**CHAPTER 4 and 5 OF EBM FINALE REPORT**

The EBM Final report is a technical report.

*Instructions*: *Chapters 4 and 5 are a merge between the System Cause-Effect Analysis and the Reporting tool's document, that I have already prepared for you (doc attached as "Integration....").*

*Merging the two documents here means that you have to explain with words - in a synthetic way - the rows of the system cause-effect analysis that brought to your protocols' proposals. When you have data (graphs), you take the graphs from the document "Integration..." and you add them in the text. When you don't have the data, but you have only the indicators, you copy-paste in the text the table of the indicators and you say that you have no information yet, and this is the reason why you want to go to the field to collect data (gap analysis). Everything needs a justification.*

*So, at the end, you will have in the EBM final report the System C-E Analysis table as an Annex, but you have also a written part + graphs and indicators, in which the reader can understand our step-by-step path that brought us to propose and write certain protocols*.

***In Italics, along the present document, the suggestions to write the chapter. In green, the paragraphs drafted below for support purposes.***

**CONTENT OF CHAPTER 4 and 5 OF EBM FINALE REPORT**

# 4 - Application case: flora (invasive species).

**Introduction**

**4.1 – Terrestrial species (Id 28) (Container Plant Species, Component, Rare/Threatened species) -> Local Community in TCNR Biosphere**

4.1.1 - Process explanation: diagram + components + relations

4.1.2 – From the gap analysis to the identification of options and opportunities

**4.2 –Terrestrial species (Id 28) (Container Plant Species, Component Rare/Threatened species) -> Terrestrial Species (Id 33), Container Plant Species (Id 1029), Invasive species (Id 32)**

4.2.1 – Process explanation: diagram + components + relations

4.2.2 - Options and opportunities already identified

**4.3 – Terrestrial Species (Id 31) (Container Plant Species (Id=1029), Component Endemic species (Id 30)**

**-> Local Community in TCNR Biosphere**

4.3.1 – Process explanation: diagram + components + relations

4.3.2 - Options and opportunities already identified

**4.4 –** **Terrestrial Species (Id 31) (Container Plant Species (Id=1029), Component Endemic species (Id 30)**

**-> Terrestrial Species (Id 33), Container Plant Species (Id 1029), Component Invasive species (Id 32)**

4.4.1 – Process explanation: diagram + components + relations

4.4.2 - Options and opportunities already identified

# 5 - Application case: fauna (marine reptiles).

**Introduction**

**5.1 – Marine Reptiles -> Sandy Beach**

5.1.1 - Process explanation: diagram + components + relations

5.1.2 – From the gap analysis to the identification of options and opportunities

**5.2 – Marine Reptiles -> Fisheries**

5.2.1 - Process explanation: diagram + components + relations

5.2.2 – From the gap analysis to the identification of options and opportunities

**Line 17 and 19 of the System Cause-Effect Analysis**

**Plant Species (Id=1029), Component Rare/Threatened species (Id=27)**

And

**Plant Species (Id=1029), Component Endemic species (Id 30)**

*Versus*

**Container Plant Species (Id 1029), Component Invasive species (Id 32)**

**Terrestrial species (Id 28) (Container Plant Species, Component, Rare/Threatened species)**

**[Terrestrial Species (Id=28)]**

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| --- | --- | --- | --- | --- |
| **Indicators attached to component: Terrestrial Species (Id=28)** | | | | |
| **Name** | **Description** | **DataSource** | **UpdateFrequency** | **Notes** |
| **Presence of Salsola kali** | **Over explotation for export** |  | **Occasional** |  |
| **Cover of Salsola kali** |  |  |  |  |

*NO DATA in the ISP, the reason why the team decided to write a monitoring protocol and go to the field for surveys. Explanation needed, for both these components.*

**Terrestrial Species (Id 31) (Container Plant Species (Id=1029), Component Endemic species (Id 30)**

**[Terrestrial Species (Id=31)]**

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| --- | --- | --- | --- | --- |
| **Indicators attached to component: Terrestrial Species (Id=31)** | | | | |
| **Name** | **Description** | **DataSource** | **UpdateFrequency** | **Notes** |
| **Presence of Astragalus beritheus** | **Presence and distribution of the species** |  | **In the past years, occasional surveys.** |  |
| **Cover of A. beritheus** | **Surface (sq m)** |  | **Occasional** |  |

*NO DATA in the ISP, the reason why the team decided to write a monitoring protocol and go to the field for surveys.*

[Terrestrial Species (Id=33)], INVASIVE SPECIES

**Terrestrial Species (Id 33) Container [Plant Species (Id=1029)] -> [Invasive species (Id=32)]**

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| --- | --- | --- | --- | --- |
| **Indicators attached to component: Terrestrial Species (Id=33)** | | | | |
| **Name** | **Description** | **DataSource** | **UpdateFrequency** | **Notes** |
| Presence of Heterotheca subaxillaris | Presence and distribution. Estimation about the extension in surface of removed plants |  | Annual | Removed every year by hand |
| Plant invasive species | Field survey for plant invasive species | Field survey has done by Lebanese univeristy student under supervision of TCNR project Manager |  |  |

A graph with a bar

Description automatically generated with medium confidence

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Terrestrial Species (Id=33) => Plant invasive species => TCNR area => Name** | | | | | | | | |
| **Year** | **Locality** | **Heterotheca subaxillaris** | **Echium angustifolium** | **Verbascum sinuatum** | **ipomoae stolonifera** | **Dittrichia viscosa** | **Sporobolus pungens** | **Helianthemum stipulatum** |
| 2023 | Scientific | 1270 | 279 | 201 | 33 | 550 | 1040 | 3 |

A map of land with red and green dots

Description automatically generated

Density of *Heterotheca subaxillaris*

Map from: **Bou Dagher Kharrat et al 2016**