Republic of Iraq

Ministry of Environment

GEF-funded project: "First National Biodiversity Strategy and Action Plan for Iraq and Development of Fifth National Report to the CBD"

Technology Needs Assessment Report

For The National Biodiversity Strategy and Action Plan for Iraq (2015-2020)

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Supervision, Authoring, Editing and Coordinating Team

Dr. Ali Al-Lami	Head of the Team/Project Manager – MoE Technical Advisor
Diane Klaimi	UNEP-ROWA
Mrs. Tala Faissal Khatib	International Consultant
Mrs. Mia Fant	International Consultant
Mrs. Alessandra Rossi	International Consultant
Dr. Emaduldeen Abdulhadi Almukhtar	National Consultant –Baghdad University/ College of Science for Women
Mrs. Zainab Khalil Ibrahim	Project team – MoE staff
Ms. Deena Yahya Butrus	Project team – MoE staff
Ms. Zena Abdullah Khalaf	Project team – MoE staff

Focal Area 1: Awareness & traditional knowledge

Action	Technology needed			
	IT and software	**Laboratory and field equipments**	**Media innovative tools and CHM**	**Scientific skills knowledge**
A.1.a By the end of 2015 a national survey is completed to know **how many awareness tools (films, documentaries, publications, educational programs, guidance materials and trainings)** on environment and biodiversity **exist**.	**1. Access to relevant database** **2. Document Save/retrieval capacity** **3. Electronic Questionnaire facilities**	**1. Field transit** **2. Artistic production equipment** **3. Artistic production training workshop material**	**1. Establishing satelite brodcasting station** **2. Establishing "Nature Conservation Center".**	**1. Specialist nature devoted photographers** **2. Specialist nature devoted film producers/directors** **3. Ecologist**
A.1.b Starting from the Strategy approval (2015), **each ministry organizes two annual workshop for their employees and manager in order to raise awareness** and update about biodiversity issues.	**1. Create intranet facility** **2. establish electronic linkage with global biodiversity protection websites** **3. prepare electronic training module excersises**	**1. establish Center for biodiversity awareness** **2. Mobile cinema and information dissemination facilities (for provincial use)** **2. high resolution printing facilites**	**1. Establishing satelite brodcasting station** **2. Collection of documentary film material**	**1. media programs expert** **2. ecologist** **3. biodiversity expert**
A.1.c By 2016 groups, local **associations and NGOs have been established to raise awareness**	**1. Issue invitations to form associations by prominant figures**	**1. warsness Publications**	**1. publishing pamphlets and information bocklets**	**1. Biologists** **2. Ecologists**

Action	Technology needed			
	IT and software	**Laboratory and field equipments**	**Media innovative tools and CHM**	**Scientific skills knowledge**
among the local and public; also **schools, universities and the media are used to raise awareness** among the locals and the public.		**2.Organizing field Activity venues**	**2. Publishing a newspaper gazzette**	**3. Publicity expert** **4. Legislation knowledge**
A.1.d By 2018 **develop, research, and distribute the knowledge about the most important plants traditionally used as medicine (drugs).**	1.Setup of specialized database 2. collecting / retrieval system of traditional knowledge on popular drugs	**1. communicate with well known experts in alternative medicine.** **2. Establish a registar for plants and herbs therapists**	**1. Specialized television programe** **2. social media communication system** **3. Collection of documentary film material**	**1. Biologists** **2. Ecologists** **3. Pharmacist** **4. Alternative medicine expert**
A.1.e By 2018 develop, research and distribute at all levels (from locals to policy makers) knowledge about the meaning, **the importance and the sustainable use and management of ecosystem services**.	1. Documentation on services provisions of every ecosystem. 2. Issue an informative magazine/newsletter On ecosystem services	**1. Organize workshops at ecosystem levels on provisions of services.** **2. Organize workshops at ecosystem levels on sustainability.**	**1. setup of social media groups on biodiversity** **2. Species protector group formation** **3. Publicity facilities**	**1. Biologists** **2. Ecologists** **3. Economist** **4. Management experts**

Action	Technology needed			
	IT and software	**Laboratory and field equipments**	**Media innovative tools and CHM**	**Scientific skills knowledge**
A.1.f By the end of 2020, estimation has been made to know the **percentage of people and policy makers /governmental employees who know about biodiversity by using questionnaires** (specific and simple questions to reflect the general knowledge on biodiversity).	**1. setup of dtabase for employees and policy makers interested in biodiversity** **2. electronic questionairing for employees and policy makers interested in biodiversity**	**2. setup of national commitee on promotion of biodiversity** **3. field visits by the committee to provinces**	**1. Targeted publicity** **2. Social media group publicity** **3. Special Gazzette publishing**	**1. Biologists** **2. Ecologists** **4. Public relation experts**
A.1.g By 2020 a national survey about the various ethnic groups of Iraq, their specific traditions and practices and their linkage with the conservation and sustainable use of biodiversity is published.	**1. setup of databases on traditions and practices** **2. access to UN/global bodies databases on ethnic groups/minorities**	**1. field visits to localities** **2. Visits to local statistics and population registry** **3. feedback mechanism facility**	**1. establish media group** **2. local knowledge and tradition** **3. information media program**	**1. sociologist** **2. ecologist** **3. biodiversity expert**
A.1.h By 2020, every governorate to produce a report about the traditional knowledge of their province local communities (such as the traditional crafts and any other traditional manifestation); to support	**1. setup committee on electronic databases** **2. establish s provinctial data center for crafts and traditions**	**1. computer facilities** **2. secretarial services** **3. setup of expert field team**	**1. establish media group** **2. establish expert website** **3. establish TV and radio program**	**1. Heritage expert** **2. eocologist** **3. NGO expert** **4. solicitation expert**

Action	Technology needed			
	IT and software	**Laboratory and field equipments**	**Media innovative tools and CHM**	**Scientific skills knowledge**
economically initiatives for the launching and spreading of traditional components and to support the establishment of local NGOs of the traditional communities.	**3, access tO NGO databases**			
A.2.a By the end of 2014 a decree is issued for the establishment of protected areas in Iraq.	**1. set up of a computer center for data storage and retrieval on PA.** **2. Date analyst**	**1. field team** **2. observation equipment**		**1. ecologist** **2. PA expert** **3. legal expert**
A.2.b By end of 2015 assess the forestry legislations currently in force and identify the gaps.	**1. database information on legislation** **2. computer oriented status of forests.**	**1. remote sensing equipment** **2. data collection and feedback on legislations**	**1. TV program for law and legislation awareness** **2. set up media group for feedback**	**1. legislation expert** **2. ecologist** **3. forestry expert**
A.2.c By end of 2015 identify all the governmental bodies concerned with the control and management of invasive alien species.	**1. collect baseline data from previous research and publications** **2. computer package programs for analyses**	**1. setup of field team** **2. setup of a govermental specialist department**	**1. intra-net facility** **2. information feedback mechanism**	**1. ecologist** **2. biologist** **3. administrator**

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	IT and software	**Laboratory and field equipments**	**Media innovative tools and CHM**	**Scientific skills knowledge**
A.2.d By 2016 assessing current environmental standards and identify gaps that need to be addressed. By 2020 environmental standards and limitations are issued to address the identified gaps.	**1. collect previous information on standards (locally)** **2. collect previous information on standards (globally)** **3. compiliation of data and information on legislations**	**1. testing equipment for potential elements and pollutants** **2. field perturbation experiments** **3. field team for data collection**	**1. media or TV and radio program to collect feedback-information on gaps.** **2. formation of social group for exchange of information and knowledge.**	**1. ecologist** **2. legislation expert** **1. environmental pollution experts**
A.2.e By 2016 Issuance of a Legislation to control the introduction and dispersal of non-native species.	**1. setup a website** **2. data collection and storage**	**1. setup of effective border monitoring team** **2. setup of reference center for non-native species identification.**	**1. production of quality pictorial brochures and posters for quick reference on non-native species and information.** **2. setup of TV/Radio information and guidence on non-native species**	**1. ecologists** **2. biologists** **3. painting artist** **4. public relation manager** **5. expert on pet breeding**
A.2.f By 2016 an evaluation of the effectiveness of the legislations currently in force about threatened species is carried out and by 2020 legislation for the conservation of	**1. forming computer questionaire**	**1. est. field visits**	**1. effective media program for publicizing threat risk** **2. awareness TV/ radio program**	**1. media specialist** **2. ecologist**

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threatened species is issued and enforced.	**2. setup advisory for computer packages (SPSS/CANOCO)**	**2. survey of threatened species and eff** **3. field data collection facilities**		
A.2.g By 2016 determine the services provided by natural ecosystems that are used by rural and urban people and by 2018 a strategy should be developed and in place to use sustainably the ecosystems that supply important services to urban and rural people.	**1. Compute questionnare** **2. Network data collection facility** **3. Survey on ecosystem services** **4. setup advisory for computer packages (SPSS/CANOCO)**	**1. Field centers for habitat monitoring and data collection** **2. Environmental measuring devices** **3. Setup of specialized teams**	**1. TV / radio awareness program** **2. issue a special information gazzette**	**1. natural specialist** **2. limnologist** **3. plant & natural range specialist**
A.2.h By 2018 Amend existing legislation or develop a new regulation for the protection of lands from desertification risk and restoration of desertified lands, thereby providing special measures to protect restored lands.	**1. Database setup for desert followup.** **2. Database to legislation.**	**1. setup arid area centers** **2. setup arid area survey teams** **3. environmental measuring devices** **3. setup field stations for observation and monitoring**	**1. awareness TV/radio programs** **2. information dissimenation team**	**1. arid area specialist** **2. ecologist** **3. media expert**

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	IT and software	**Laboratory and field equipments**	**Media innovative tools and CHM**	**Scientific skills knowledge**
A.2.i By 2018 amend the old forestry legislation and enforce the new provisions.	**1. Computer equipment for data collection** **2. Standard legislation retrieval system**	**1. field visits** **2. data retrieval system**	**1. information dissimenation apparatus/team** **2. media guidence and instruction programs**	**1. forestry expert** **2. ecologist** **3. legal expert**
A.2.j By 2018 cross-sectoral Guidelines for sustainable use (of natural resources) and sustainable production and consumption methods are drafted to be integrated into relevant sectoral policies.	**1. Questionnare** **2. Data collection facilities** **3. Spss package**	**1. Field visits to gather information** **2. Setup of teams for data analyses**	**1. high quality publication facility** **2. information dissimenation apparatus**	**1. sustainablility expert** **2. biologist** **3. media expert**
A.3.a By 2016 the purposes and values of the ten proposed PAs have been identified and by the end of 2020 ten new protected areas have been gazetted and established, by detailed planning over the years. Within one year from the PAs establishment the management plan is defined (in accordance with the National legislation on PAs and with	**1. Data storage and retriveal spealist team** **2. Data analysis programs** **3. Questionnare data analysis** **4. Computer equipment for data collection**	**1. Setup Field survey teams** **2. Efficient field transit capacity** **3. High quality observation equipments (cameras , binoculars etc.)**	**1. publicity team for PA** **2. publicity TV/radio programs for PA** **3. quality publication (brucheurs/posters) facilities for PA**	**1. ecologist** **2. biologist** **3. conservation expert** **4. PA management expert**

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international guidelines, including identification of values and criteria, the management authority, the funds, the staff, the social aspects etc.).	**5. setup advisory for computer packages (SPSS/CANOCO)**			
A.3.b By 2017 the list of threatened species of Iraq is published and the collection of data on their abundance and the main threats affecting them is started in order to inform conservation actions and to draft an Action Plan (about conservation of threatened species). By 2020 the Action Plan is completed, published and on-going.	**1. List compilation 2. Setup of data collection/retrieval system 3. Electronic questionnare facility 4. Data analysis facility (computer package programs)**	**1. Field Visits by team 2. Regular Trips to threatened habitats 3. Data collection 4. Threats identification**	**1. TV / radio program 2. social media group exchange**	**1. conservationist 2. ecologist 3. administrators**
A.3.c By 2017 identify the desertified areas of Iraq, by comparison with historical data and evaluate the total surface of these lands and select among all the inventoried desertified lands 1000 sqKm of ecologically	**1. GIS access to previous maps. 2. Publishing new electronic imagery 3. National training module**	**1. Workshop 2. Identification of Desertication provinces 3. Field data collection**	**1. TV / radio program 2. production of documentary films 3. awareness media programs**	**1. media experts 2. ecologists 3. desertification experts 4. media experts**

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valuable shrubland-grassland to be restored. By 2018 draft an action plan for restoration of the selected lands; by 2020 the action plan is on-going.	**on data gathering**		**4. awareness media publications**	
A.4.a By 2015, using the existing available data on habitats under high level of threats or with high number of threatened species, develop a GIS map on the most sensitive habitats of Iraq. T14	**1. Access to IUCN and WWF maps and data.** **2. Create database For the subject**	**1. field visits** **2. setup of specialist teams** **3. GIS equipment training module**	**1. special media group communications** **2. GIS and remote sensing awareness programs** **3. publications on sensitive habitats**	**1. ecologists** **2. conservationist** **3. media expert**
A.4.b By 2016 designing a gap-filling program based on the available data for building the GIS database for the identification, extent, condition and protection status of the natural, semi-natural and human modified habitats, to be followed up by a inter-ministerial team.	**1. Create database** **2. Collect GIS imagery** **3. Use of multi variable data analysis programs (multi variate data analysis)** **4. Training on GIS software**	**1. Field visits** **2. Training module on multi variate data analysis**	**1. Cameras** **2. Recorders** **3. Remote sensing equipment**	**1. Photographers local** **2. Naturalists** **3. GIS database expert**

Action	Technology needed			
	IT and software	**Laboratory and field equipments**	**Media innovative tools and CHM**	**Scientific skills knowledge**
A.4.c By 2016 design and carry out a Field work scheme in order to detect loss and degradation of main natural, semi-natural and human modified habitats of Iraq and their reasons, by making a comparison with the natural (old) status – based on the references and literatures and using indicators such as, species, habitat size, ecosystem services provided, etc.. By 2020 summarize and store in a complete database the obtained information.	**1. Create database** **2. Setup advisory team for multi variate data analysis** **3. Setup of specialist software center (e.g. SPSS, CANOCO)**	**1. setup of specialist teams** **2. field visits/surveys** **3. workshops**	**1. high resolution recording equipments** **2. remote sensing promotion programs** **3. public targeted programs on comprehensive natural data collection**	**1. database specialist** **2. Nature specialist** **3. conservationist** **4. ecologists**
A.4.d By 2016 perform an inventory of the main forested areas of Iraq and their type. By 2018 identify and evaluate, through comparison with historical data, the forest loss and the main pressures that have caused the loss and that still exist.	**1. Create databases** **2. Sattellite imagery** **3. programs**	**1. provincial field team setup** **2. remote sensing equipment** **3. satelite imagery**	**1. TV / Radio programs** **2. setup social media groups**	**1. conservationist** **2. ecologist** **3. biologist** **4. forest expert**

Action	Technology needed			
	IT and software	**Laboratory and field equipments**	**Media innovative tools and CHM**	**Scientific skills knowledge**
A.4.e By 2016 a national monitoring programme is established for identification of the types of pollutants, the sources and diffusion paths.	**1. Remote ***** stations 2. Create database 3. Automate recording of pollutants in establishments**	**1. Field visits by specialist teams 2. pollutants measuring devices 3. Assessment of pollutant producing activities**	**1. TV/radio public instruction and guidence programs. 2. production of quality safety instructions 3. data feedback mechanism**	**1. chemists 2. biologists 3. medical doctors 4. ecologists**
A.4.f By 2016 assessments at Region level are carried out about the state of ecosystem services with reference to their provisioning, regulating and cultural functions and their importance for urban and rural people. By 2018 management options are developed nationally in order to use them sustainably. By 2020 the regional assessments and the management options are summarized, published and spread.	**1. Assess all ecosystemon provincial level. 2. Create database for every ecosystem 3. Analysis of services in each ecosystem**	**1. Field visits by specialist teams 2. Environmental measuring devices 3. Locals interview with locals**	**1. setup media specialized department on the ecosystem services issues 2. social media group 3. TV/ radio instruction programs**	**1. ecologists 2. biologists 3. media experts**
A.4.g By 2018 fill the data gaps about identification, extent, condition and protection status of the natural, semi-	**1. setup of specialized electrononic database**	**1. . GIS training workshop**	**1. formation of specialized governmental publicity department**	**1. GIS specialist 2. Ecologist**

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natural and human modified habitats by collecting the missing information and store these data in a GIS database and by 2020 deliver and share the complete GIS database containing the information on the natural, semi-natural and human modified habitats.	**2. formation of electronic national network for data storage, share and retrieval.** **3. setup provincial GIS database**	**2. Field visits for data collection** **3. Training modules on environmental indicators**	**2. setup provincial Habitat management/protection department**	**3.Biologist** **4. Journalist**
A.4.h By 2018 the existing list of invasive species of Iraq (published in the 5NR) is reviewed and updated. By 2020 research is completed and published to ascertain the invasive status, the impact and invasion pathways of the 30 most dangerous/problematic (known or assumed) alien species of the list.	**1. setup electronic invasive species allert group** **1. formation of specialized database** **2. setup Intranet links for researchers** **3. Data analysis program/system for prioritizing allien species importance**	**1. field visits** **2. setup data collection team-work for top priority allien species** **3. recording/photographing equipment for local data collectors** **4. Arial and remote sensing training module for observation and data recording**	**1. production of awareness brouchures** **2, commence television informative program** **3. organize national campain for awareness raising**	**1. Ecologist** **2.Biologist** **3. public relations and design specialist** **4. program analyst**
A.5.a By the end of 2014 at least one training workshop on PAs	**1. setup of database on national PA status**	**1. field visits**	**1. Design targeted media awareness campaign**	**1. Protected area experts**

Action	Technology needed			
	IT and software	**Laboratory and field equipments**	**Media innovative tools and CHM**	**Scientific skills knowledge**
management has been completed and other two workshops are planned. T13	**2. prepare questionaire material for workshop** **3. electronic material/links for PA trainees**	**2. field training** **3. training on group collaboration**	**1. gazzete issued for PA on provincial level**	**2. ecologists** **3. biologists**
A.5.b By 2016, at least one training has been organized for the Governorate employees to raise their awareness about the importance of traditional knowledge and biodiversity conservation.	**1. Training module excersises (electronic)** **2. establish national database center** **3. intra-provincial weblinks**	**1. Local Field observation and information collection campaign.** **2. establish national register on traditional knowledge**	**1. forming social media taditional knowledge group.** **2. forming social media biodiversity conservation group.**	**1. local tradition/knowledge expert** **2. biodiversity expert** **3. media expert**
A.5.c By 2020 a set of inter-ministerial conferences addressing crucial biodiversity issues are organized, referring in particular to: - Ecosystem services and human well-being - Invasive alien species - Protected areas management	**1. establish national database on each issue: (Ecosystem services and human well-being, Invasive alien species, Protected areas management, Habitat loss, Pollution, Sustainable development).**	**1. setup field teams for collecting data and generating feedback (relevant for each task).** **2. obtain and use field equipment that are suitable for each task (decided by each field team).**	**1. formation of inter-minsterial media group** **2. formation of media program** **3. social group formed for each task.**	**1. ecologists** **2. biologists** **3. biodiversity experts** **4. media experts** **5. environmental pollution specialist**

Action	Technology needed			
	IT and software	**Laboratory and field equipments**	**Media innovative tools and CHM**	**Scientific skills knowledge**
- Habitat loss - Pollution - Sustainable development	**2. Establish National committee on each of the above mentioned issues.** **3. establish a system of regular video/audio conference dialog with experts affiliated to known global organization/socities**	**3. provide and organise a transit capabilitiy to serve team requirements.**		**6. conservation specialists** **7. sustainable development expert**
A.5.d By 2020 a set of trainings are organized targeting the academics, researchers, field teams, local organizations of volunteer or conservation groups, technical employees from governmental bodies, focusing in particular on the following: - Ecosystem services and human well-being - Invasive alien species - Protected areas management	**1. Establish training module program (soft and hard) for each issue.** **2. Establish specialized training center on the relevant issues.** **3. establish a system of regular video/audio conference dialog with experts affiliated to known global organization/socities**	**1. setup field teams for collecting data and generating feedback (relevant for each task).** **2. obtain and use field equipment that are suitable for each task (decided by each field team).** **3. provide and organise a transit capabilitiy to serve team requirements.**	**1. activate science dissemination satellite chanelles** **2. encourage social grouping for experts** **3. forming social media biodiversity conservation group.**	**1. research analysis experts** **2. conservationists** **3. ecologists** **2. biologists** **4. biodiversity experts** **5. media experts** **6. environmental pollution specialist**

Action	Technology needed			
	IT and software	**Laboratory and field equipments**	**Media innovative tools and CHM**	**Scientific skills knowledge**
- Habitat loss - Assessment methodologies for field work and data collection - Analysis techniques and trend estimations - Building indicators - Environmental standards - Sustainable development				**7. conservation specialists** **8. sustainable development expert**
A.5.e By 2020 a set of inter-ministerial trainings are carried out about the international guidelines and policies concerning the environment, their relevance and implementation in the Iraqi context.	**1. Establish training module program (soft and hard) for international guidelines and policies concerning the environment.** **2. Establish specialized training center on international guidelines and policies concerning the environment** **3. establish a system of regular video/audio conference dialog with experts affiliated to**	**1. establish high profile training center** **2. contract with at least one international expert to administer training center.**	**1. formation of inter-minsterial media group** **2. public relation promotion on specialized media programs**	**1. global relation expert** **2. bilateral treaties expert** **3. ecologists** **4. biologists** **5. conservationists**

Action	Technology needed			
	IT and software	**Laboratory and field equipments**	**Media innovative tools and CHM**	**Scientific skills knowledge**
	known global organization/socities			