



*Workshop Report*

## **Unlocking Biodiversity Data from Environmental Impact Assessments**

*15 & 16 September 2015*

*City Seasons Hotel, Muscat, Oman*



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## Executive Summary

The purpose of the workshop was to bring together the region's government regulators and environmental consultants to discuss the benefits of sharing species data collected through environmental impact assessments (EIAs), and to encourage the use of tools that enable sharing and reuse of digitized data that EIAs capture about the distribution of plants, animals and other species. The information can help increase knowledge about the impacts of development and improve decision-making.

Participants from 8 out of the 12 West Asian region countries, namely, Oman, UAE, Bahrain, Iraq, Syria, Kuwait, Jordan and Qatar, attended the workshop. They included representatives from government regulatory bodies, the private sector, NGOs, project implementing partners including the Global Biodiversity Information Facility (GBIF) and the United Nations Environment Programme, Regional Office for West Asia (UNEP-ROWA). The participants provided a wide range of perspectives and knowledge of the use of biodiversity information for decision-making in the region.

The workshop provided participants with an opportunity to review GBIF's initiative to publish biodiversity data derived from EIAs and the pilot project which was conducted in South Africa and India between 2009-2011. Mention was made of facilities to support the private sector's use of biodiversity data in the EIA process, and the organizations advocating greater use of biodiversity information for policy development and decision-making regionally.

The context for the initiative thus established, attention was paid to the EIA process in the region from both the regulators' and practitioners' perspectives. Break-out groups discussed the benefits of publishing EIA-derived biodiversity data, as well as the obstacles and ways for overcoming them. The break out group reports were presented in a plenary and harmonised in a single report.

On day two, the workshop explored two main themes in more detail. These were firstly the practical and technical considerations for biodiversity information publishing, and secondly the policy interventions that would be necessary to take the initiative forward in the region from an organizational perspective. Technically, participants explored the specifics of what kinds of biodiversity data can be published through GBIF's web portal, as well as the supporting tools and standards to achieve this, and applied this knowledge in a practical data publishing session. From the perspective of taking the initiative forward, participants discussed issues of intellectual property rights, institutional mandates, capacity and legal requirements among other issues.

The workshop concluded with the drafting of a 'Statement of Principles on Sharing Biodiversity Data from Environmental Impact Assessments'. The Statement articulated the common beliefs of the diverse group of participants, on the advantages of sharing biodiversity data from EIAs, using accepted biodiversity information standards to enable those data to be reused in research and policy. The statement was adopted and released at the Eye on Earth Summit, 6-8 October 2015 in Abu Dhabi. The intention is to maintain momentum for the initiative while institutional arrangements are finalised to establish it more permanently in the region.

## Introduction

The purpose of the workshop was to discuss ways of unlocking vital biodiversity information about the ecosystems of the West Asian region<sup>1</sup> that is derived from environmental impact assessments, helping to increase knowledge about the impacts of development and improve decision-making.

EIAs commissioned by private corporations are used during the planning of projects both on terrestrial and aquatic ecosystems, and often include surveys of species found in proposed areas of development. However, even when reports associated with EIAs are made public, the underlying data are rarely redistributed in standard, reusable formats. The workshop aimed to show that by using existing, freely available tools, the EIA community can open up those data in a way that helps biodiversity research and supports better regional and global decision-making.

The workshop programme included:

- Practical demonstrations of how to organize data collected during EIAs in formats that allow them to be shared and accessed easily online.
- Demonstration of a pilot data publishing platform /tool for sharing EIA data from the West Asia region.
- Presentations on current regional practices for EIAs.
- Discussion of both the benefits and challenges of sharing biodiversity data in ways that respect commercial confidentiality and intellectual property rights.

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<sup>1</sup> The West Asia eco region as designated by UNEP comprises the following countries: Iraq, Jordan, Lebanon, Palestine, Syrian Arab Republic, Bahrain, Oman, Kuwait, Qatar, Saudi Arabia, the United Arab Emirates and Yemen - <http://www.unep.org/delc/portals/119/Stateofbiodiv-westasia.pdf>

## **Background to the project: Unlocking biodiversity data from environmental impact assessment**

The project 'Unlocking biodiversity data from environmental impact assessment' is led by GBIF, with seed funding from the Abu Dhabi Global Environmental Data Initiative (AGEDI), for the Eye on Earth Initiative. It aims to encourage national authorities and EIA practitioners in the West Asian region, including the Gulf Cooperation Council (GCC) countries, to recognize the benefits of sharing biodiversity data for future re-use, and to understand how freely-available tools and resources can enable data sharing. Its activities and products include:

- A regional workshop to promote best practices and tools for EIA biodiversity data sharing (this workshop)
- An updated best practice guide explaining the process of data publishing and use, with particular reference to EIA practice in the West Asia region
- A distance-learning module enabling EIA practitioners and regulators to train themselves in biodiversity data publishing and use
- A prototype online data publishing platform providing a 'one-stop-shop' for sharing of biodiversity data from EIAs

The project follows from a pilot initiative (2009-2011) conducted jointly between GBIF, the South African National Biodiversity Institute (SANBI) and the Wildlife Institute of India (WII) which aimed to develop an EIA biodiversity data publishing framework for use in South Africa and India.

## **Workshop participation**

The workshop attracted participants from 8 West Asian countries, namely, Oman, UAE, Bahrain, Iraq, Syria, Kuwait, Jordan and Qatar. 38 participants drawn from the private sector, NGOs, regulatory bodies and GBIF Secretariat and other project implementing partners attended the workshop. The complete list of participants is attached as Annex 4. The workshop was jointly organized by the Global Biodiversity Information Facility (GBIF), the United Nations Environment Programme – Regional Office for West Asia (UNEP-ROWA) and the Ministry of Environment and Climate Affairs (MECA), Sultanate of Oman. The workshop was funded by AGEDI under the Eye on Earth Initiative, and received logistic support from Five Oceans Environmental Services LLC. The workshop was hosted at the City Seasons Hotel in Muscat.

The programme for the workshop is attached as Annex 3.

## Workshop programme

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### Day 1

The purpose of day 1 was to provide a contextual perspective on the GBIF initiative to promote the publication of primary biodiversity data from EIAs, and thereafter to focus increasingly on the regional context. The EIA process in the region was examined from both a practitioner's and regulator's perspective, with a view to identifying opportunities and obstacles to publishing biodiversity data. A group session allowed participants to analyse the issues and report back, whereafter a way forward was agreed upon.

### ***Session I: Opening & Context***

#### Welcome and opening remarks

The opening ceremony was presided over by Mr Ali Bin Amor Al-Kiyumi, Advisor of HE the Minister for Nature Conservation, Sultanate of Oman accompanied by Dr Mohamed Rashid Al Sinaidi, the Managing Director, International Cooperation Department (CBD-NFP), Ministry of Environment and Climate Affairs as well as other Government officials.

Mr Al-Kiyumi, opened the workshop and welcomed the participants. After describing the negative impact that human consumption may have on natural resources, he stated that environmental impact assessment is the appropriate tool for assessing impacts within a legal framework. He concluded that EIAs can be used to encourage positive factors for sustainable development.

Dr Thuraya Alsariri, Assistant Director General for Nature Conservation, continued with a further welcome to Advisor Al-Kiyumi, the workshop organisers and attendees. She outlined the role that the EIA plays in clarifying how human developments can change the natural environment, and how it has gained prominence in ensuring that environmental considerations are taken into account within the development process and the related legal frameworks. She articulated how the EIA, in becoming a fundamental pillar for development projects, has grown to include considerations of social and cultural ramifications. Finally, she mentioned that there is a great need for practical guidelines, given that field surveys are resource-intensive and difficult to conduct, and the advantages of using existing data to reduce costs and human resource requirements when conducting EIAs.

Mr Tim Hirsch, Deputy Director and Head of Participation at the Global Biodiversity Information Facility (GBIF), thanked Advisor Al-Kiyumi and Dr Alsariri, as well as Eye on Earth and AGEDI for funding the workshop, Five Oceans Consulting Services for logistic support, and UNEP-ROWA for support in coordinating the workshop. He elaborated that GBIF is an intergovernmental organization aiming to reach out to new parts of the world to mobilize biodiversity data to support decision making. Referring to the CBD and its most recent Biodiversity Outlook, he stated that a lack of biodiversity data is among the greatest impediments to reaching the Aichi Biodiversity targets, and that finding ways to improve access to biodiversity data is needed to tackle the world crisis. He concluded by expressing the hope that the workshop would enable GBIF to engage more effectively with the region, raise awareness of what regional data is already available and encourage the organizations

represented by the workshop attendees to contribute the valuable biodiversity data they might hold.

Ms Diane Klaimi, Regional Advisor for Biodiversity MEAs at UNEP-ROWA, described how biodiversity data could support the achievement of Sustainable Development Goals by enabling sound policy making via instruments such as NBSAPs. However, biodiversity data is often scattered and inadequate. Despite progress on Aichi targets, there is much to do before 2020. She indicated that UNEP's latest report on the state of biodiversity in the West Asian region was expected to be published by October 2015. The report would document the progress made in mainstreaming biodiversity in relation to protected areas and climate change, but also that NBSAPs reveal limited biodiversity data, which has hampered the establishment of benchmarks, the identification of trends and effective planning. Finally, she concluded with a call for GBIF to promote regional cooperation for a one-stop shop for biodiversity data in the region.

#### **Purpose of the workshop – objectives for day 1 | *Selwyn Willoughby***

Mr Selwyn Willoughby, Director at Refleqt Information Management Services, described the purpose of the workshop as primarily that of unlocking biodiversity data for reuse. Thereafter he invited participants to describe what they hoped to cover in the workshop.

The comments from participants were as follows:

- Learn a unified methodology for data publishing, particularly from a research perspective.
- Learn standard formats for biodiversity data.
- Learn about data validation, and whether that should be left to consultants.
- Discover a good database for data storage.
- Access collective knowledge.
- Incorporate aspects of the initiative into the Eye on Earth and AGEDI projects.
- Establish communication between department entities, GBIF and regional programmes.
- Exchange knowledge and lessons learnt.
- Gain access to a huge amount of data.
- Learn how to integrate information for decision-making.
- Discover useful data management tools.

#### **GBIF's initiative to publish primary biodiversity data from EIAs: Background, Aims and Objectives, Status to-date | *Tim Hirsch & Siro Masinde***

Mr Tim Hirsch, Deputy Director and Head of Participation at GBIF, provided background on GBIF as an organization, with the [GBIF.org](http://GBIF.org) portal comprising its main product to provide a discovery window into species data for research and decision-making. Despite having 54 country members there is a significant gap in the Middle East (as well as north Africa and eastern Europe), and he expressed hope that the workshop could start the process of remedying that gap.



Mr Hirsch provided a summary of the types of data that can be shared through the GBIF portal. Given that GBIF originally sourced data from natural history collections, the focus is on 'primary biodiversity' data (species occurrence records, species checklists and metadata). The sources of data have diversified to include research projects and surveys (such as EIAs), citizen science initiatives such as eBird, and data extracted from literature. At this point, citizen science initiatives contribute around a third of the total records on the GBIF portal. More recently, GBIF has added sample-based data as a category. In the context of EIAs, GBIF's focus for publication would be the primary biodiversity data, and not the reports and derived analyses, opinions, etc.

Mr Hirsch provided some arguments for the benefits of data sharing, both for the scientific community and others who might reuse the data, and for data publishers themselves. These included establishing a showcase for organizations, compliance with open data principles, data preservation, and contributions to Aichi targets and other country requirements. He mentioned that GBIF have improved the citation mechanism for datasets by incorporating Digital Object Identifiers.

Mr Hirsch gave an overview of the published data that is already available for the region provided by existing members of GBIF. For example, 301 datasets have a total of approximately 115 000 records located in Oman. This data is contributed by 23 countries.

Mr Hirsch then handed over to Dr Masinde who focused on the specific objectives and benefits of the GBIF initiative to publish data from EIAs.

Dr Masinde, Programme Officer for Content Mobilisation at GBIF, described the background and scope of the project, which included the present workshop, the establishment of a pilot data repository for the region, the drafting of a revised version of *Improving EIA practice: Best Practice Guide for publishing primary biodiversity data*, which would include a section specifically focused on challenges and opportunities for the West Asian region, and distance learning training materials.

Questions from participants included:

- How would data quality be ensured, given that a significant proportion of the data was contributed by the public through citizen science initiatives? The presenters responded that absolute data validation was not possible for GBIF beyond some basic automated data checks for obvious errors. The data provider might perform some quality assurance. With appropriate metadata the principle of transparency was established, allowing the data user to assess the suitability for using particular records or datasets in a given situation.

**The South African and Indian pilot project (Description, Objectives, Outcome, Lessons learned) | Reuben Roberts**

Mr Reuben Roberts, Director at Reflect Information Management Services, described the original pilot project for publishing primary biodiversity data from EIAs that was run in South Africa and India in 2009-2011, comprising a partnership between GBIF, IAIA, SANBI and WII. The intention of the project was to capture and make available the data from the many impact assessments that were conducted annually (e.g. more than 5000 per year in South Africa). Both the EIA community and other stakeholders (regulatory bodies, scientists,

conservation organizations, etc.) were envisaged to be potential beneficiaries of this initiative.

After extensive consultation, the project delivered the first version of the *Improving EIA practice: Best Practice Guide for publishing primary biodiversity data* and a functional web data portal. The project raised the profile of GBIF, SANBI and WII within the EIA community and at high levels of government. It also served to frame the issue of how to manage biodiversity data within the EIA process, and clarify the roles of stakeholders in this regard. The overall outcome was to greatly improve national coordination and planning, including a decision to define data standards in updated EIA regulations.

Lessons learnt from the project included (a) the importance of sustainability and institutional readiness to continue the work after project closure, (b) the importance of a clear assessment of the context of publishing data from EIAs, both institutionally and within the EIA process, and the value of mandatory data publishing. Careful consideration of sensitivities around the data itself (intellectual property issues, sensitive data that might be misused for bioprospecting, etc.) and the importance of appropriate communication to various stakeholders were also highlighted.

Questions from participants included:

- How did SANBI assess cumulative impacts in the landscape, for example the golf estate and housing developments mentioned in the presentation? Mr Roberts responded that the datasets loaded onto the pilot web portal would be spatially referenced, making it easy to see hotspots of development activity. Furthermore, SANBI's Biodiversity GIS (BGIS) website provides the facility for users (e.g. EIA consultants) to extract spatial information for a particular area of interest, and these enquiries are logged, providing further spatially-explicit information to review potential cumulative impacts in the landscape.

**Proteus: putting biodiversity data in the hands of corporate decision makers | *Matt Jones***

Mr Matt Jones, Senior Programme Officer for Business and Biodiversity at UNEP-WCMC, first provided a brief introduction to the United Nations Environment Programme and its partnership with the World Conservation Monitoring Centre, which aims to provide authoritative information about biodiversity to support decision-making. Within that context, the Proteus initiative provides a web portal for biodiversity information specifically tailored to the needs of the private sector. Specific products include a database on world protected areas, an integrated biodiversity assessment tool, a coastal and marine data viewer, and more general material to guide businesses when engaging with biodiversity issues (glossary of terms, etc.).

Mr Jones explained that the value of the Proteus Initiative is in connecting decision-makers with authoritative, relevant biodiversity information. Users of the web portal can access the original sources of information, such as Conservation International or the IUCN, as well as the pertinent environmental legal frameworks and conventions for the area that they are interested in.

Finally, Mr Jones listed some of the uses for the various data that Proteus makes available. These included screening for new projects, project-level risk assessment and site selection, regulatory compliance, EIAs and the development of biodiversity management strategies. He

concluded by saying that private sector involvement had improved the quality and availability of biodiversity data.

Questions from participants included the following:

- Whether data was gathered by WCMC? He responded negatively, adding that data was aggregated and collated from other sources.
- Why GBIF was omitted as a source of data? He responded that GBIF data might be represented as species range maps in IBAT. There was some discussion of potential use of the GBIF web services in future.
- Whether there was consistency between biodiversity conservation values and the 'bottom-line' considerations of the private sector, and whether there was interest in exploring natural capital accounting? While acknowledging the fundamental profit motive of companies, the presenter suggested that the ideals of biodiversity conservation were also considered, and the role of biodiversity 'ambassadors' in these companies. He suggested that companies are generally risk-averse, so no immediate move to natural capital accounting was likely.

The use of biodiversity data for policy development and decision making in the GCC & West Asia | *Diane Klaimi*

Ms Diane Klaimi, Regional Coordinator, Ecosystem Management at UNEP-ROWA, first listed UNEP's priorities for 2014-2017, which include ecosystem management and environmental governance, implemented through the establishment of multilateral environmental agreements (MEAs). The UNEPLive website provides access to relevant resources and other materials for these. Ms Klaimi went on to describe the Regional Office for West Asia (ROWA), which aims to develop relevant programmes and disseminate environmental knowledge in collaboration with organizations in 12 member states. The processes that focus and provide priorities for these initiatives are both worldwide (e.g. the United Nations Environment Assembly and various scientific and technical advisory bodies) as well as regional (e.g. League of Arab States, specific requests from member states), and include emerging transboundary issues such as the illicit trade in wildlife products.

Ms Klaimi also referred to the newly developed United Nations Sustainable Development Goals, which will form the foundation for the 2030 Agenda for Sustainable Development. She went on to mention that the second UN Environmental Assembly of UNEP will take place in May 2016, with its focus on sustainable development, and how that fits within the broader UN paradigm of 'Biodiversity for Sustainable Development' which has a 15 year timeframe, and 17 Sustainable Development Goals.

At a regional level, UNEP's Environmental Outlook for the Arab Region produced a mid-term review in 2014 describing progress towards the Aichi biodiversity targets, which attempt to link biodiversity to human wellbeing and ecosystem services. This highlighted the lack of coherent environmental data and information tools for policy making in West Asia, within the context of deteriorating biodiversity indicators both regionally and worldwide. Regional coordination is achieved through organizations such as the Arab League Working Group on Biodiversity MEAs, as well as agencies within the League of Arab States (22 states) and the Gulf Cooperation Council (GCC) (6 states), however the proportion of donor investment towards building institutional capacity remains low.

Ms Klaimi then highlighted the importance of biodiversity information for policy decisions and EIAs, and how NBSAPs provide a framework for cooperation within a complex network of stakeholders. She mentioned that mainstreaming biodiversity into planning decisions had improved in the region. While identifying some of the challenges for biodiversity data (such as consistency, standardization, verifiability, etc.), Ms Klaimi went on to list some of the resources that are available, such as InforMEA, the UN Information Portal on Multilateral Environmental Agreements, the CITES Trade Database and IPBES (of which both GBIF and AGEDI are collaborators).

Due to time constraints, questions on this presentation were held over to the general discussion later in the day.

## **Session II: Context (cont.) & Assessment**

Overview of AGEDI & the Eye on Earth Summit | *Jane Glavan*

Ms Jane Glavan, Partnership Manager at AGEDI, started with an overview of how the Abu Dhabi Global Environmental Data Initiative (AGEDI) was formed as a response to the UAE being ranked 141 out of 142 countries in the World Economic Forum's Environmental Sustainability Index of 2002. AGEDI is an initiative of the Environment Agency – Abu Dhabi and the United Nations Environment Programme (UNEP), and has international, regional and national stakeholders. With an emphasis on the Arab region, AGEDI facilitates access to environmental data for policy-makers. This would include the use of EIA data to guide the placement of conservation areas. In general, AGEDI does not provide base data, but rather analyses.

As of 2014, the focus of AGEDI is on Climate Change, coastal ecosystems (via the Blue Carbon Project) and the establishment of a global network. This last goal is driven by the Eye on Earth, whose second summit is scheduled for October 2015, and which will be facilitated by AGEDI.

AGEDI are well placed for this initiative, since the organization has many local, regional and international partners and collaborative projects. These include government ministries, UNEP-ROWA, agencies within the League of Arab States, and global organizations such as the Global Environment Facility, World Bank and World Resources Institute (WRI).

Ms Glavan continued with a description of Eye on Earth (EoE), whose mission is to enable the generation, maintenance, sharing and application of environmental, social and economic data and information to support informed decision-making for sustainable development.

The EoE community comprise governmental, private sector, environmental, social and economic interests (over 120 organizations in all), with strategic direction provided by the EoE Alliance which comprises EAD, GEO, AGEDI, WRI, IUCN and UNEP.

In particular, Ms Glavan identified the Eye on Biodiversity special initiative of EoE as aiming to unlock information from Environmental Impact Assessments. She encouraged workshop attendees to approach her for an invitation to the EoE summit, given its focus on data demand, data supply and how to create the capabilities and frameworks to access and use critical information, as may be held in EIAs.

Due to time constraints, questions on this presentation were held over to the general discussion later in the day.

### A case study of research and data on the Arabian Sea Humpback Whale | *Suaad Al Harthi*

Ms Suaad Al Harthi, Program Director at the Environment Society of Oman, described the history of the whale and dolphin research conducted by the Environmental Society of Oman, which has been monitoring Arabian Sea Humpback Whales since 2000. A range of data has been gathered from vessel surveys, beach use surveys, satellite tracking, passive acoustic monitoring, etc. This has allowed the organization to define habitat utilization density maps for the whale subpopulation, and to relate those to human activities and threats. This could be aggregated into strategic environmental assessments.

Continuing, Ms Al Harthi described the data management issues faced by the Environmental Society of Oman, given that diverse stakeholders have played a role in data gathering and processing over time, and the variety of databases and types of data that are relevant to their work. In addition, there are data sharing considerations for commercial and non-commercial uses. The organization is engaging with these issues, and with the fundamental question of what data should be publicly available.

Due to time constraints, questions on this presentation were held over to the general discussion later in the day.

### Overview of EIA process in region: regulatory perspective | *Husameddin Al Hag Ali & Mr Anil Kumar*

Mr Husameddin Mahmoud Al Hag Ali, Unit Head for Environmental Assessment at EAD, gave an overview of the environmental permitting procedures for Abu Dhabi. He provided a brief description of the mandate of the Environment Agency –Abu Dhabi (EAD), which is the competent authority, and the key environmental laws and regulations that provide the framework for environmental permitting. The types of projects that would require an EIA were itemised, covering land, marine and air transport projects, housing, industrial development, medical facilities, as well as other projects in environmentally sensitive areas.

Mr Ali then described the process whereby an application would be made for an environmental permit, and the screening criteria for whether this would require an environmental assessment. Environmental studies must be conducted by an EAD-approved consultant, and it is possible that monitoring by a 3<sup>rd</sup> party during the construction or operational phase of the project is required to show compliance with the conditions of the permit.

EAD has prepared technical guidance documents for various types of environmental studies, such as Strategic Environmental Assessments (SEA), Environmental Impact Assessments (EIA) and Environmental Audit Reports (EAR). An international consultancy (RTI in North Carolina) assists with the reviews of these applications, of which there might be 200-300 per year.

Mr Anil Kumar, Director of Environment Information Management at EAD, then provided details on the process for EIA and SEA in particular, before describing the biodiversity data that might be found in an EIA. He mentioned that there is no regulatory impediment to sharing baseline data, although EAD would prefer to inform clients and consultants before publishing the data. He also observed that there are currently no standards for data collection and publishing, although this is being reviewed in the context of Electronic Data Deliverables which will incorporate appropriate standards.

Finally, Mr Kumar described some of the data challenges experienced by the regulator. These included data being provided in a range of formats, a range of data collection methods, a lack of metadata, and questions regarding who would take responsibility for publishing and validating the data.

Due to time constraints, questions on this presentation were held over to the general discussion later in the day.

#### Overview of EIA process in region: practitioners perspective | *Simon Wilson*

Dr Simon Wilson, Technical Director at Five Oceans Environmental Services LLC, provided an environmental assessment from the practitioner's perspective on the EIA process in the West Asian region. At the outset he emphasised that he spoke from his own perspective, and other practitioners might have different experiences. In particular, he focused on the aspects of winning the work, contracting, good and bad practices, and finally the purpose of environmental assessment.

In the context of winning the work, he emphasised that environmental assessment is almost universally a competitive process with technical, commercial and legal aspects and risks that need to be assessed before making a bid. At some level the consultant has to guess what the regulator will need, and to provide sufficient but not exhaustive data.

In terms of contracting, Dr Wilson highlighted some of the types of contractual clauses regarding intellectual property and confidentiality that might impede the free publication of biodiversity data that was gathered as part of the contract. He mentioned that legal advice was expensive, so grey areas were unlikely to be tested in court without good reason, and that all contracts were different. This would pose a barrier to biodiversity data publishing.

Turning to the EIA process itself, he described the differences in practice between good and bad consultants in relation to data and the way it was presented. In general, good practitioners would assemble better and more comprehensive datasets, with rigorous quality assurance and present the data clearly and with rigorous quality assurance.

Finally, Dr Wilson highlighted the purpose of an EIA as providing information for informed decision-making and environmental management, and not being peer-reviewed academic research. As such, it is necessary to be fit for purpose, but not necessarily perfect.

Questions from participants included the following:

- Whether EIA conditions were adequately enforced? It was agreed that this could be a weakness regionally, with poor monitoring and follow-up. However, this is more an issue with the EIA process itself, as opposed to the biodiversity data.

#### Publishing biodiversity data from EIA's: facilitated session | *Selwyn Willoughby & Reuben Roberts*

Participants were divided into 4 groups and spent some time considering the following questions before reporting back to the group. The intention was to understand the point in the process where data publishing can occur, the benefits to all users, understanding the audience as well as the conditions (constraints & opportunities) for publishing.

#### Questions

1. List some benefits from publishing biodiversity data.

2. What opportunities would publishing biodiversity data present to both the practitioner and regulator?
3. Within your institution, what challenges might prevent the publishing of biodiversity data?
4. How could these challenges be addressed?

The responses of the groups are consolidated below:

### Benefits

#### *For biodiversity conservation:*

- Value biodiversity and ecosystem services.
- Contribute to science, e.g. data on rare species.
- Improved environmental awareness is good for society.
- Data sharing promotes research.

#### *For the EIA process:*

- Improve trust between practitioners and regulators.
- Improve sharing of data between government agencies.
- It could increase engagement from civil society and dialogue.
- Reduced time and cost for EIAs since baseline data would be available.
- Duplicate surveys could be avoided through access to integrated data.

#### *For EIA quality:*

- Improved baseline accuracy and consistency.
- Data sharing will lead to improved data quality.
- Establishment of baselines would facilitate monitoring and detecting environmental change.
- Newly collected data could be validated against existing data.
- Access to all data would provide a more comprehensive picture than that of a single EIA.
- Large repositories of data provide leverage and improve transparency.

#### *For policy and decision-making:*

- Transparent data provides evidence that improves decision-making
- Better spatial planning, e.g. by picking 'safe' areas.
- Future planning and conservation efforts.
- Potential threats could be publicised.
- Cumulative impacts and transboundary issues could be identified.

#### *For practitioner reputations:*

- Companies would be seen to contribute to society.
- Improve practitioners through competition.
- The credibility of EIAs would be improved.

## Opportunities

### *For biodiversity conservation:*

- Assess cumulative impacts and improve monitoring.
- Will contribute to national redlists, as opposed to international listings such as IUCN.
- 'Big data' provides opportunities to uncover trends etc. that were not even imagined.

### *For EIA quality:*

- Access to baseline data would be useful, especially when there is no time to collect all relevant data directly.
- Sustainability screening would generate good biodiversity data.

### *For policy and decision-making:*

- Use the data for education and awareness-raising (e.g. with local communities).
- Evidence-based policies can arise, e.g. NBSAPs.
- Regulators can understand if the baseline is shifting.
- The data could contribute to country studies e.g. the state of biodiversity.

### *For practitioner reputations:*

- Regulators could classify practitioners based on the quality of their data, and deregister weak practitioners.
- Uniform standards would lead to communities of practice.
- Clients and consultants can advertise themselves, demonstrate they are not afraid of showing what they are doing, and show their strength and competitiveness.

## Challenges

### *EIA quality:*

- EIAs are of short duration (e.g. 3 months), so limited time for data collection.
- Data standards are not consistent.

### *Intellectual property and data ownership:*

- Confidentiality agreements in contracts.
- Confusion over intellectual property rights.
- Data sharing is not a requirement by regulatory bodies at this point.
- It is unclear who should publish data and when in the EIA process this should happen.
- Data ownership needs to be clarified, as does who has the responsibility to publish data and liabilities in this regard. In Syria, developers (clients) own the data, but data could be extracted from government projects. In Kuwait and Bahrain data ownership is unclear.



#### *Organizational structures:*

- In some circumstances the developer is the regulator, so conflict of interest.
- Data is widely dispersed among different regulatory agencies.
- Government agencies themselves often do not share data effectively between themselves, their processes are not streamlined.

#### *Practitioner reputations:*

- Developers are afraid to be seen to be destroying biodiversity.
- Data quality: when work is conducted rapidly and is patchy it might pose a reputational risk, or legal liability.

#### *Resources:*

- Cost of maintaining the platform.
- HR capacity and costs.
- It would pose an unnecessary cost on practitioners.
- HR and publishing infrastructure is not available.
- Where are the resources to actually implement publication, including data manipulation work.
- Justifying 'free' publication to clients who have spent money collecting the data will not be easy.

#### *Sensitive data:*

- Sensitive data - e.g. rare species locations.
- The presentation of sensitive data, or data that might be misinterpreted out of context, needs to be considered.

#### Addressing the Challenges

##### *Through advocacy:*

- The benefits of data sharing need to be shown to developers.

##### *Through improving EIA quality:*

- Audit biodiversity surveys.
- Use quality assessment tools.
- Spatial planning tools could earmark local ecological hotspots as no-go areas for development.

##### *Through policy frameworks and organizational change:*

- GBIF should draft a letter to country authorities requesting better access to data.
- Have EIAs done by the regulator instead of the client (practitioners would still be used to conduct the surveys, etc.) – clients would pay for the EIA but would not be able to influence the practitioners.
- Enact legislation to make the EIA a public document, with a requirement to publish e.g. within 2 years.

- Change the format of EIAs by using e.g. the UNEP guidelines.
- Improve the quality of consultants (e.g. deregistered if their EIA applications fail repeatedly).

*Through managing the scope of the initiative:*

- Publish only primary biodiversity data, not reports, as per the AGEDI electronic data deliverables with associated standards for metadata and sensitive data clearly defined.

### **Session III: General discussion**

Summary and way forward | *Selwyn Willoughby*

Mr Willoughby thanked the participants for their thoughtful contributions. Focusing on the challenges that had been identified, he summarised them as follows:

- Questions around who would be responsible for publishing biodiversity data from EIAs.
- Where in the EIA process would biodiversity data publishing be least disruptive.
- Questions around data quality, data standards and liability.
- Intellectual property issues, and sometimes simply precautionary assumptions, that would prevent publication.
- How to handle sensitive information.
- Skills for implementing and maintaining the technical infrastructure.

He concluded that finding adequate responses to these challenges was a core task for the workshop.

Closing remarks | *Tim Hirsch & Siro Masinde*

Mr Hirsch stated that it was apparent that there was a clear understanding of the collective benefits of biodiversity data publishing among the participants. As such, the workshop was well-placed to start the process of overcoming the barriers, although this would obviously not be accomplished in two days. He mentioned that there were no EIA clients present at the workshop, but this group of stakeholders would need to be engaged later.

Addressing the concerns that had been expressed regarding the repurposing of data, and of being held publicly to account for data that one might have published, he highlighted the difference between claiming an authoritative, exhaustive account of a site, and merely presenting a snapshot of simple species presence data. The latter offers the scope for consultants to publish this data without making unsupportable claims regarding its quality and robustness.

Finally, Mr Hirsch thanked participants for their inputs and ended Day 1 of the workshop.

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## Day 2

After reviewing the outcomes of the high-level discussions of Day 1, the focus of Day 2 was on the specifics of biodiversity data publishing using the IPT and further in-depth discussions on the policy and organizational aspects of implementing this initiative in the region. This was followed by a report back and discussion of next steps, whereafter the workshop was concluded.

### ***Session 1: Recap of Day 1 / Understanding the biodiversity data context***

Recap of discussions & outcomes of day 1 and any further comments / questions. Objectives for day 2 | *Selwyn Willoughby*

Mr Willoughby welcomed participants to Day 2 of the workshop, and invited comments and observations concerning the key messages from the first day of proceedings.

These included the following remarks:

- The aggregation of many small datasets would combine to form a robust whole.
- Context and metadata could be used to defuse sensitivity about patchy datasets.
- The importance of validating biodiversity assessments by referring to actual data.
- The importance of biodiversity data for building policy, which provides an important opportunity for countries in the region.
- The need for better frameworks to release data.
- The need to engage with clients / developers and understand their perspective.
- The need to resolve questions around who would be authorised to release data.
- The untapped resource of data published in academic journals, both local and international.
- Issues around data formats and the technical resources and skills to prepare it for publication.
- The observation that the key challenges that were identified (data formats, policies, ownership) were not unique to the biodiversity sector, and could be resolved through standardization with electronic systems and some changes to laws.

What is biodiversity data: specimen, species, spatial data – examples | *Reuben Roberts & David Shorthouse*

Mr Reuben Roberts, Director at Refleqt Information Management Services, began by mentioning that GBIF's focus was on publishing primary biodiversity data, and this session would ensure a common understanding of what that was. Initially, he defined the data that was not suitable for publication on the GBIF network. This included data about ecosystems, communities and other biodiversity that was not taxon-specific, as well as abiotic environmental data and secondary data (synthesised reports, distribution maps, etc). Mr Roberts observed that the Darwin Core standard does not easily accommodate indirect evidence of taxon occurrence, as might be inferred from spoor, burrows, droppings, sound, etc, which is most often the only kind of evidence that EIA consultants may be able to gather. However in practice such indirect evidence is commonly published as occurrence data in GBIF.org.

Describing the data that could be published, Mr Roberts provided details on checklist data, which comprise lists of taxon names with other attributes. These data are not linked to a specific time and place, but rather refer to attributes of the taxon as a concept, such as authoritative nomenclature, redlisting status, etc. He provided an example of the CITES checklist to illustrate this data type.

Mr David Shorthouse, Biodiversity Informatics Manager at Canadensys Project, Université de Montréal, then continued the presentation with a description of occurrence data and sampling event data, and finally the metadata that would contextualise each type of data.

For occurrence data, Mr Shorthouse gave examples such as museum labels, that would provide the 'who what where when' information for a taxon observation or specimen, and listed the specific Darwin Core terms that could be used to capture these facts. He reiterated that processed or summary data, and other secondary products such as maps and figures, would not fall into the category of occurrence data.

Sampling event data was described as typical of various types of monitoring programmes, using defined protocols to gather quantitative data, and often intended to evaluate changes and trends in populations.

Finally, Mr Shorthouse defined metadata as the contextual information for the dataset as a whole. This uses as its vocabulary a subset of the Ecological Metadata Language (EML) standard, which can describe occurrence, checklist and event data. He mentioned that in some instances datasets could be withheld (e.g. if they were of high commercial value) while their metadata was published, which would at least make their existence known.

Questions from participants included the following:

- How to define the spatial extent of checklists? (There are actually four types of checklists, but in general it could be achieved through the metadata.)
- Regarding data accuracy, how would it be verified (e.g. correctly identified species)? (The GBIF portal conducts some basic automated data checks, but essentially the metadata provides transparency to enable users to decide whether they feel the data is fit for purpose. It was also noted that taxonomy is a moving target, and GBIF is collaborating with COL, BOL and EOL to build an agreed and authoritative list of names).
- Whether KMZ files could be provided to help ascertain localities? (This is not currently possible; however, when searching for occurrence data on the GBIF portal it is possible to outline a polygon area of interest).

**An example EIA application to explore how biodiversity data is included and reported on in the report | *Simon Wilson, Anil Kumar & David Shorthouse***

Dr Simon Wilson, Technical Director at Five Oceans Environmental Services LLC, initiated this shared presentation by providing an example EIA report for a marine area proposed for an offshore hydrocarbon loading bay. Data that was gathered included seawater and marine sediment quality metrics, and marine infauna data from various monitoring sites. He noted that the taxa were not well studied in the region, so the identifications obtained ranged from phylum- to species-level. These were analysed using PRIMER-E and combined with sonar and other data to develop a marine habitat map, and to provide an assessment of potential

impacts and mitigations for the proposed development. He observed that, despite the often crude taxonomic resolution of the data, it had proven adequate to assess impacts and changes to the community. Finally he remarked that the data should be easy for GBIF to accommodate, since it was already in a standard structured format.

Mr Anil Kumar, Director of Environmental Information Management at EAD, continued by describing some of the issues that the regulator might encounter with the data provided in an EIA. These included data quality (e.g. missing coordinates or incorrect projection) that might not invalidate the data for the purpose of the EIA but would make it difficult to reuse. The use of secondary data was mentioned, particularly in self-regulatory sectors such as oil in Abu Dhabi, and ongoing cut-and-paste submissions. Finally, the formats in which EIA data was submitted could range from MS Excel, tables in MS Word to PDFs and scanned documents. These posed issues for publishing the data.

Mr Kumar then discussed the steps that are being taken by EAD to resolve these issues. These included the establishment of electronic data deliverable standards, with clearly defined fields, which will be implemented in 2016. Furthermore, master plans are being developed to identify the EIAs done in particular areas. Previously this was only possibly by referring back to the clients to obtain their EIA submissions.

Mr David Shorthouse, concluded with a description of the work involved in preparing the data into a format that would allow it to be published. From a technical perspective, this was largely a process to convert the data grid (sites x species) into a single list of species occurrence and abundance data, for which Google Refine was used, and the challenge of resolving invalid data such as species names. The absence of unique identifiers for the data records was also noted, as was the ambiguity of whether indefinitely defined taxa comprised a single species or a group of species within a genus or family. In addition, Mr Shorthouse identified other issues, in particular the loss of the species absence data (the zeros in the original matrix) when transforming the data in this manner, and the general absence of suitable metadata to include with the dataset when publishing.

The panel concluded that while it would be possible to publish these data, the process would require technical expertise and the lack of metadata would need to be remedied to ensure the data could be reused appropriately.

Questions from the participants included the following:

- The importance of the frequency of sampling in relation to the lifecycle of the organisms concerned, and the importance of site selection over mere numbers of sites. Dr Wilson responded that EIA is generally not particularly scientifically rigorous, given its budget and time constraints. In this instance sampling was conducted over one or two days. Repeated sampling to capture seasonal variations was not usually done. Regarding the placement of control sites, this was considered carefully, but at some level it was an estimate or best-guess to select a site that would not be impacted. Despite these shortcomings, significant impacts would nevertheless be identified.
- It was observed that copy-and-paste could be valid for studies conducted in the same region or site, and how would this be assessed? Mr Kumar agreed that this was so, but that it was problematic when drawn from a study conducted in a completely

different area or climate (he mentioned reports he had received that described monkeys and crocodiles in the Gulf region).

## **Session II: How to value biodiversity data in the EIA process**

Rethinking the Use of Environmental Baseline Data in EIAs in the GCC region | *Peter Vangsbo*

Dr Peter Vangsbo, Senior Project Manager and BD Pollution Prevention, Sustainability and Risk Management at COWI, began by introducing COWI as providing consulting services within the fields of engineering, environmental science and economics, with a presence in Europe, Africa and the Gulf region (excluding Yemen). A focus of COWI is the area of mitigation plans, enabling projects to engage with the public and enhance biodiversity. He then went on to identify some of the regional needs for biodiversity data, particularly as a component of policy making and sustainable development. Within that context, he identified the great potential value that biodiversity data from EIAs presented, and some of questions that it could answer, e.g. to assess risks of species extinction and ecosystem carrying capacities. However, he noted that EIAs are only one aspect of assessing biodiversity, and ongoing monitoring and surveys conducted during projects would contribute valuable data. In addition, sustainability screening could be used to enhance environmental awareness, particularly when the legal requirements of EIA do not guarantee that biodiversity will be taken into account.

Dr Vangsbo identified a number of data-related areas that require attention to achieve environmental sustainability. These included poor data infrastructure (e.g., for environmental statistics and for data sharing) and poor baseline data (due to, e.g., inadequate monitoring), unreliable and patchy data, and a lack of international collaboration and standardization. Resolving these issues would facilitate a move from reactive to proactive policy making and improve public participation in the decision making process. However, to achieve this would require stronger institutional frameworks at local and regional levels, and adequate resources. In addition, the project owners would need to be engaged with, since they can hold the key to data sharing.

Finally, he concluded that the dissemination of EIA results provided an opportunity to demonstrate the contribution of companies to the environment. Given the huge variation in how environmental statistics are used in the region, it would be advantageous to standardize the methodologies, and to make them explicit and consistent across the region.

Questions and remarks from participants included the following:

- That standards should be explicitly recommended by international organizations.
- The need to include clients / project owners in the discussion.
- That in Kuwait there were many additional sources of data, such as universities, that could be explored.
- That, although EIAs are of short duration, they should be conducted in the appropriate season, and local knowledge (e.g. from fishermen) could be used to supplement them.
- A need for training for regulators in relation to the ecological components of EIAs, to allow them to identify poor practice.

- That consultants are graded in some countries in the region, which improves the quality and consistency of their work.

#### Introduction to the IPT | *David Shorthouse*

Mr David Shorthouse began by mentioning the organization to which he belongs, Canadensys, and its long history of involvement with the IPT. Moving on to a description of the IPT, he described it as a free, open-source, web-based tool that is used to publish and share biodiversity datasets using the Darwin Core and Ecological Metadata Language (EML) standards. These datasets can comprise databases, Microsoft Excel spreadsheets or simple text files. He went on to list the modest technical requirements for setting up an IPT, which could be hosted on very basic equipment although it would require internet access and its own URL. Extensive documentation and community support is available via the <http://www.gbif.org/ipt> website.

Mr Shorthouse then described the range of IPTs that are installed worldwide, and the types of customizations that are possible to brand the software appropriately.

Finally, he demonstrated the IPT instance that was established specifically for the workshop, and briefly went through the process of loading and publishing a dataset on this portal.

Questions from participants included the following:

- The fact that indirect observations are not well accommodated by the Darwin Core was raised as an issue, particularly in a desert environment where signs such as spoor, burrows, etc. are key indicators of species presence. An investigation was suggested to see what communities of practice might have arisen to address this in other scientific communities.

### **Session III: Biodiversity data publishing (parallel session)**

#### Sharing Data in a Standardized Way: The Darwin Core Vocabulary | *David Shorthouse*

In this presentation, Mr David Shorthouse provided more detail on the Darwin Core that forms the foundation for data sharing through the GBIF network. He described its history since it was first drafted in 1998, and where the 200 terms which comprise the standard originated. Biodiversity Information Standards (TDWG) maintains the Darwin Core, although it is an evolving community standard, with web sites where users can register issues and suggestions. He also emphasised that GBIF is not the only organization to use the Darwin Core, it is a widely used biodiversity data standard and can also be adopted within organizations to facilitate data sharing between in-house systems and groups.

However, the Darwin Core is not a universal standard; there are various types of data that are not accommodated. Mr Shorthouse listed some of the types of data that would not fit easily within the Darwin Core framework: these included multiple items linked to a particular primary biodiversity record, such as a set of photographic images of a specimen, multiple determination records, etc. However, there are extensions to the Darwin Core that can extend its scope of managing that type of data: these include extensions for identification history, distribution, literature references, etc.

Moving on to a description of the Darwin Core Archive (DwC-A) format that is used to package datasets with their metadata, Mr Shorthouse described their use by the IPT as well as a few other tools that can be used to import them into a relational database, the R

statistical package or provide visualizations of the data they contain. Furthermore, there are various software tools in a variety of programming languages that facilitate building custom applications using DwC-A.

Finally, Mr Shorthouse mentioned a few examples where EIA data had already been converted into Darwin Core format.

Questions and comments on this presentation were addressed after the demonstration of the IPT (see next section).

**Theory: The Integrated Publishing Toolkit (IPT) | *David Shorthouse***

See next section.

**Demonstration: The Integrated Publishing Toolkit | *David Shorthouse***

Given the limited number of participants in this parallel session, Mr David Shorthouse opted for a more informal approach regarding the IPT, and encouraged participants to engage hands-on with custom IPT instances that were provided for each participant. The intention was for participants to take an example dataset and go through the process of preparing and publishing the data on their own demonstration IPT, and to address questions and issues as they arose rather than present further theoretical material. This would familiarize participants both with the Darwin Core and with the IPT.

Workshop participants then proceeded to log on to their individual IPTs, either to work towards publishing their own data (for testing purposes only) or to do this with the example datasets provided.

Questions and comments from participants included the following:

- The challenge of working with different levels of data, such as journal publications, and the technical issues around converting and restructuring existing data (as text or spreadsheets) into Darwin Core format. It was suggested that establishing standard templates would facilitate this, as well as starting simply, for example with a checklist for a locality.
- Whether MS Excel or MS Access format data would be compatible with the Darwin Core and IPT? Mr Shorthouse responded in the affirmative.
- That the 200 terms of the Darwin Core were somewhat overwhelming. It was noted that almost all terms are optional, except for Record ID and Scientific Name.
- The challenges regarding embedding the Darwin Core and IPT within existing data management processes and standards. Mention was made of the various online resources for guidance and questions, as well as contact details for GBIF staff.
- The need for a simple tool, if companies in sectors such as oil and gas were to be successfully engaged in data publishing.

#### ***Session IV: Policy and institutionalization session (parallel session)***

**Identifying key policy interventions for publishing biodiversity data from EIAs | *Tim Hirsch, Anil Kumar & Selwyn Willoughby***

This session began with a presentation by Mr Anil Kumar to describe the process EAD has gone through regarding EIAs and data publishing. He mentioned that EAD is creating a



Darwin Core-compliant template for consultants to use when submitting data, which will be implemented as part of the electronic data deliverables (EDD). This will take 6-12 months to implement in a consultative way with clients and consultants, is based on a best practice review from various countries and follows on from data standards that EAD developed in 2007 and 2011.

Mr Kumar emphasised that creating a Darwin Core-compliant template is critical for any move to sharing biodiversity data from EIAs. EAD is willing to share the template through GBIF for anyone to adopt or adapt as needed.

Regarding data sharing, he mentioned that EAD provides data free of charge with the only requirement being to sign a data-use agreement. Sensitive information would not be made public: this would be achieved by generalising the locality details of records for species that are sensitive or threatened. Furthermore, in future EAD will require clients and consultants not to sign contracts with unreasonably restrictive terms that would prevent data sharing. Regulators need to make their requirements clear to developers so that consultants are not limited by project owners applying too many restrictions with regard to data sharing.

He added that liability issues could be addressed with similar disclaimers to those displayed on the GBIF website.

Mr Kumar admitted that it is a challenge when an EIA needs to be submitted to more than one regulator, as in Abu Dhabi where consultants need to make submissions to the oil regulator (ADNOC) and EAD. ADNOC data is considered to be entirely sensitive. By comparison, Kuwait has only one regulator so they do not face this issue.

From the experience of EAD, the discussion then moved to a more general examination of the policy issues around biodiversity data publishing from EIAs.

There was a question on how GBIF should best approach private sector clients to unlock biodiversity data, and whether direct engagement with private companies or advocacy for legal frameworks that would make data publication compulsory would be better approaches.

In the former case, it was emphasised that it would be necessary to communicate the opportunities to companies, as is done by the Business and Biodiversity model in Europe that encourages companies to look at environmental issues. In the South Africa and India pilot project, engaging IAIA meant that the initiative could be championed by consultants themselves and thereby establish a professional code of best-practice. The revised Best Practice Guide would be valuable to inform these professional codes. It was noted that this approach would need consultants to belong to one of a suite of professional bodies.

In terms of a legalistic approach, EAD and others suggested that intervention from higher authorities and international bodies such as the CBD, UNEP and GBIF might affect the appropriate legal changes in a top-down manner. Alternatively, funding agencies could be lobbied to incorporate biodiversity data publishing into their guidelines, although this might have less impact in the GCC/West Asia region as there is less dependence on international funding. A further approach might be encouraging the endorsement and support of the State of Environment reports. In countries in the region where the State of Environment report is not well developed, reports on Climate Change could be the focus for this initiative.

It was agreed that GBIF should identify governments that are interested in the initiative to publish biodiversity data from EIAs, develop appropriate standards and best practices, and perhaps showcase the project implementation in one country as an example for others to consider.

Dr Wilson proposed that perhaps the Convention on Biological Diversity could be approached to make this sort of data sharing a requirement for signatories to implement. Mr Hirsch suggested that GBIF could approach the Executive Secretary of the CBD to write a foreword for the revised Best Practice Guide, and to request CBD focal points to champion it, given that the CBD has already recommended biodiversity-inclusive EIAs. One way to achieve this might be through a recommendation from the Subsidiary Body on Scientific, Technical and Technological Advice (SBSSTA) to the Conference of the Parties (COP) of the CBD. Finally, it was suggested that a draft of the revised Best Practice Guide could be shared with the CBD focal points in the GCC / West Asia region to give comments before it is finalised. Should the CBD endorse the initiative, it would be appropriate for the CBD to send official letters to ministers or undersecretaries in the region. In this regard, it was agreed that the workshop participants would draft a statement of support for the initiative which would accompany an approach to the CBD focal points as well as being presented at the Eye on Earth summit in early October 2015.

Upon endorsement from the CBD, it was important that each country would make its own decisions about how to implement the recommendations. It was suggested that GBIF should support countries that lack capacity; successful initiatives in these countries would in turn become examples for other countries to consider.

Finally, it was mentioned that research agencies in the region should be included in the process, since they were producing current data. It would be useful to explore the establishment of a 'Gulf group' focused on EIA data: this group might not be formal, but rather a looser social group. In this regard, it was suggested that workshop participants subscribe to the GBIF newsletters.

A statement of support for the initiative was drafted (see Workshop recommendations, below) and it was agreed that UNEP, EAD and AGEDI would take the lead to take the process forward.

### ***Session V: Wrap-up & the way forward***

Report back from parallel sessions | *Selwyn Willoughby*

Mr Willoughby invited representative from the two parallel sessions to provide feedback.

#### Biodiversity data publishing

The following points were made by participants in that session:

- That the IPT interface could be simpler, with Canadensys in particular singled-out as providing an easier interface to work with.
- GIS data was not accommodated by the IPT, but EAD had MS Excel templates which would structure record-based data in a way that could be published.
- A need for training was identified, e.g. webinars and courses for new users of the IPT.

- The 200 terms of the Darwin Core were somewhat overwhelming, but it was hoped that a subset of these of particular relevance to the EIA community could be identified (c.v. the 'Apple Core' that is aimed at herbaria).
- There was a request for a conversion tool for report-based data.

Participants enquired if environmental data such as air quality could be held in the Darwin Core. Mr Shorthouse responded that a suitable extension to the Darwin Core might be available, depending on the specifics of the content, but whether it was necessary to store that type of data in Darwin Core format would also need to be reviewed.

#### Policy and institutional session

Mr Tim Hirsch provided a summary of the discussion held by the group (described in more detail in the immediate previous section). He highlighted the following specific points:

- The lessons learnt from EAD were of particular interest, covering the permitting process as well as data standards, and with a plan to implement the new requirements for Darwin Core compatible data submissions with EIAs over the next 6 to 12 months.
- Intellectual property and confidentiality clauses were barriers that the regulators were best-placed to resolve. It was noted that the clients of the EIA process, the developers, were a group that was missing from the workshop, and some ways of engaging this group were mentioned, such as working through professional societies, large international lending institutions and through the IOC guidelines.
- At a policy level, global bodies such as GBIF and the CBD would be engaged to make recommendations on best practice to influence governments in the region. GBIF would approach the CBD to endorse the Best Practice Guidelines, and this endorsement would be taken to governments in the region with support of UNEP-ROWA.
- As part of the follow-up for the workshop, the outcomes would be promoted at the Eye On Earth summit and a Statement of Principles would be presented.

#### Summary and decisions | *Tim Hirsch & Selwyn Willoughby*

Mr Tim Hirsch presented a draft Statement of Principles document, with an invitation to delegates to review and make comments on this before it was finalised. The intention of the Statement of Principles is to guidance on the process ahead of unlocking biodiversity data from EIAs in the region.

Mr Selwyn Willoughby observed that the workshop had accomplished all it had set out to achieve, with the additional benefit of starting the process of establishing a community of practice among the delegates.

#### Thanks and closing | *Thuraya Alsariri & Tim Hirsch*

The closing ceremony was presided over by Mr Ali Bin Amor Al-Kiyumi, Advisor of HE the Minister for Nature Conservation, Sultanate of Oman. Dr Thuraya Alsariri and Mr Tim Hirsch thanked the workshop participants. Certificates of Participation as well as pen drives with workshop presentations and other workshop related materials were handed out to all participants and resource persons.

## Workshop recommendations

The following statement of principles was adopted by the workshop participants.

### STATEMENT OF PRINCIPLES

On Sharing Biodiversity Data from  
Environmental Impact Assessments (EIAs)

A group of representatives of national environmental regulators, policy officials, environmental consultants and non-governmental organizations from the West Asia region including the Gulf Cooperation Council (GCC) countries, together with a number of global experts, met at a two day workshop in Muscat, Sultanate of Oman, on 15-16 September 2015 to address issues on the theme of *Unlocking Biodiversity Data from Environmental Impact Assessments (EIAs)*.

The workshop was hosted by the Ministry of Environment and Climate Affairs (MECA), Sultanate of Oman; led by the Global Biodiversity Information Facility (GBIF) under a project funded by the Abu Dhabi Global Environmental Data Initiative (AGEDI) for the Eye on Earth programme, and supported by the United Nations Environment Programme Regional Office for West Asia (UNEP-ROWA).

After discussing some of the tools, best practices, opportunities and challenges involved in such data sharing, the group agreed on the following general statement of principles, while emphasizing that they do not represent formal positions or commitments of the organizations represented at the workshop:

1. Free and open sharing of primary biodiversity data in EIAs, structured according to established biodiversity information standards, adds value to these data, and helps countries in the region to contribute towards national and global targets such as those agreed through the Convention on Biological Diversity (CBD) for the Strategic Plan on Biodiversity 2011-2020, and to Sustainable Development Goals (SDGs).
2. In particular, mobilizing primary biodiversity data from EIAs contributes towards Target 2 of the Aichi Biodiversity Targets on the integration of biodiversity values into planning processes, and towards Target 19 on the wider sharing and transfer of biodiversity knowledge.
3. The process of sharing biodiversity data from EIAs using tools and practices developed through the GBIF/Eye on Earth project is technically and scientifically sound, contributing to the common good and to biodiversity conservation.
4. Sharing of biodiversity data from EIAs can bring numerous benefits and opportunities, including:
  - Improved spatial planning, for example, by contributing to national spatial planning to ensure appropriate zoning for different forms of land use and development and aiding strategic/regional environmental assessments
  - Improved access to existing baseline data to support future assessments

- Increased efficiency of data gathering in EIAs, through avoiding the need for repeat data capture
  - Improved quality of EIAs, through greater transparency of data on which reports are based, and through encouragement of the use of standard data recording practices
  - Enhanced reputation for EIA practitioners, governments and companies
  - Improved scientific knowledge of biodiversity in the region, for example in relation to rare and threatened species, leading to better-informed decisions on biodiversity conservation
  - Filling data gaps on seasonal occurrences of biodiversity in the region, for example for migratory and ephemeral species, given the short time available for many EIA surveys
  - Identification of large-scale, cumulative and transboundary impacts of development through biodiversity monitoring
  - Opportunities for education and awareness-raising of biodiversity, for example, in local communities
  - Opportunity to build a repository of high-quality data to build a fuller picture of biodiversity in the region
  - Opportunities to add value to business and countries by knowing present biodiversity values
5. Standardization and implementation of international best practices are essential to assist data quality, sharing and use, given the diverse range and scope of biodiversity data collected from EIAs;
  6. Regional human and technical capacity and infrastructure are critical for the long-term preservation and timely access to biodiversity data gathered through EIAs, and engaging with institutions such as GBIF will enhance such capacity;
  7. Non-Governmental Organizations (NGOs) and regionally-based research institutions contribute important data and information useful to the private sector in carrying out EIAs;
  8. Data from EIAs are just one of many important sources of biodiversity information to be mobilized for improved decision making in the region, and efforts are needed to support biodiversity data publishing more generally from West Asia through engagement with GBIF and other initiatives;
  9. Implementation of the principles expressed in this statement will depend on the particular national circumstances and regulatory arrangements of countries in the West Asia region;
  10. Issues expressed at the workshop will help to inform a new best practice guide on mobilizing biodiversity data from EIAs to be published in English and Arabic in coming months as part of the GBIF/ Eye on Earth project.

**—Muscat, Sultanate of Oman, 16 September, 2015**

*For more information, contact*

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## Annex 1: Workshop press release

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English

FOR DISTRIBUTION  
10 September 2015

### **PRIVATE SECTOR HOLDS KEY DATA TO HELP PRESERVE GULF/WEST ASIA ECOSYSTEMS**

*(Copenhagen | Muscat, Oman)*

A workshop in Muscat, Oman will seek to unlock vital information about the ecosystems of the Gulf Cooperation Council (GCC) / West Asia region, helping to improve knowledge about the impacts of development and improve decision-making.

The two-day event taking place from 15-16 September 2015 will bring together the region's government regulators and environmental consultants, who will discuss the benefits of sharing species data collected through environmental impact assessments (EIAs) more widely.

Entitled 'Unlocking biodiversity data from environmental impact assessment', the workshop is jointly organized by GBIF (the Global Biodiversity Information Facility), the United Nations Environment Programme – Regional Office for West Asia (UNEP-ROWA) and the Ministry of Environment and Climate Affairs (MECA), Sultanate of Oman.

The event forms part of a GBIF-led project funded by the Abu Dhabi Global Environmental Data Initiative (AGEDI) through the Eye on Earth Initiative. The overall aim is to encourage the use of tools that enable sharing and reuse of digitized data that EIAs capture about the distribution of plants, animals and other species.

EIAs commissioned by private corporations are used during the planning of projects both on land and in the ocean, and often include surveys of species found in proposed areas of development. However, even when reports associated with EIAs are made public, the underlying data are rarely redistributed in standard, reusable formats.

"The data locked away in the files of consultants and regulators represents a potential gold mine of information that can improve understanding of the living fabric of the region", said GBIF Deputy Director, Tim Hirsch. "We hope to show that by using existing, freely available tools, the EIA community can open up those data in a way that helps biodiversity research and supports better regional and global decision-making".

By sharing such data through open-access platforms like GBIF.org, the public and private sectors can add to and improve global biodiversity data shared by scientists, institutions and citizens.

"Whether for government agencies, academic institutions, private sector organizations or even on an individual level, sharing relevant and accurate data translates into better decisions for our people and our environment," said Jane Glavan, AGEDI Partnership Project Manager and Eye on Earth Biodiversity Special Initiative Facilitator. "Such

collaborative workshops are therefore key to enabling effective decision-making that safeguards the future of our environment”.

The workshop programme will include:

- Practical demonstrations of how to organize data collected during EIAs in formats that allow them to be shared and accessed easily online
- Demonstration of a pilot database/tool that could share EIA data from the GCC / West Asia region
- Presentations on current regional practices for EIAs
- Discussion of both the benefits and challenges of sharing biodiversity data in ways that respect commercial confidentiality and intellectual property rights

The findings from the workshop will be presented at the Eye on Earth Summit (<http://www.eoesummit.org>), which takes place 6-8 October at the St Regis Saadiyat Island in Abu Dhabi.

*For more information, contact*

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# # #

### **About GBIF**

GBIF—the Global Biodiversity Information Facility—is an international open data infrastructure funded by governments that facilitates free and open online access to biodiversity information. It allows anyone, anywhere to access hundreds of millions of records about all types of life on Earth, ranging from museum specimens collected over centuries of natural history exploration, to current observations by citizen scientists and monitoring programmes. GBIF operates through a collaborative network of participating countries and organizations, coordinated by a Secretariat based in Copenhagen. Learn more at: [GBIF.org](http://GBIF.org)

### **About AGEDI**

Under the guidance and patronage of His Highness Sheikh Khalifa bin Zayed Al Nahyan, President of the United Arab Emirates, the Abu Dhabi Global Environmental Data Initiative (AGEDI) was formed in 2002 to address responses to the critical need for readily accessible, accurate environmental data and information for all those who need it. With the Arab region as a priority area of focus, AGEDI facilitates access to quality environmental data that equips policy-makers with actionable, timely information to inform and guide critical decisions. AGEDI is supported by Environment Agency – Abu Dhabi (EAD) on a local level, and championed by the United Nations Environment Programme (UNEP), regionally and internationally. Learn more at: [www.AGEDI.ae](http://www.AGEDI.ae)

### **About Eye on Earth**

Despite technological and scientific advancements, decision makers often lack vital data on the state of the world's resources. Eye on Earth is a global movement that aims to improve access to and sharing of environmental, social and economic data, to better inform decision-making for sustainable development. Its primary goal is to convene thought and action leaders, converge on key areas of mutual importance, and collaborate on initiatives to close the data gap. The mission of Eye on Earth is achieved through the work of the five governing Alliance Partners, - the Environment Agency – Abu Dhabi through the Abu Dhabi Global Environmental Data Initiative (AGEDI), the United Nations Environment Programme (UNEP), the Group on Earth Observations (GEO), the International Union for Conservation of Nature (IUCN) and the World Resources Institute (WRI) – as well as eight targeted Special Initiatives, and the Eye on Earth Summit. Learn more at: [www.eoesummit.org](http://www.eoesummit.org)

## About UNEP

United Nations Environment Programme (UNEP), established in 1972, is the voice for the environment within the United Nations system. UNEP acts as a catalyst, advocate, educator and facilitator to promote the wise use and sustainable development of the global environment. UNEP work encompasses: assessing global, regional and national environmental conditions and trends, developing international and national environmental instruments and strengthening institutions for the wise management of the environment. Learn more at: [www.unep.org](http://www.unep.org)

## Arabic

الإصدار النهائي - جاهز للتوزيع

2015 سبتمبر 10

القطاع الخاص يمتلك معلومات مهمة ستساعد في الحفاظ على الأنظمة البيئية لمنطقة الخليج/غرب آسيا

(كوبنهاجن | مسقط، سلطنة عمان)

تشهد العاصمة العمانية، مسقط، ورشة عمل مميزة تهدف إلى عرض معلومات حيوية عن الأنظمة البيئية لدول مجلس التعاون الخليجي/منطقة غرب آسيا، لتساعد بذلك على زيادة الوعي بآثار التنمية وتحسين عملية اتخاذ القرار.

، مسؤولي وضع القوانين الحكوميين 2015 سبتمبر 16 و15 ومن المقرر أن تجمع ورشة العمل هذه التي ستعقد يومي والاستشاريين البيئيين بالمنطقة لعقد مناقشات موسعة حول مزايا تبادل بيانات الأنواع التي تم جمعها من خلال تقييمات الآثار البيئية.

وينظم هذه الورشة التي تحمل اسم "إتاحة بيانات التنوع البيولوجي المستمدة من تقييمات الآثار البيئية"، كلٌّ من المرفق ( - المكتب الإقليمي لغرب آسيا UNEP) وبرنامج الأمم المتحدة للبيئة (GBIF) العالمي لمعلومات التنوع البيولوجي ( ) ووزارة البيئة والشؤون المناخية بسلطنة عمان. (ROWA)

( وتموله "مبادرة أبوظبي GBIF" وتأتي هذه الورشة في إطار مشروع يقوده المرفق العالمي لمعلومات التنوع البيولوجي ) للبيانات البيئية العالمية" عبر "مبادرة عين على الأرض". أما الهدف العام لهذه الورشة، فهو تشجيع استخدام الأدوات التي تتيح مشاركة وإعادة استخدام البيانات الرقمية التي ترصدها تقييمات الآثار البيئية فيما يخص توزيع النباتات والحيوانات والأنواع الأخرى.

كذلك تتم الاستعانة بتقييمات الآثار البيئية التي تطلبها مؤسسات خاصة، أثناء التخطيط للمشاريع على اليابسة وفي المحيط، وغالبًا ما تشمل تلك التقييمات مسوحات للأنواع التي يُعثر عليها في المناطق المقترحة لتميتها. ولكن حتى عند الإعلان عن



التقارير المرتبطة بتقييمات الآثار البيئية، فإنه نادراً ما يُعاد توزيع البيانات الداعمة لتلك التقارير في صيغ قياسية قابلة لإعادة الاستخدام.

(: قانلاً: "إن هذه البيانات التي GBIF ويعلق السيد تيم هيرش، نائب مدير المرفق العالمي لمعلومات التنوع البيولوجي ) تقع رهينة ملفات المستشارين ومسؤولي وضع القوانين هي منجم ذهب من المعلومات التي يمكن أن تتيح تحسين فهمنا للتنوع البيولوجي في المنطقة بأسرها. لذا فإننا نتمنى أن نثبت أنه من خلال استخدام الأدوات الحالية المتاحة مجاناً، يستطيع القائمون على تقييمات الآثار البيئية الكشف عن هذه البيانات بطريقة تساعد البحوث في مجال التنوع البيولوجي وتقدم دعماً أفضل لعملية اتخاذ القرار على المستويين الإقليمي والعالمي.

يتيح للقطاعين العام والخاص بالإضافة إلى بيانات التنوع GBIF.org فطرح هذه البيانات عبر منابر مفتوحة مثل البيولوجي العالمي التي يتبادلها العلماء والمؤسسات والمواطنون، بل ويحسنها أيضاً.

وتعلق السيدة جين جلافين، مديرة مشروع شراكة مبادرة أبوظبي للبيانات البيئية العالمية ومنسقة "مبادرة عين على الأرض" الخاصة قانلة: "سواء تعلق الأمر بهيئات حكومية أو مؤسسات أكاديمية أو منظمات القطاع الخاص أو حتى المشاركات على مستوى الأفراد، فإن تبادل هذه البيانات المهمة والدقيقة يقود إلى قرارات أفضل لشعوبنا وبيئتنا. لذا فإن ورش العمل هذه التي تتضافر فيها جهود عدة جهات، هي الأساس القويم لاتخاذ القرارات السليمة الفعالة التي تصون مستقبل بيئتنا".

يشمل برنامج ورشة العمل هذه ما يلي:

- عروض عملية لكيفية تنظيم البيانات التي تم جمعها أثناء تقييمات الآثار البيئية في صيغ تتيح سهولة تشاركتها والوصول إليها عبر الإنترنت
- عرض لقاعدة بيانات/أداة تجريبية لمشاركة بيانات تقييمات الآثار البيئية المستمدة من دول مجلس التعاون الخليجي/منطقة غرب آسيا
- عروض تقديمية حول الممارسات الإقليمية الحالية لتقييمات الآثار البيئية
- مناقشة مزايا وصعوبات تبادل بيانات التنوع البيئي بطرق تحترم الامتيازات التجارية التي تتطلب الحفاظ على سرية المعلومات وحقوق الملكية الفكرية

( التي <http://www.eoesummit.org> من المقرر تقديم ما تخلص إليه ورشة العمل هذه في قمة "عين على الأرض" ) أكتوبر في منتجع سانت ريجيس بجزيرة السعديات في أبوظبي. 8 و6 سُعقد في الفترة بين

لمزيد من المعلومات، يرجى التواصل مع

سامبرثي أيبانجيجولي

مسؤول الاتصال

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##

(GBIF نبذة عن المرفق العالمي لمعلومات التنوع البيولوجي )

- المرفق العالمي لمعلومات التنوع البيولوجي- هو مشروع بنية أساسية عالمي مفتوح للبيانات، تموله حكومات GBIF تدعم الوصول المجاني السيسر إلى معلومات التنوع البيئي عبر الإنترنت. ويتيح هذا المشروع لأي شخص الوصول إلى مئات الملايين من السجلات التي تتناول جميع أنواع الحياة على كوكب الأرض، بدايةً من عينات المتاحف التي جمعت على مدار قرون من استكشاف التاريخ الطبيعي للأرض، ووصولاً إلى حالات الرصد الراهنة التي يتولاها العلماء المدنيون ( عبر شبكة تعاونية تتضافر فيها GBIF وبرامج المراقبة والمتابعة. ويعمل المرفق العالمي لمعلومات التنوع البيولوجي )

جهود الدول والمؤسسات المشاركة، وتتولى الأمانة العامة بكونهاجن أمور التنسيق بينها. لمعرفة المزيد من المعلومات،  
يرجى زيارة الموقع الإلكتروني: [GBIF.org](http://GBIF.org)

نبذة عن مبادرة أبوظبي للبيانات البيئية العالمية

تحت رعاية وتوجيه صاحب السمو الشيخ خليفة بن زايد آل نهيان، رئيس دولة الإمارات العربية المتحدة، تشكلت مبادرة لتلبي الاحتياجات الملحة لمعلومات وبيانات بيئية دقيقة ويسهل على كل من 2002 أبوظبي للبيانات البيئية العالمية عام يحتاجها الوصول إليها. وتتيح مبادرة أبوظبي للبيانات البيئية العالمية الوصول إلى بيانات بيئية ذات جودة عالية تزود صناعات السياسات بمعلومات كافية دقيقة في الوقت المناسب لتدعم اتخاذ القرارات الحرجة الدقيقة وتوجه عملية اتخاذ القرار، مع مراعاة تركيزها على المنطقة العربية كبادرة اهتمام ذات أولوية. وتلقى مبادرة أبوظبي للبيانات البيئية العالمية ( على المستويين UNEP دعم هيئة البيئة - أبوظبي على المستوى المحلي، فيما يساندها برنامج الأمم المتحدة للبيئة ) [www.AGEDI.ae](http://www.AGEDI.ae) الإقليمي والدولي. لمعرفة المزيد، يرجى زيارة الموقع الإلكتروني:

نبذة عن "عين على الأرض"

بالرغم مما بلغناه من تطور علمي وتقني، غالبًا ما يفترق صناعات السياسات إلى بيانات حيوية مؤثرة عن حالة موارد العالم. وهنا تطل مبادرة "عين على الأرض" كجهد عالمي يهدف إلى تحسين الوصول إلى البيانات البيئية والاجتماعية والاقتصادية وتبادلها بهدف دعم أسس اتخاذ القرار في سبيل تحقيق التنمية المستدامة. لذا يكمن الهدف الرئيسي لهذه المبادرة في إحداث التقارب بين قادة الفكر والعمل، والاتفاق على المجالات الرئيسية ذات الاهتمام المشترك، والتعاون في المبادرات التي تساعد في غلق فجوة البيانات. ولقد تحققت مهمة "عين على الأرض" من خلال عمل قادة شركاء التحالف ( UNEP الخمسة - وهم هيئة البيئة - أبوظبي عبر مبادرة أبوظبي للبيانات البيئية العالمية، وبرنامج الأمم المتحدة للبيئة ) ( WRI - )، ومعهد الموارد العالمية (IUCN)، والاتحاد الدولي لحفظ الطبيعة (GEO) والفريق المعني برصد الأرض ( بالإضافة إلى ثماني مبادرات خاصة مستهدفة، وقمة "عين على الأرض". لمعرفة المزيد من المعلومات، يرجى زيارة [www.eosummit.org](http://www.eosummit.org) الموقع الإلكتروني:

(UNEP) نبذة عن برنامج الأمم المتحدة للبيئة

ليكون صوت البيئة في منظومة الأمم المتحدة. ويمثل هذا (1972) عام UNEP تأسس برنامج الأمم المتحدة للبيئة ( البرنامج العامل الحفاز والمناصر والمعلم والميسر الذي يرفع شعار الاستخدام الرشيد للبيئة عالميًا والتنمية المستدامة لها. ) :تقييم الظروف والتوجهات البيئية العالمية والإقليمية والقومية، UNEP ويتضمن عمل برنامج الأمم المتحدة للبيئة ( ووضع أدوات بيئية دولية وقومية، وتعزيز المؤسسات من أجل استخدام البيئة استخدامًا حكيمًا راشدًا. لمعرفة المزيد من [www.unep.org](http://www.unep.org) المعلومات، يرجى زيارة الموقع الإلكتروني:

## Annex 2: Workshop flyer

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### English

#### UNLOCKING BIODIVERSITY DATA FROM ENVIRONMENTAL IMPACT ASSESSMENTS

##### *Background*

Environmental impact assessment (EIA) is an important untapped source of primary biodiversity data: evidence of the occurrence of species at a particular place and time.

Even when reports associated with EIAs are made public, the underlying data are seldom shared in formats that would make them accessible for future re-use. Too often, these data are discarded or inaccessible in offline computer hard drives. Publishing EIA-derived datasets through open digital platforms like [www.gbif.org](http://www.gbif.org), operated by the Global Biodiversity Information Facility (GBIF), adds greatly to their value by unlocking information for wider application in research and decision-making. When integrated with other sources of data and accessible online, such data can help in developing national biodiversity strategies and action plans, assist in future planning decisions and add to global knowledge about species distributions and trends.

**The project 'Unlocking biodiversity data from environmental impact assessment'** is a project led by GBIF, with seed funding from the Abu Dhabi Global Environmental Data Initiative (AGEDI), under the Eye on Earth Initiative. It aims to encourage national authorities and EIA practitioners in the Gulf Cooperation Council (GCC) and West Asia region to recognize the benefits of sharing biodiversity data for future re-use, and to understand how freely-available tools and resources can enable data sharing. Its activities and products include:

- A regional workshop to promote best practices and tools for EIA biodiversity data sharing
- An updated best practice guide explaining the process of data publication and use, with particular reference to EIA practice in the GCC/West Asia region
- A distance-learning platform enabling EIA practitioners and regulators to train themselves in biodiversity data publication and use
- A prototype online data publication platform providing a 'one-stop-shop' for sharing of biodiversity data from EIA

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### Arabic

يؤيبل رثأل تامي يقت نم ي جولوي بل عونتأل تاناي ب حتف

الخلفية:

(A/E). محدّد نامزوانك يف عاونألا دجاوت ليلد وه : يجولويبلا التّنوع تانايبل مستغل ريغ هامأ را دصم  
يئيبلا رثألا ميبقت يشكل

امدنع يتح لكلذو لبق تسمل يف امدختسا دواع! حيثت ةغيص يف تانايبلأ فكراشم مبت ام را دان (E/A)  
ل ةقفرامل ريراقتلا ميمعت عقي

ريغلا رتوي بمكلل قبل صرأ قألا عل عحاتم ريغ نوكت وأ اي لك تانايبلأ هذه حرط يتّم ام ابلأغو  
تنرتنألاب ةلوصوم.

رشن E/A لثم ةحوتفم ةيمقر أساسية مطنأ ربع [www.gbif.org](http://www.gbif.org) للتّنوع يملأعلا قفرملا فرط نم ةلغشملاو  
تانايب

أقلا عنصو العلميّ ثحبلا نايم يف عسوأ امدختسا وحن ةمول عملأ حتفب اهتيمقى ل ريثكلا فيضي  
يجولويبلا (GBIF) لثم نكمت. رر

اتس! ثعب علع ،تايط عملأ ىرخأ رداصم عم ةجدمو تنرتنألا ربع عحاتم نوكت امدنع ،تانايبلأ هذه  
يجولويبلا تّنوع لل ةي نطو تايجيتر

يفرأ غجلا عيزوتلا لوح ةفرعلا علأ ماع لكشب فيضتو لبق تسملل ططخ ثعب علع دعاستو  
اهتاهاجتا وعاونألا

عورشملأ:

ميبقت نم يجولويبلا التّنوع تانايب حتف GBIF تانايبلل العالمية يبظ وبأ ةردابم نم ريّ ذب ليومت عم  
ةدايقب عورشم وه يئيبلا رثألا

يسراممو الوطنية السّطات عيجشت علأ عورشملأ اذه فدهي . "ضرألا علع ني ع" ةردابم تحت (E/A) سلجم يف  
ةيئيبلا (AGED)

اقحال امدختسا دواعل يجولويبلا بالتّنوع المتعلقة تانايبلأ لدابت دئاوف كرا دلأ ايسأ برغ ةقطنمو  
الخليجيّ لتعاون لود (GCC)

تانايبلأ فكراشم يف تنرتنألا علع عحاتملا داوملاو ةزهجألا رود أهمية مهفو

اهتاجتنم و اهتطشنأ تضمّ

يجولويبلا التّنوع تانايب فكراشم تاسرامملا لصفأ عيجشتل إقليمية لمع ةشرو - (E/A)

اهتسرامم علأ خاصة فراش! عم اهل امدختساو تانايبلأ رشن عملية حرشي تاسرامملا لصفأ لوح تدرجم ليلد -  
لود سلجم يف

ايسأ برغ ةقطنمو جيلخلا

فكراشم "للتسوق ةدحاو ةفقو" ريفوتل تنرتنألا علع تانايبلأ رشنل سياسا ماظنل أولي جذومنأ -  
نم البيولوجي التّنوع تانايبب

.E/A

ب لاصتال اىجري تامول عملأ نم ديزمل

ةنام ، يوتحملأ ةبعت فظوم ،مدنسام وريس - GBIF.

[smasinde@gbif.org](mailto:smasinde@gbif.org)

ةنام ، ريديم بئان ، شرية مبيت - GBIF

[thirsch@gbif.org](mailto:thirsch@gbif.org)

## Annex 3: Workshop programme

Day 1: 15 September 2015		
Session I: Opening & Context		
Time	Session Title	Speaker /Facilitator
9h00 – 9h30	Welcome and opening remarks	Ali Bin Amer AL- Kuiymi - Advisor of HE the Minister for Nature Conservation, Thuraya Alsariri (MECA), Diane Klaimi (UNEP-ROWA), Jane Glavan (AGEDI), Tim Hirsch (GBIF)
9h30 – 10h00	Photo session & Tea/Coffee	
10h00 – 10h10	Purpose of the workshop – objectives for day 1	Selwyn Willoughby
10h10 – 10h15	Workshop logistics	Selwyn Willoughby
	A brief overview of the purpose of the workshop and intended outcomes. The aim is to ensure that all participants have a common understanding of the workshop. Simon and Thuraya will also make some house-keeping announcements.	
10h15 – 10h45	GBIF's initiative to publish primary biodiversity data from EIA's: Background, Aims and Objectives, Status to-date	Tim Hirsch / Siro Masinde
10h45 – 11h05	The South African and Indian pilot project (Description, Objectives, Outcome, Lessons learned)	Reuben Roberts
11h05 – 11h25	Proteus: putting biodiversity data in the hands of corporate decision makers	Matt Jones
11h25 – 11h45	The use of biodiversity data for policy development and decision making in the GCC & West Asia	Diane Klaimi

11h45 – 12h00	Discussion	
	The intention of this session is to provide the context for the project, drawing on past project experience in SA & India, providing insight into the private sector's approach of including biodiversity data in the EIA process and obtaining input on how biodiversity data is used in policy development and decision-making in the region. Overall, the outcome should be shared understanding of the purpose of the project, the interventions it seeks and the desired outcomes.	
12h00 – 12h30	Prayer Time	
12h30 – 13h30	Lunch	
<b>Session II: Context (cont.) &amp; Assessment</b>		
13h30 – 13h50	Overview of AGEDI & the Eye on Earth Summit	Jane Glavan
13h50 – 14h10	A case study of research and data on the Arabian Sea Humpback Whale	Suaad Al-Harhi
14h10 – 14h30	Overview of EIA process in region: regulatory perspective	Husameddin Al Hag Ali
14h30 – 14h50	Overview of EIA process in region: practitioners perspective	Simon Wilson
14h50 – 16h45	Publishing biodiversity data from EIA's: <ul style="list-style-type: none"> <li>• Benefits and opportunities</li> <li>• Obstacles / challenges (IP and security; policy and legislative; resources and capacity; data quality; data sources)</li> <li>• Intervention (what can we do to address the obstacles &amp; challenges)</li> </ul>	Facilitated session – Selwyn Willoughby & Reuben Roberts
	This session is a continuation of the previous session (context), with presentations by Jane & Suaad. The Eye on Earth summit aims to the volume of scientific data available, in accordance with Principle 10 of the Rio Declaration. Suaad will provide an overview of the current state of the marine biodiversity data in Oman.	

	The overview of the EIA process from both the regulatory and practitioner's perspectives will provide insight into how biodiversity data is generated & applied into the process. The intention is to understand the point in the process where data publishing can occur, the benefits to all users, understanding the audience as well as the conditions (constraints & opportunities) for publishing.	
	Prayer Time (Tea/Coffee) – We will have a break at 15h30 during the session.	
<b>Session III: General discussion</b>		
16h45 – 17h00	Summary and way forward: key recommendations for project going forward in a sustainable manner, including responsible agents; have we met the objectives for day 1?	Facilitated session – Selwyn Willoughby & Reuben Roberts
17h00 – 17h15	Closing remarks for the day	Tim Hirsch / Siro Masinde
	Dinner	
<b>Day 2: 16 September 2015</b>		
<b>Session I: Recap of Day 1 / Understanding the biodiversity data context</b>		
After reviewing the outcomes of the high-level discussions of Day 1, this session will focus on the specifics of biodiversity data and how they appear in EIA applications. A panel of experts will assess the potential for extracting and publishing the biodiversity data of an example EIA application, and highlight any changes that could improve this process.		
Time	Session Title	Speaker /Facilitator
9h00 – 9h05	Day 2 - Programme overview	Selwyn Willoughby
9h05 – 9h15	Recap of discussions & outcomes of day 1 and any further comments / questions. Objectives for day 2.	Selwyn Willoughby
9h15 – 9h35	What is biodiversity data: specimen, species, spatial data – examples.	Reuben Roberts & David Shorthouse

	When considering publication and reuse, it is important to be aware of the various types of biodiversity data. This talk will provide definitions and examples of the fundamental categories and terminology used when publishing biodiversity data (for example, 'primary biodiversity data', 'checklist data'), and how they relate to general scientific concepts of species and specimens.	
9h35 – 10h05	An example EIA application to explore how biodiversity data is included and reported on in the report. (What changes, if any, must be made to improve the collection – identifying the points of intervention.)	Simon Wilson / Anil Kumar / David Shorthouse
	Working with an actual EIA application, a panel of experts will highlight the biodiversity data that it contains. They will identify any challenges in the process to extract this data and prepare it for publication as a stand-alone dataset. Finally, the panel will discuss possible changes in the way the biodiversity data is gathered and processed that would make it easier to publish the data.	
10h05 – 10h30	Tea/Coffee	
<b>Session II: How to value biodiversity data in the EIA process</b> This session starts with a closer look at the potential that baseline environmental data has for EIAs in the Gulf region. This includes the potential benefits of the reuse of the type of biodiversity data that was identified in the final presentation of the previous session. This is followed by detail on the technical infrastructure and standards that are available to be used for publishing biodiversity data, and GBIF's Integrated Publishing Toolkit (IPT).		
10h30 – 11h00	Rethinking the Use of Environmental Baseline Data in EIAs in the GCC region.	Peter Vangsbo
	This presentation takes a fresh look at the value that environmental baseline data can offer to strengthen EIAs in the Gulf region. Opportunities for using (and reusing) primary biodiversity data are included in this context.	
11h00 – 11h30	Introduction to the IPT	David Shorthouse
11h30 – 11h45	Questions and discussion	
11h45 – 12h00	Briefing on the parallel sessions.	Selwyn Willoughby



12h00 – 12h30	Prayer Time	
12h30 – 13h30	Lunch	
<p><b>Session III: Biodiversity data publishing (parallel session)</b></p> <p>This practical session will provide workshop participants with the opportunity to prepare and publish their own data using the IPT. Facilitators will be available to assist with questions and any technical challenges. Participants will gain experience in the entire process of transforming raw data into a published Darwin Core-compatible resource.</p>		
13h30 – 14h15	<p><b>IPT Theory: Publishing, sharing, and reusing primary biodiversity data</b></p> <ul style="list-style-type: none"> <li>• Data and metadata standards: Darwin Core (DwC), Ecological Metadata Language (EML), Darwin Core Archives (DwC-A), globally unique identifiers</li> <li>• Extensions to Darwin Core (multimedia, vernacular names)</li> <li>• Tools to read &amp; reuse Darwin Core Archives</li> <li>• Data transformation tools and services</li> </ul>	David Shorthouse
	<p>Standards facilitate the sharing and reuse of primary biodiversity data. It provides a framework for presenting data and metadata in a consistent way, and in a format that can be readily processed by software tools. In this presentation, common standards (such as the Darwin Core) and formats (such as Darwin Core Archives) are described, together with the tools and services that can be used to prepare and publish these datasets.</p>	
14h15 – 14h30	<p><b>Theory: The Integrated Publishing Toolkit (IPT)</b></p> <ul style="list-style-type: none"> <li>• Required technologies</li> <li>• User management: roles, permissions</li> <li>• Translating (mapping) data to Darwin Core</li> </ul>	David Shorthouse

	The Integrated Publishing Toolkit provides a single, easy-to-use software platform for publishing biodiversity data. In this presentation, David will describe how to install and configure this software, and how it can be used to prepare Darwin Core-compatible datasets.	
14h30 – 15h30	Demonstration: The Integrated Publishing Toolkit <ul style="list-style-type: none"> <li>• Uploading, translating, publishing EIA data</li> </ul>	David Shorthouse
	<p>During this practical session participants will engage with David on how to ensure that the data is compatible for publishing online. The session will require participants to have a sample data set available for use. The participants will be exposed to the data publishing workflow and process. In the context of the workshop, data will only be published on a demo (private) version of the IPT, it will not be visible publicly.</p> <p>Session outcome: Key recommendations for implementing the IPT.</p>	
<p><b>Session IV: Policy and institutionalization session (parallel session)</b></p> <p>This practical session will provide workshop participants with the opportunity to further discuss the issues and approaches to embed the EIA data publishing initiative within institutions and organizations.</p>		
13h30 – 15h30	<p>Identifying key policy interventions for publishing biodiversity data from EIAs.</p> <p>Sharing lessons from the Abu Dhabi experience</p> <ul style="list-style-type: none"> <li>- Overview of the process of implementing Electronic Data Document System</li> <li>- Approach of promoting the Permit Application report as a public document</li> </ul> <p>Recommended issues for consideration:</p> <ul style="list-style-type: none"> <li>• Intellectual property rights, ownership, data sharing, moral rights</li> <li>• Defining sensitive data</li> <li>• Data standards</li> </ul>	Tim Hirsch & Selwyn Willoughby

	<ul style="list-style-type: none"> <li>• Defining when publication happens in the EIA process</li> <li>• Who publishes the data?</li> <li>• Appropriate framing and contextualising of data to guide use</li> <li>• Technical infrastructure</li> <li>• Technical skills &amp; capacity</li> <li>• Institutional mandates</li> <li>• Communication &amp; liaison</li> </ul> <p>Session outcome: Key policy recommendations for publishing biodiversity data from EIAs.</p>	
15h30 – 16h00	Prayer Time (Tea/Coffee)	
16h00 – 16h30	Report back from parallel sessions and consolidated discussion on technical and policy issues to consider in implementing an EIA biodiversity data publishing tool in the region.	Selwyn Willoughby
<b>Session IV: Wrap-up</b> This final session will allow participants to summarize the workshop, identify next steps, and discuss their future plans for unlocking biodiversity data from EIAs in the GCC states.		
16h30 – 16h50	Summary of what has been covered, decisions that have been made, key recommendations, sustainability and future plans (responsible parties, next steps & timeframes). Final questions or comments.	Facilitators: Selwyn Willoughby, Tim Hirsch
16h50 – 17h00	Thanks & Closing	Thuraya Alsariri (MECA) & Tim Hirsch (GBIF)

## Annex 4: Participant list

Name	Company
<b>PARTICIPANTS</b>	
Izzat Ahmad Abu Humra	Ministry of Environment , Jordan
Eng. Luma Abbas Al Mahroos (1st day only)	The Supreme Council for the Environment, Bahrain
Dr. Ali Al-Lami	Private Environmental Expert & Consultant Former Deputy Minister, Former Minister Adviser for Iraqi Ministry of Environment.
Eng. Sameera Al Kandari	Environment Public Authority, Safat
Dr. Charlie Arnot	Fugro ERT
Sara Abo El Nour	Hyder Consulting Middle East Limited
Josh Smithson	Gulf Ecology
Eng. Hazem H. Qawasmeh	RTI International
Dr Peter Normann Vangsbo	COWI
Mr. Fadi Elayyan	RTI
Eng. Manal Al Sakka	Ministry of State for Environmental affairs, Syria
Husameddin Mahmoud	EAD
Mr. Omar Ahmed Al Braiki	EAD
Dr Christopher Clarke	Al Safa Environmental & Technical Services LLC
Dr Nadiya Al Saadi	Oman Animal and Plant Genetic Resources Centre, The Research Council
Salim Hussain Al Safran	Ministry of Environment Doha
Ali Saleh Almerri	Ministry of Environment Doha
Fatma Ali alkubaissi	Ministry of Environment Doha
Maia S. Willson	Environment Society of Oman
Khalid Ali Al-Rahbi	MECA - Natural Reserves
Ahmed Salim Al-Amairi	MECA - Natural Reserves
Saif Omar AL-Tobi	MECA - Biodiversity
Haithem Said Al-Farqani	MECA - Marine Environment Conservation
Haitham Thabit Al-Marzooqi	MECA - Environmental Assessment Projects
Khamis Harib Al-Bulushi	MECA
<b>RESOURCE PERSONS</b>	
Tim Hirsch	GBIF
Siro Masinde	GBIF
Selwyn Willoughby	Refleqt

Reuben Roberts	Refleqt
David Shorthouse	Canadensys
Dianne Klaimi	UNEP
Jane Glavan	AGEDI
Matt Jones	UNEP-WCMC
Anil Kumar	EAD
Simon Wilson	Five Oceans Environmental Services
Suaad Al Harthi	<a href="#">Environment Society of Oman</a>
Thuraya Alsariri	MECA

## Annex 5: List of acronyms

ADNOC	Abu Dhabi National Oil Company
AGEDI	Abu Dhabi Global Environmental Data Initiative
BOL	Barcode of Life
CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species
COL	Catalogue of Life
DwC-A	Darwin Core Archive
EAD	Environment Agency – Abu Dhabi
EAR	Environmental Audit Reports
EDD	Electronic Data Deliverable
EIA	Environmental Impact Assessment
EML	Ecological Markup Language
EoE	Eye on Earth
EOL	Encyclopedia of Life
GBIF	Global Biodiversity Information Facility
GCC	Gulf Cooperation Council
GEO	Group on Earth Observations
IAIA	International Association of Impact Assessors
IBAT	Integrated Biodiversity Assessment Tool
IPBES	Intergovernmental Platform on Biodiversity and Ecosystem Services
IUCN	International Union for Conservation of Nature
KMZ	Keyhole Markup Language (compressed file)
MEA	Multilateral Environmental Agreements
MECA	Ministry of Environment and Climate Affairs, Oman
NBSAP	National Biodiversity Strategy and Action Plans
SANBI	South African National Biodiversity Institute
SBSSTA	Subsidiary Body on Scientific, Technical and Technological Advice
SDG	Sustainable Development Goal
SEA	Strategic Environmental Assessments
TDWG	Biodiversity Information Standards (was Taxonomic Data Working Group)

UAE	United Arab Emirates
UNEP- ROWA	United Nations Environment Programme Regional Office for West Asia
UNEP- WCMC	United Nations Environment Programme - World Conservation Monitoring Centre
WII	Wildlife Institute of India
WRI	World Resources Institute

## **Annex 6: Resources**

The workshop presentations are available online at GBIF.org:

<http://www.gbif.org/event/82148>