near natural state
<b>Category VI</b>	Is based on the installment of internal zoning system and management to encourage and support sustainable use, while the wilderness area may contain traditional use of some natural resources by indigenous local people but this is fortuitous, to management aims, rather than being an interest to the managers

**Category II: National Park** An enclosed Segment of ground, usually within or on boundaries of an urban settlement, thoroughly laid out and dedicated to public recreation (Stephen F. McCool, 2002) or as IUCN defines it regarding the management a Large natural or semi natural areas dedicated to to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities. (IUCN Category II - National Park Definition/ Biodiversity A-Z, n.d.)

<b>Category II: National Park</b>	
<b>Primary objective</b>	Aims for natural protection including biodiversity, with its ecological components, and environmental processes, as well as promotion of educational and recreational activities
<b>Other objectives:</b>	<ul style="list-style-type: none"> <li>- To manage the area in order to sustain its natural state, and keep the represented examples of physiographic sectors, biotic communities and their natural processes, and genetics resources</li> <li>- To sustain ecologically functional and active population of native species at a density that allows the eco system to be resistant on the long term</li> <li>- Specifically conserves wide ranged species, region wide eco-processes, or vastly extended migration routes</li> <li>- To inspire, educate the visitors through proper management as well as providing recreation in a manner that does not oppose to the sustainability of the ecosystem</li> <li>- To consider the needs of indigenous local people</li> <li>- To enforce the local economy via tourism</li> </ul>
<b>Distinguishing features</b>	<p>Typically, large enough to contain an active ecosystem, with co-operating management in surrounding areas to achieve such a goal, although to be able to achieve that goal</p> <ul style="list-style-type: none"> <li>- should consist of examples of main natural regions, alongside biotic and abiotic features, or a scenery, where native fauna, flora or geological aspects has spiritual, tourist, or scientific or educational</li> <li>- This category of protected areas should expand on a suitable size alongside ecological quality that allows sustaining the ecological processes with minimal intervention</li> </ul>

	- Its biodiversity aspects should be in a great deal of a natural state or has the chance to be restored to such a state with low risk of alien species invasion
<b>Role in the landscape/seascape</b> (UK, n.d.)	<ul style="list-style-type: none"> <li>- specialize in conserving large-scale species or migratory ones</li> <li>- protecting necessary ecosystem services</li> <li>- providing a large undisturbed habitat for specific species that in need for protection</li> <li>- It co-exists with the sustainable surrounding areas to re populate it with the chosen species</li> <li>-to be managed with integration with the nearby water uses as well as land to act as a part of larger conservation efforts</li> <li>- To present an informative positive message to the visitors concerning conservation efforts(West et al., 2008)</li> <li>- takes a part in enforcing the economic development through tourism specially to local communities</li> </ul>
<b>Aspects of uniqueness for the category</b>	
<b>Category Ia</b>	more strictly conserved than Category II, generally because it includes tourist infrastructure and visitation
<b>Category Ib</b>	the visitor movement is quite different from a wilderness area it has a more modern infrastructure, as well as much greater numbers of visitors
<b>Category III</b>	core Management objective is to conserve a single natural feature, while category II is concerned in conserving a whole ecological system and process
<b>Category IV</b>	On the contrary of category IV Category II is aimed at maintaining ecological integrity as a whole while category IV is aimed at protecting habitats and their communities of biotic components and individual species.
<b>Category V</b>	Category II is basically a natural system or to be restored as such whilst, category V is concerned with cultural landscapes and its aim is to maintain the cultural aspect
<b>Category VI</b>	Category II usually will not permit resource usage except for subsistence or light recreational purposes(Dudley, 2008).

**Category III: Natural monument or feature** May be defined as protected areas meant to preserve a specific unique land or marine feature, that could be a landform, sea mount, submarine cavern, geological feature or a living feature in other word it may be biotic or abiotic feature in general smaller protected areas with high visitation activities . (Ted Terzyna, 2015)

<b>Category III: Natural monument or feature</b>	
<b>Primary objective</b>	<p>Category III generally relatively small sites that focuses on one or more major feature rather than a broad ecosystem, they set aside in order to protect may also include a biodiversity aspect to be included in the main management plan that may vary as :</p> <ul style="list-style-type: none"> <li>- natural geological, and geomorphological feature (waterfalls ,cliffs, craters, caves, fossil beds , rock formation, or marine features )</li> <li>- culturally-influenced natural features , or as such a feature that has an increased value due to human activities on the long term</li> </ul>

	<p>or a natural cultural value for sites that are considered sacred to a specific group of people</p> <ul style="list-style-type: none"> <li>- cultural site with inseparable natural related aspects</li> </ul>
<b>Other objectives:</b>	<p><b>Nature conservation attributes of category III protected areas</b> <b>May be defined into two main types:</b></p> <ul style="list-style-type: none"> <li>- biodiversity unique to the conditions related to the natural feature</li> <li>- biodiversity that survives due to the presence of spiritual and cultural values at the site that led to maintenance of a semi natural habitat thus the key for inclusion of the site as a protected areas will be its value towards the broad scaled conservation , the prioritization of biodiversity in the management planning</li> </ul>
<b>Distinguishing features of category III</b> (Dearden & Locke, 2005)	<p>this category is specifically unique because it's heavily influenced by the perception of humans about the main feature it is centered around, as its value - the main feature- is driven mainly out of people's understanding and needs, which may be less applicable in geological features sites where a systematic approach is possible, the fact that a certain site contains a major natural feature doesn't mean the inevitability of applying category III as it requires that the natural feature management is the sole or at least dominant objective</p>
<b>Role in the landscape/seascape</b>	<p>This specific category intends to protect the unique rather than having logical components or has a large scale conservative approach Category III is really intended to protect the unusual rather Than to provide logical components in a broad-scale approach to conservation; unique natural monuments may market protection efforts and give the opportunity for environmental or cultural education</p>
<b>Aspects of uniqueness for the category</b> (Dudley, 2008)	
<b>Category Ia</b>	<p>Category III is not exclusive to functional natural and pure landscapes but may be applied to an area of cultural value of segmentation of nature also with recreational activities and research encouraged while monitoring is limited to the understanding and conservation of a specific natural feature.</p>
<b>Category Ib</b>	<p>Category III the main difference is the centralized focus on one main feature, not the whole ecosystem protection otherwise they follow the same management but category III on a much smaller scale and simpler one</p>
<b>Category IV</b>	<p>The focus of the category III management system is not to conserve the key species or habitats, but on natural features that may be biotic or abiotic</p>
<b>Category V</b>	<p>Category III is not related mainly to cultural landscapes and management actions and regulations will be stricter in the regard of the core natural feature</p>
<b>Category VI</b>	<p>Category III does not aim towards sustainable resources usage</p>



**Category IV: Habitat/species management area:** Concerned mainly with protection or restoring the population of species or its habitat or even the conditions required for its survival (Carly Vynne, 2006) It provides several management approaches that may be used in areas that have already been altered and modified or the ones that had grown dependent on the human cultural effect creating the necessity to protect the remaining fragments many of the category IV protected areas are located in midst of crowded landscapes or seascapes where the urban pressure is relatively greater than in other places in regards to illegal use or the visitation pressure on the site, the Category IV that relies on the continuous intervention of management requires much greater resources to be provided by the authority and an expensive maintenance cost, its objectives is a Long-term ones that requires a careful monitoring that emphasis the overall eco system

<b>Category IV: Habitat/species management area</b>	
<b>Primary objective</b>	To conserve and restore a species as well as its habitat (Carly Vynne, 2006)
<b>Other objectives:</b>	<ul style="list-style-type: none"> <li>- Protection on vegetation types</li> <li>- To conserve segments of habitats as a part of the landscape - seascape</li> <li>- To provide public education to the public and build an appreciation of the natural value</li> <li>- To provide the urban visitors with access to the nature</li> </ul>
<b>Distinguishing features</b>	Category IV protected areas aim to conserve existing, or restore: <ol style="list-style-type: none"> <li>1) Flora species of importance</li> <li>2) Fauna species of importance</li> </ol> Those may be part of a whole ecosystem that is not naturally sustainable by itself, or that the chosen species requires conditions that are provided only by management intervention such as artificial habitat creation, or supplementary feeding
<b>Role in the landscape/seascape</b> (Dudley, 2008)	Category IV protected areas frequently play a role in “Closing the gaps” in broad conservation strategies by protecting Major species or habitats in ecosystems
<b>Aspects of uniqueness for the category</b> (Dudley, 2008)	
<b>Category Ia</b>	Category IV protected areas are not meant to be strictly Protected against human use; scientific research may take place but Mainly as a secondary objective
<b>Category Ib</b>	, Category IV protected areas may not be categorized as “wilderness”, as defined by IUCN guidelines. Many of which will be subjected to continuous management intervention that opposes the concept of category Ib
<b>Category II</b>	Category IV protected areas aim towards conservation of particular species or habitats and may in return have to pay less attention to other elements of the ecosystem while category II protected areas aim to conserve fully functional ecosystems as a whole Categories II and IV may in some cases closely resemble each other and are distinguished upon the core objective
<b>Category III</b>	the aim of category IV areas is of a more biological aspect while category III is site-centered the category may be culturally oriented

<b>Category V</b>	Category IV protected areas aim to protect specific targeted species and its involving habitats while category V is more centered on the protection of an overall landscape or seascapes with value for nature conservation. Category V protected areas may mainly include social-cultural aspects that are usually absent in IV. While category IV areas may use traditional management approaches this will maintain associated species as part of the master management plan and may not broadly aim for-profit activities
<b>Category VI</b>	Management interventions in category IV protected areas are primarily aimed at the maintenance of species or habitats while in category VI protected areas the objective is to link nature conservation with sustainable usage of resources usually the category V, is much smaller than category VI protected areas(IUCN Category IV - Habitat / Species Management Area Definition  Biodiversity A-Z, n.d.)

**Category V: Protected landscape/seascape:** Reserves where the protected values are driven from the long-term interaction between humans and nature that led to a desirable and wanted characteristics with a natural, or cultural and scenic aspects and where preserving the integrity of the interaction is crucial to the sustainability of the area as some aspects of the nature in some cases have grown dependent on the human interventions overtime.(IUCN Category V - Protected Landscape / Seascape Definition| Biodiversity A-Z, n.d.)

<b>Category V: Protected landscape/seascape:</b>	
<b>Primary objective</b>	To sustain highly important landscapes and seascape and the added value of human interacting with it (UNEP World Conservation Monitoring Centre, 2018)
<b>Other objectives:</b>	<ul style="list-style-type: none"> <li>- To maintain the balance in the interaction of nature and culture through the protection of unique landscape and/or seascape</li> <li>- A protected area where the interaction of humans and nature Overtime has led to an added value of distinct with a scenic value that has the significance of ecological, biological, cultural aspects</li> </ul> <p>To take place in large-scale conservation actions by protecting Species related to cultural landscapes</p> <ul style="list-style-type: none"> <li>- To present an enjoyable experience and social-economic activity through recreation and tourism; To provide local natural products and environment-based services</li> </ul> <p>To provide an active involvement by the local community in the conservation of valued landscapes or seascapes and their components of natural and cultural heritage</p> <p>To act as an applied model of sustainable management so that it may be applied on a wider base (Dearden &amp; Locke, 2005)</p>
<b>Distinguishing features</b> (Dudley, 2008)	<ul style="list-style-type: none"> <li>-Category V protected areas created out of biotic, abiotic and human Interaction with them, and should have the following crucial characteristics: Landscape or seascape with a scenic value with associate habitat and species</li> <li>- A long-running interaction that is balanced between humans and nature the opportunities for recreation and tourism</li> <li>- Unique and traditional livelihood the artistic recognition of all kinds in the local cultures specifically</li> <li>- The potential to be restored to its pure state</li> </ul>

<b>Role of Category V in landscape/seascape</b>	<ul style="list-style-type: none"> <li>-numerous category V protected areas function as a buffer zone around a core of one or more strictly protected areas to help to ensure that land and water-use activities do not endanger their components</li> <li>-may act as a link between several protected as a linking habitat</li> <li>-To provide a properly planned framework to meet the conservation objectives over large areas ,that has crowded population overlaying the land scape with various ownerships ,governance models and land use</li> <li>- Traditional management systems usually associate with crucial components that may include agro biodiversity or aquatic biodiversity that grew dependent on those management systems</li> </ul>
<b>Aspects of uniqueness for the category</b>	
<b>Category Ia</b>	Direct human intervention is expected. Category V does not aim towards research activities
<b>Category Ib</b>	Category V protected areas are not “wilderness” plains as defined by IUCN. Many will be subject to human planned intervention on the contraire to the concept of category Ib
<b>Category II</b>	Category II prioritizing human activity in order to reach “as natural a state as possible” while Category V may include continuous human interaction.
<b>Category III</b>	Category III focuses on a specific features and centers the values on its management plans and prioritizing the uniqueness or rarity of values of individual features, while these approaches is not required for category V protected areas, that focuses on much broader landscapes with various values.
<b>Category IV</b>	Category V prioritizes conservation of whole landscapes and seascapes that have value to biodiversity, while category IV aims specifically to manage, and protect a certain targeted species and its habitats.
<b>Category VI</b>	focus on the need to link nature conservation in natural activities alongside supporting sustainable traditional livelihoods while category V prioritizing values of a long-term interactions of local people and nature in much modified conditions. While with category VI the focus is on sustainable use of natural resources and ecosystem services while in category V the core focus is on more productive uses(Dudley, 2008)

**Category VI: Protected area with sustainable use of natural resources:** Mainly large reserved areas, with most of the area in a natural or near natural condition, while a segmentation of it, is used as a source of sustainable natural resources related activities and is uniquely one of the areas where light and low levels of non- heavy industrial usage of natural resources is desired alongside with nature and its seen as the main aim to find a mutual approach between the resources use and the conservation efforts (*IUCN Management Categories — European Environment Agency*, n.d.)

<b>Category VI: Protected area with sustainable use of natural resources</b>	
<b>Primary objective</b>	To fuse the concepts of ecosystem conservation alongside the sustainable use of natural resources in a mutually beneficent approach(Dearden & Locke, 2005)

<b>Other objectives:</b>	<ul style="list-style-type: none"> <li>- to spread the awareness and approaches of sustainable use of resources on abroad scale with the consideration of ecological ,economic, and social aspects ,with emphasis on local communities wherever feasible</li> <li>- To ensure a secured livelihood over the generations for local communities thus sustainability of such livelihoods</li> <li>- To infuse another cultural approaches, beliefs, and international views to local natural conservation</li> <li>- To maintain or create a balanced link between the humans and the whole natural ecosystem</li> <li>- To develop sustainability based development at various scales varies from local, regional, national, to international levels</li> <li>- To ensure the progress of scientific research, and natural monitoring related to sustainable use of resources</li> <li>- To facilitate organized tourism as well as other recreational activities (IUCN Category VI - Protected Area with Sustainable Use of Natural Resources Definition/ Biodiversity A-Z, n.d.)</li> </ul>
<b>Distinguishing features</b> (Dudley, 2008)	<ul style="list-style-type: none"> <li>- This specific category is distinguished among other IUCN categories by using sustainable resources use as means of conservation</li> <li>- may be considered centered around a whole rather than a fragment, as it conserves the ecosystem, with the related cultural values and ensures the sustainable use of its resources as well</li> <li>- is not designed to contain large scaled industrial activities</li> <li>- Its recommended by IUCN to retain a segment of the area in its natural condition Role in the landscape/seascape</li> <li>- This category is adaptive to landscape usage approaches</li> <li>- Suitable for large areas with natural aspects such as forests, and deserts by declaring a protected area and linking it to other protected areas</li> <li>- Also suitable for natural systems conservation</li> </ul>
<b>Role of Category V in landscape\seascape</b>	<ul style="list-style-type: none"> <li>-numerous category V protected areas function as a buffer zone around a core of one or more strictly protected areas to help to ensure that land and water-use activities do not endanger their components</li> <li>-may act as a link between several protected as a linking habitat</li> <li>-To provide a properly planned framework to meet the conservation objectives over large areas ,that has crowded population overlaying the land scape with various ownerships ,governance models and land use</li> <li>- Traditional management systems usually associate with crucial components that may include agro biodiversity or aquatic biodiversity that grew dependent on those management systems</li> </ul>
<b>Aspects of uniqueness for the category</b>	
<b>Category Ia</b>	Category VI protected areas focuses on conservation of biodiversity but not as strict of an aim that would prevent human interference, while scientific research is allowed its only priorities only when aimed to sustainable use of natural resources, or to improve the use, or to minimize the risks to ecological system sustainability.

<b>Category Ib</b>	Category VI protected areas may be considered “wilderness “in certain cases however they mainly promote sustainable use, on the other hand the situation in category Ib will keep the use to bare minimum and only if crucial to conservation
<b>Category II</b>	Category VI protected areas aim to conserve a whole functional ecosystems, alongside their species and habitats and the out coming ecosystem services but is distinguished from category II in the promotion of sustainable usage of natural resources also Tourism can be facilitated in category VI protected areas, but only as a very inferior activity
<b>Category III</b>	Category VI protected areas may include the conservation of specific natural or cultural features, alongside their main objectives, while the sustainable use of resources is also part of its consideration, on their terms that they are oriented toward the conservation of ecosystems
<b>Category IV</b>	Category VI protected areas are focused on ecosystem conservation through promoting sustainable uses, while category IV protected areas centered on active management
<b>Category V</b>	designed for areas where the landscapes are modified through long term human interaction while category VI areas still remains s pure natural ecosystems(Dudley, 2008)

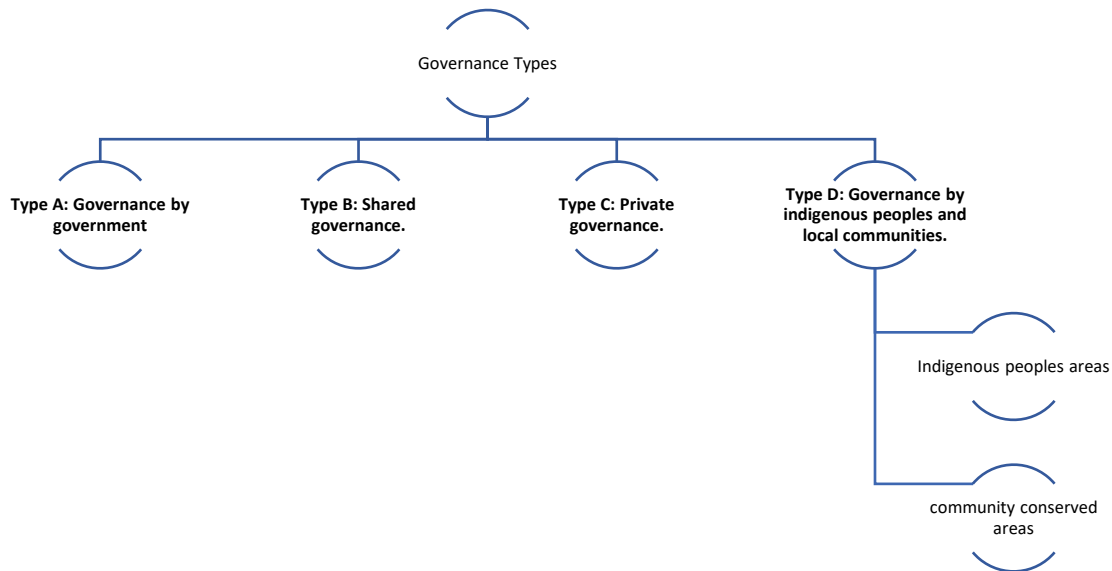
#### **Governance types**(Graham et al., n.d.)

Governance may be defined in many ways but in the Protected areas context its defined as ***“a set of processes, procedures, resources, institutions and actors that determine how decisions are made and implemented”*** (Macura et al., 2015)

Governance for protected areas aims towards balancing the outcomes that conserve nature with sustainable resources usage . National and local legal frameworks governing protected areas are embedded in international agreements.(de Koning et al., 2017)

As defined by IUCN into four broad types of governance, any of which can be associated with any Management objective it’s noteworthy that the IUCN defined protected areas management categories are neutral regarding the governance types or the management authority as(Dudley, 2008):

- A. Governance by government
- B. Shared governance
- C. Private governance
- D. Governance by indigenous peoples and local communities



As interpret by IUCN guidelines

### **Type A: Governance by government**

that may be scaled as federal, state, sub nation, township levels or a centralized government entity such as a ministry or an agency that has the accountability for managing the protected areas as well as declaring new ones and determining its conservation aims and categorizes also the responsibility of developing its management plans, in some cases owns the land of the protected area itself and its designated water and resources while in some cases the government retains the right to control the protected area but accredit the planning and daily management to semi-governmental authorities. Private operators, or NGOs only under the state or country's legal framework, it may or may not be obligatory to consult and inform stakeholders regarding the core management decisions

### **Type B: Shared governance.**

a complicated and overlaying co-management system that spread over several associations that may be formal or informal organizations that may differ between a total collaborative management , or the weight of

decision making lies on one agency still its obligated by law to inform and consult other stakeholders regarding the main decisions, One specific form of shared governance relates to cross countries protected areas, that involve at least two or more governments and possibly other following local actors.(de Koning et al., 2017)

### **Type C: Private governance.**

is a type of governance that has the protected area under the authority of an individual , corporate or NGOs and may be managed under a nonprofit , or for profit approaches where the responsibility of management lies under the landowners solely to determine the conservation objectives and apply the management plan it self

A privately governed protected area is under private governance for example (individuals, NGO, corporations aiming for-profit, research or religious entities.)(Tracey L Cumming, 2017)

### **Type D: Governance by indigenous peoples and local communities. (Smyth & Ward, 2008)**

This type may be divided into two sub-types

- (1) Indigenous peoples' areas and turfs created and managed by indigenous

peoples and (2) community conserved areas created and managed by local communities. the two sub-types may be combined in some cases in general this type may be managed through the customary traditions or legal formal or informal associations which may be somewhat complicated as some resources such as land or sea may has collective ownership , while other resources or rights individually owned(Dudley, 2008)

### **Reviewing and analyzing officially published information about El Hassana Dome protected area and sorting them on the distinguishing basis described by the IUCN.**

El Hassana Dome protected area was declared under the decision of the Egyptian Prime Minister No. 946 for the year 1989, with a total area of 1 square km(*Quppet El Hassana*, n.d.) it is located at The district of Abu Roash at el “Kattaniya” basin in the east segment of the western Egyptian dessert as an extension the End of el Hassana Valley with a total size of 1 square km as a part of the mega scaled Syrian(Sayed et al., 2020) arch system, at the coordinates for GPS system of 30°01’35”N31°03’29”E, on the verge of Cairo – Alexandria Dessert High Road that actually penetrates the boundaries of the protected area- approximately 8 kilometers northwest of The Giza Plateau and Its infamous Pyramids(خليل, ٢٠٠٨) with a one square kilometer in size as a part of a much larger geological structure of Abu Roash(Said & Sa’id, 1962) as the later it self joins other two major geological structures of the western desert with both of its end (Bahryia structure, Khoman structure) The Dome Lies in the 2<sup>nd</sup> and the largest Geographical

region of Egypt with its characteristic formations and land scape of western desert such as plateaus accompanied with depressions and sand dunes (Embabi, 2018) El Hassana dome with its topographical and geological aspects is a natural historical site, which describes on the surface of the area features of The Cretaceous Age , that is more than 100 million years old amidst the much younger 60-40 million years rocks and fossils The fossil components of the dome area: a well-preserved colony of ancient aquatic species, that help interprets the whole sequence of ancient life, and its habitats and associated climate, as the coral fossils of the area are one of the best leading and accurate for the era One of the most important plants that do not exist in northern Egypt except in the dome area of Slowlapakua(*Quppet El Hassana*, n.d.), which is miniature, that it does not exceed 30 cm in height, with a wooden trunk and has a pastoral importance of all types of pastoral animals. The Dome of el Hassana Protected area uniquely reflects a complex and diverse period of the Earth’s history back to the geological eras. The Main Core of the protected area consists of a succession of temperate and inverted rock domes that are usually found only beneath the ground, and the area has been subjected to many faults, which Contributed to the increase of the ruggedness of the area terrain, as The maximum height of the domes reaches 149m above sea level in the western part of the protected area, and reaches in the eastern part about 109 m.(خليل, ٢٠٠٨) It’s Noteworthy that El Hassana Dome protected area is yet to implement a Management plan that is officially published nor reported to WCPA (*Protected Planet / Hasana Dome*, n.d.) and with no clear objective activities towards that goal its dedicated Category of management according to WCPA is Category Ia while it was listed on its dedicated information page according to Google as a “national park” , thus a specified suitable management

category(Google Search Quppet El Hassna, n.d.) would be a step towards natural heritage conservation

## **Legal frame work of Egyptian protected areas**

### **Article one**

In the application of the provisions of this law, a natural reserve means any area of land or coastal or inland waters characterized by what contains living organisms, plants, animals, fish or natural phenomena of cultural, scientific, tourist or aesthetic value. Environmental Affairs Agency in the Council of Ministers

### **Article Two**

It is prohibited to carry out actions, behaviors, activities or procedures that would destroy, damage or deteriorate the natural environment, harm wildlife, marine or plant life, or prejudice its aesthetic level in the protected area. In particular, the following are prohibited Hunting, transporting, killing or disturbing wild or marine creatures, or performing acts that would eliminate them.

Hunting, taking or transporting any organisms or organic materials such as shells, coral reefs, rocks or soil for any purpose. Damaging or transporting plants located in the protected area.

Damaging or destroying geological or geographical formations, or areas that are home to animal or plant species or their reproduction, Introducing foreign species to the protected area, Polluting the soil, water or air of the protected area in any way. It is also prohibited to build buildings or facilities, construct roads, operate vehicles, or practice any agricultural, industrial or commercial activities in the protected area without a permit from the competent administrative authority in accordance with the conditions, rules and procedures to be

determined by a decision of the Prime Minister.

### **Article Three**

It is not permissible to practice any activities, behaviors, works or experiments in the areas surrounding the protected area, which are determined by a decision of the competent minister based on the proposal of the Environmental Affairs Agency of the Council of Ministers, if they would affect the environment of the reserve or the natural phenomena therein, except with a permit from the competent administrative authority. (قانون رقم ١٠٢ لسنة ١٩٨٣ في شأن /المحميات الطبيعية.Pdf, n.d.)

As for the three dimensional protection aspect of protected areas wither its forbidden to affect it within the low flying air crafts, balloons or so, or on the surface, or beneath the Egyptian law stats clearly “It is prohibited to carry out actions, behaviors, activities or procedures that would destroy, damage or deteriorate the natural environment” without specifying the type of damaging action(Egypt’s Government Services Portal - Constitutional Declaration 2011, n.d.)

**Main preset management objective:** In the manner of a main objective that was built in the master plan, it’s highly unclear for this specific protected area as its management isn’t centered on a core objective, and based upon the absence of a specified, formalized management plan ,as well as lack of activities and interventions by the managing authority, the main objective will be decided in a reversed order in the manner that suites the protected area’s assets the best.

### **Unique features:**

- Uniqueness of natural feature as the dome is the only visible component of The major Syrian arch folds system that extends from Syrian to Sinai and reaches the Bahryia oasis



in the midst of Egyptian western desert(Sayed et al., 2020)

- Only site in northern Egypt with complete colonies of fossilized aquatic species with a relatively complete sequence(*General Association of information*, n.d.)
- It lies on the boundaries of Cairo , Giza ,6<sup>th</sup> of October cities(*Ministry of Environment - EEAA > Topics > Nature > Protectorates*, n.d.) ,meaning it has the potential to function as an urban protected area

#### **Role in landscape:**

- Gives the opportunity for natural heritage educational activities in midst of an area mostly with major cultural heritage aspects such as the Giza pyramids , the Egyptian museum , and the new Egyptian museum
- Has educational value , for earths sciences' students

#### **Governance Type:**

According to the provisions of the Egyptian law number 102 of 1983, the Egyptian government has legal tools for the management and establishment of normal protected areas

According to Article IV of this legislation, it is entrusted to the administrative body, which is issued by a decision to determine from the Prime Minister to implement the provisions of the law to maintain protected areas and be bound by the duties such as:

- Preparation of studies for protected development
- Monitor phenomena and natural organisms
- Management and coordination of activities related to protected

- Media and education for the purpose and objectives of the establishment of protected
  - Exchange of international information and expertise in protected affairs
  - Management of the Fund for Reserves
- Article V Environmental protection associations permitted to ensure the administrative and judicial applicants for the purpose of implementing the provisions of the law on protections(*Egypt's Government Services Portal - Constitutional Declaration 2011*, n.d.)

#### **Conclusion and Discussion**

In conclusion the total area of El Hassana dome, is relatively small, and scarce in assets and diversity, that its best suited with the Category III (Natural monument) of management according to IUCN, as with any management efforts to be applied will have to focus on a particular feature that is the fold or the "Dome" as its main attraction thus the core objective will be limited to that, also taking in account the other secondary aspects such as fossilized species, and the minimalistic biotic aspects But without further in depth research about the fauna of the area a management plan cannot circle around that aspect, in other words the protected area may be categorized as category III, until further information about its other components of the eco system is studied thoroughly (that may move it towards Category II or national park management as its current state has only one main geological feature (abiotic) thus disapproving the other Categories, specially disapproving the management category(Ia) that was reported to (WDPA)<sup>3</sup> as this specific category requires minimal to no human activities and modification(while that's not while the case as the reserve is cut

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<sup>3</sup> World Database on Protected Areas

in half by Cairo-Alexandria highway and has the urbanity(*Urban Protected Areas*, 2016) character to it as its located in midst of modern human settlements) see figure 1 and disapproving the national park category that is displayed on the protected area's information page online ( as the protected area of el Hassana dome has no scientifically proven eco processes or a complementary species inhabiting it ) ,regarding the governance type (Federal) as reported to WDPA also disapproved (*Protected Planet / Hasana Dome*, n.d.) as for its governance type in regard of the Egyptian law, the sole responsible of protected areas is the centralized ministry of environment Represented by the Environmental Affairs Sector, but since Egyptian law allows environmental protection organizations to ensure that laws and legislation to protect nature reserves are applied properly it can be concluded that the governance type Is" shared governance" the categorizing process was necessary to preamble further research regarding the management of the protected area thus conserving its natural heritage on the terms of considering the urban aspect of el Hassana dome protected area as well as its geological heritage aspect in the planning process. It's decided in this paper that further research needed to establish a management approach to the whole system of protected area in this specific region of Egypt

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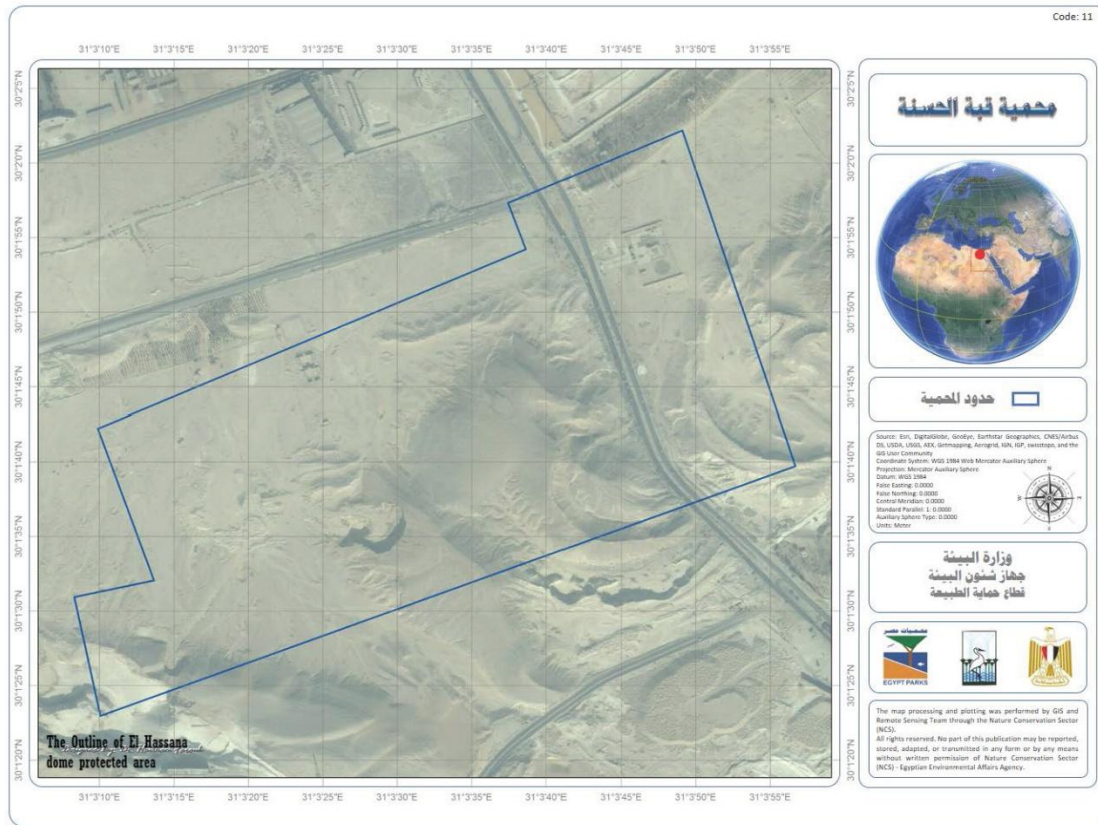
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Figure 1 “boundaries and location of El Hassana Dome protected area as viewed by Google earth 22-1-2022-10:30 pm”



“Figure 2 the formal outline of el Hassana dome protected area, as provided by Egyptian Ministry of Environment, Environmental Affairs, Nature Protection Sector”