Appendix 1 – Logical Framework

Project summary	*Measurable indicators*	*Means of verification*	*Important assumptions*
Goal *To help Egypt, a country rich in biodiversity but poor in resources, meet its obligations under the Biodiversity Convention.*	• *After 12 months provide checklist of holothuria.* • *From 1-24 months, one species reference collection* • *After 24 months provide recommendations for sustainable fishery and biomedical properties* • *After 36 months, 10 EEAA rangers and 30 locals trained in stock assessment/ mariculture*	• *Information included in NBUs NBS* • *Fieldguide to Holothuria of the Red Sea* • *Computer database and GIS system* • *Final Report of project Scientific Committee* • *3 MSc theses* • *Publications in scientific literature* • *Minutes and reports of all progress meetings*	• *EEAA to continue monitoring beyond Darwin funding* • *Mariculture not only to prove viable but local communities to develop and operate their own systems based on training* • *Additional funding/ sponsor found to support work on bioactive substances*
Purpose *To develop the first example of a sustainable sea cucumber fishery along the Red Sea coast of Egypt*	• *After 24 months, fishery management plan* • *After 24 months, primary analysis of biomedical benefits completed* • *After 36 months, pilot mariculture system in operation/ feasibility study completed* • *After 36 months, trained rangers and fishermen*	• *Sea cucumber management plan* • *3 MSc theses related to the fishery resource, mariculture and biomedical compounds* • *Publications in the scientific literature* • *Final report of project scientific committee* • *Press releases/ newsletter articles*	• *Recommendations are accepted and incorporated into policy* • *Information generated ie: species, economic value, rational use accepted and incorporated into NBU's NBS* • *Mariculture to offer a viable alternative to fishing for local communities*
Outputs • *Produce a fishery management plan for sea cucumbers* • *Produce a pilot mariculture system* • *Identify secondary compounds of potential biomedical value* • *Train EEAA rangers and local fishermen in stock assessment and mariculture respectively*	• *After 12 months species list and reference collection established* • *After 24 months stock assessment, database and GIS system established* • *After 24 months bioactive compounds and their activity identified* • *After 36 months, pilot mariculture system operating*	• *3 MSc theses* • *Field guide to Holothuria of Red Sea* • *Papers published in scientific literature* • *Final report of Scientific Committee* • *Minutes and reports of all progress meetings* • *Press releases/ newsletter articles*	• *Recommendations of the management plan accepted/ incorporated into policy* • *EEAA to continue monitoring beyond Darwin funding* • *Mariculture to prove economical and therefore expanded by the trained fishermen*
Activities • *Stock assessment for Holothuria along Red Sea* • *Development of mariculture system for sea cucumbers* • *Isolation of bioactive compounds and their specific activity* • *Training of Egyptian scientists, EEAA rangers and local fishermen*	• *£160, 700 requested from Darwin Initiative* • *£170, 308 donated by partner institutions* • *species list and collection established* • *After 24 months database and GIS system established* • *After 24 months bioactive compounds and activity identified* • *After 36 months, pilot mariculture system operating*	• *Cost statement for grant will be available from Hull University Research Office* • *Minutes and reports of all progress meetings* • *Press releases/ newsletter articles* • *Final report of Scientific Committee* • *Papers published in scientific literature*	• *Secondary compounds with potentially useful bioactivity are found* • *In vitro fertilisation and culture of plankton stages proves successful in mariculture*