

Data for Good: Innovative Ways the UAE is Joining Hands for a Better World

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Abstract:

The Federal Competitiveness and Statistics Authority (FCSA) serves as the Secretariat to the UAE National Committee on Sustainable Development Goals (SDGs). The United Arab Emirates (UAE) National Committee on SDGs, established in January 2017, consists of 17 Federal Government entities.

SDG 17, Partnerships for the Goals, is at the center of success of the SDGs. Therefore, global and local partnerships is a key pillar to achieve the SDGs. However, the SDGs will not be met without significant public awareness. To address the challenge, the Federal Competitiveness and Statistics Authority established a multi partnership engagement with private- and public sector, and the UAE society.

A partnership with Esri Global Inc., the world leader in developing geographic information systems (GIS) solutions, address the SDGs through the UAE SDGs Data Hub¹ that connects the multiple partners addressed across public-private sector and UAE society. The Hub, which is integrated with the United Nations Department for Economic and Social Affairs (UNDESA) global data hub- Federated Information System for the SDGs (FIS4SDGs) -, promotes open data, sustainable partnerships and serves as an educational tool that address the lack of public awareness of the

¹ Federal Competitiveness and Statistics Authority. 2018. "UAE Sustainable Development Goals Data Hub". <http://sdgsuae-fcsa.opendata.arcgis.com/> (Accessed July 2019)

SDGs through open data, SDG related stories and initiatives. The integration of the Hub feeds the FIS4SDGs, with SDG indicators data, stories and mainstream initiatives.

The Hub inspires numerous partnerships from the public- and private sector whilst taking advantage of the web GIS principles allowing data connections from multiple sources and organizations that boosts open data between the government, sectors and the society that assist policy makers, decision makers and ultimately, the SDGs.

Additionally, SDG implementation demands proactive engagement across all sectors, including the society. The FCSA introduced a world pioneering initiative element to the Hub that encourage all sectors to actively engage and share initiatives directly to the UNSD. The initiatives module of the Hub serves as a tool to translate aspirations into initiatives, whilst creating awareness on the SDGs. Each initiative reflects how UAE is addressing a specific SDG, can be adopted by any country or organization worldwide. Moreover, it reinforce public participation through calls for action within the initiatives, which is established through either public surveys, or other data interaction tools offered within initiatives pages.

In conclusion, with a progress of 6 initiatives, 25 indicators, 9 data stories, the Hub proved that there is a hunger to sector wide engagement and having a centralized system showcasing SDGs progress and achievements and this will only happen established partnerships and open data implementation.

Keywords:

SDG Data Hub; FIS4SDGs; Geospatial Data: Data stories; Initiatives; UAE SDGs; Open Data

Introduction:

The Sustainable Development Goals (Sustainable Development Goals 2015)² are a set of 17 goals set by the United Nations and also known as the Global Agenda 2030 Agenda for Sustainable Development and Global Goals, which serves as a blueprint to a better and more sustainable world – for all. The goals address global challenges faced by humanity, including those related to poverty, inequalities, climate change, prosperity, peace, justice and partnerships. The Global Goals are interconnected and serve to leave no one behind. The 17 SDGs are divided into 169 targets and 232 indicators. It is of utmost importance for all to achieve the goals and targets, which has been agreed to by 193 member states of the United Nations (UN) in September 2015, by the year 2030. Each SDG contains specific targets and each target has its own indicators that reflects progress to collaboratively achieve the target. Each country selects its own national

² The United Nations. 2018. "About Sustainable Development Goals".2018. <https://www.un.org/sustainabledevelopment/sustainable-development-goals/> (Accessed July 25, 2019)

and regional indicators according to the country's vision and national priorities. The country then defines and develop national initiatives to address the prioritized indicators. It is of utmost importance for all to achieve the goals, targets and ultimately the indicators, which has been agreed to by the 193 member states of the United Nations (UN) in September 2015, by the year 2030. The Federated Information System for the Sustainable Development Goals³ (FIS4SDGs), is an initiative led by United Nations Department of Economic and Social Affairs (UNDESA), in collaboration with Esri Global Inc.⁴. The initiative use state-of-the-art web based platforms and Geographic Information Systems (GIS). It serves to enhance the inclusion, availability and usability of official geo-statistics, by national statistics offices, and other data sources, to support decision makers at the following levels – sub-national, national, regional and global, in achieving the SDGs.

The FIS4SDGs (**Error! Reference source not found.**) creates an enabling environment across a system of federated data hubs where national data hubs are integrated together to serve a collaborative global data hub. This in return has enabled national and international data reporting and monitoring, integrations and analysis of the SDG data⁵. Furthermore, it empowers national statistics with the geo-statistical intelligence to better respond to data needs and identify data gaps, which in return allows decision and policy makers to make informed decisions at country level.

³ The United Nations. "The Federated Information System for the SDGs: From Vision to Scale". Session, United Nations 50th Statistical Commission, New York, March 07, 2019. <https://unstats.un.org/unsd/statcom/50th-session/side-events/20190307-1L-Federated-Information-System-for-the-SDGs.pdf> (Accessed July 25, 2019)

⁴ United Nations Statistics Division. 2019. "The Federated Information System for the SDGs". www.sdg.org (Accessed July 25, 2019)

⁵ Scott, Greg. 2017. "Research Exercise to Establish A Federated Information System for the SDGs". <http://ggim.un.org/meetings/2017-Sweden/documents/Session2%20-%20Greg%20Scott.pdf> (Accessed July 25, 2019)

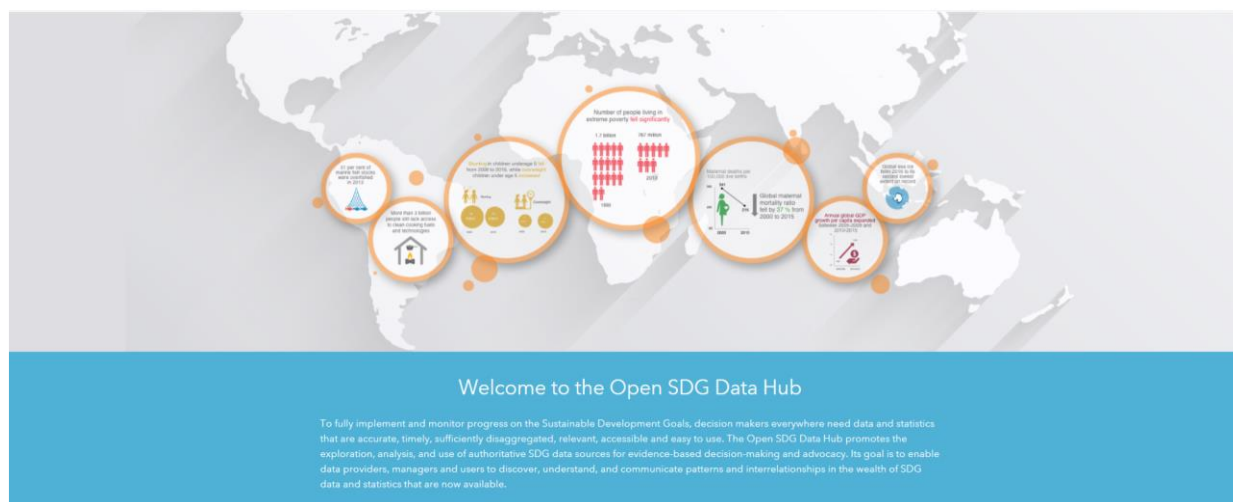


Figure 1: The Federated Information System for Sustainable Development Goals (FIS4SDGs) of the United Nations Department for Economic and Social Affairs (UNDESA)

Based on national ownership, National Statistical Systems can implement international agreed standards around the production and dissemination of data and statistics related to the country's priorities. Additional features include interoperability with other geospatial data hubs, interactive analytical visualization of data and story maps.

The UAE's cabinet has issued a degree in January 2017 to establish a National Committee on SDGs (NCSDGs). The NCSDGs consist of 17 federal level entities that includes the Ministry of Cabinet and the Future, the Ministry of Foreign Affairs and International Cooperation and the UAE Gender Balance Council. The Federal Competitiveness and Statistics Authority serves as secretariat to the NCSDGs. The FCSA acts as the official source of statistics and monitoring of competitiveness performance in international reports. The FCSA is responsible to develop an up-to-date national statistical system across different sectors – including the SDGs⁶.

As the official source of statistics and secretariat of the NCSDGs, the FCSA invested time and research into groundbreaking and state-of-the-art technologies that allows on reporting and monitoring of the SDGs. The partnership between UNDESA and Esri, who established the FIS4SDGs, has been identified as a groundbreaking initiative, which is key to successfully implement the 2030 Agenda for Sustainable Development.

The UAE joined a number of countries in phase two of the pioneering project led by UNDESA and Esri. The first phase consisted of countries such as Philippines and Ireland. The UAE commenced in March 2018 with the official documentation of the partnership between Esri Global Inc. and the

⁶ Federal Competitiveness and Statistics Authority. 2018. "The National Committee on SDGs". Sustainable Development Goals. <http://fcsa.gov.ae/en-us/Pages/SDGs/The-Global-Goals.aspx> (Accessed July 15, 2019)

FCSA. The design of the SDG Data Hub started in July 2018. To date, a total of 15 countries are part of the pioneering project⁷.

SDG 17, Partnerships for the Goals, is at the center of success of the SDGs and manifests well within the national and international implementation plan of the SDGs. However, the SDGs will not be met without significant public awareness and engagement. To address the challenge, the secretariat of the NCSDGs, the Federal Competitiveness and Statistics Authority, acknowledged the need for multi partnership engagement with the private and public sector, as well as the UAE society. The partnership between UNDESA and Esri has been identified as a groundbreaking initiative, which is key to successfully implement the 2030 Agenda for Sustainable Development⁸.

The partnership will allow the UAE to report directly to the FIS4SDGs on progress made towards the SDGs. The reporting structure is currently used to report open data, data stories and a pioneering element called *initiatives*.

Methodology:

Identifying a groundbreaking global initiative:

The secretariat of the NCSDGs did researches to determine the groundbreaking global initiative. To determine the best possible avenue to report and monitor progress made towards the SDGs, the secretariat of the NCSDGs consulted with the members of the NCSDGs. The consultation resulted into identifying the collaboration between UNDESA and Esri Global Inc. as a state-of-the-art initiative as well as identifying two countries who were part of the first phase of the initiative to consult and determine the return of investment.

Establishing a global partnership:

In March 2018, the secretariat signed a Memorandum of Understanding (MOU) with Esri Global Inc. to officially become part of Phase 2 of the FIS4SDGs project. The MOU explained the purpose of the partnership between Esri Global Inc., as a worldwide leader in developing geographic information systems (GIS), and the FCSA. The terms included modernization and integration of GIS at FCSA and that the two parties will work together in good faith to explore opportunities to place the collaboration as a best practice. After signing the MOU, the project commenced.

⁷ "A Data Hub for the Sustainable Development Goals". 2018. Arc News. <https://www.esri.com/about/newsroom/arcnews/a-data-hub-for-the-sustainable-development-goals/> (Accessed July 25, 2019)

⁸ United Nations Department of Economic and Social Affairs. 2015. "PARTNERSHIPS FOR SUSTAINABLE DEVELOPMENT GOALS:A legacy review towards realizing the 2030 Agenda". <https://sustainabledevelopment.un.org/sdinaction/publication/partnerships-a-legacy-review> (Accessed July 2019)

Identifying the scope of the SDG Data Hub:

After signing the MOU, the secretariat engaged in meetings with Esri Middle East LLC, the local office of Esri Global Inc. based in Dubai, UAE, to determine the project scope of the SDG Data Hub. The project scoping included evaluation of data readiness that are geospatially referenced (at emirate or municipal level), data that are open, and ready to report to the UNSD. Additional requirements of the project included data stories from national stakeholders, and initiatives that are related to the SDGs. (The initiatives element of the SDG Data Hub is a pioneering element that is applauded by the United Nations as a best practice and inspire other member states to introduce the initiatives on their respective SDG Data Hubs.)

Identifying stakeholders in the UAE:

Identifying stakeholders of the NCSDGs was three-fold and key to the success of the SDG Data Hub. The stakeholders had to surpass the requirements, which included data readiness, open data indicators related to the SDGs and geospatial data at Emirate level. In addition, stakeholders had to assess their current projects and initiatives that could feed the data stories and initiatives elements of the SDG Data Hub.

Developing SDG Data Hub Content:

1. **SDG Data per goal** – data related to a specific indicator of the SDG targets and can be geospatially referenced. The Ministry of Foreign Affairs and International Cooperation (MOFAIC), the Ministry of Health and Prevention (MOHAP), the Ministry of Climate Change and Environment (MOCCAEC) and the Ministry of Education (MOE) were identified as phase 1 contributors to the SDG Data Hub. Sub-national statistical data was collected and SDG indicators were calculated according to each indicator calculation methodology⁹. Then the indicator data was geo-coded to and converted to GIS layers. The next step involved the publishing of the data on a web map service before including it in the SDG Data Hub (Figure 1, Figure 2 and Figure 3). In parallel, data openness for each indicator was assessed to identify its viewing permission level, for instance open data indicator map services viewing permission were set to public while other indicators map services require authorization to view.

⁹ United Nations. 2018. "SDG Indicators Metadata repository". Sustainable Development Goals. <https://unstats.un.org/sdgs/metadata/> (Accessed July 2019)

Explore Spatially Referenced Data by Goal

This section makes data of the global SDG Indicators database readily available as geospatial data web services, suitable for the production of maps and other data visualizations and analyses, and easy to download in multiple formats



Figure 1: UAE SDG Data Hub showing goals icons that directs the users to related indicators data

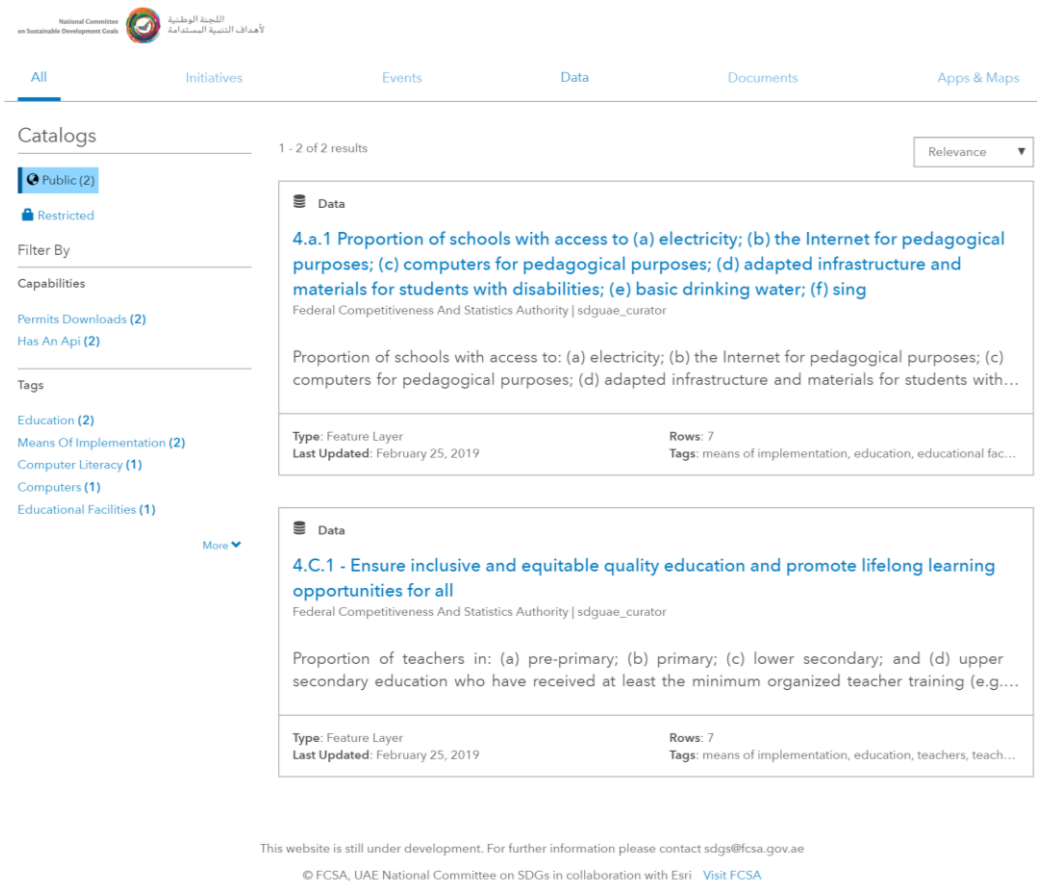


Figure 2: UAE SDG Data Hub showing publicly available indicators data pages for Goal 4

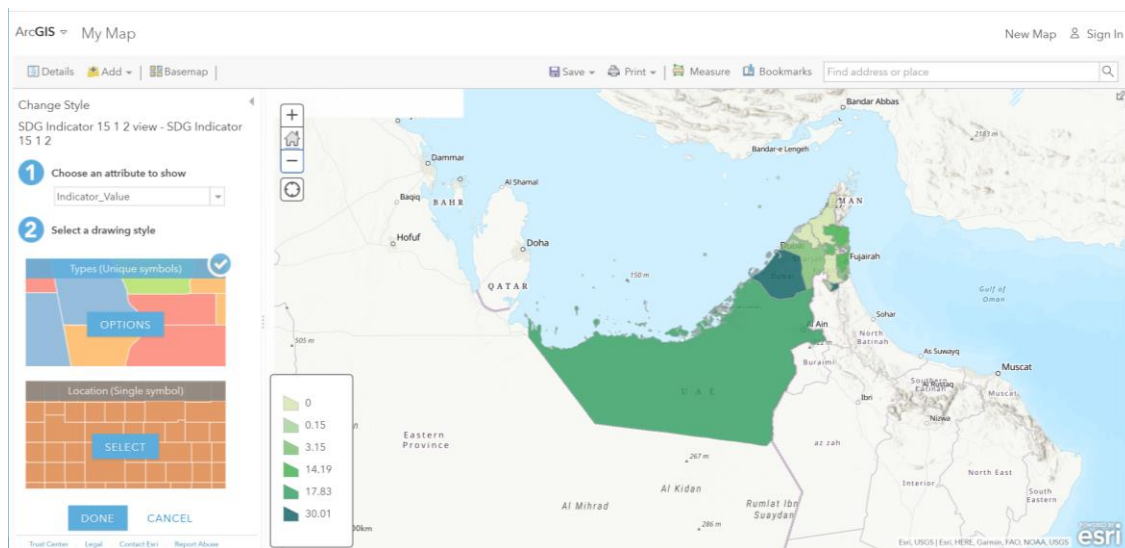


Figure 3: UAE SDG Data Hub showing indicator 15.1.2 web map

2. Data stories – stories that are related to a specific SDG and consist of interactive story maps

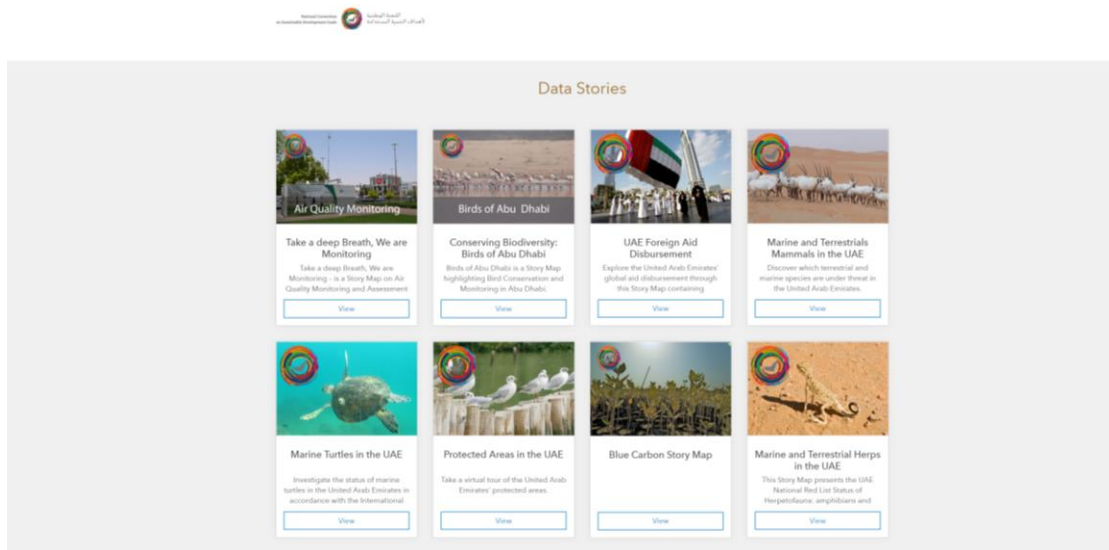


Figure 4). MOFAIC had data stories available that highlight the UAE Foreign Aid Disbursement. Other data stories included a non-member of the NCSDGs, the Environment Agency Abu Dhabi which highlights the Air Quality Monitoring Systems through interactive maps with data points. Other data stories from MOCCAIE was included in the SDG Data Hub. These stories allowed system-to-system collaboration which means sharing dynamic stories from entities GIS web based platforms to the SDG Data Hub. By enabling the inter-platforms integration and collaboration, the flow of data and applications was facilitated in a consistent manner.

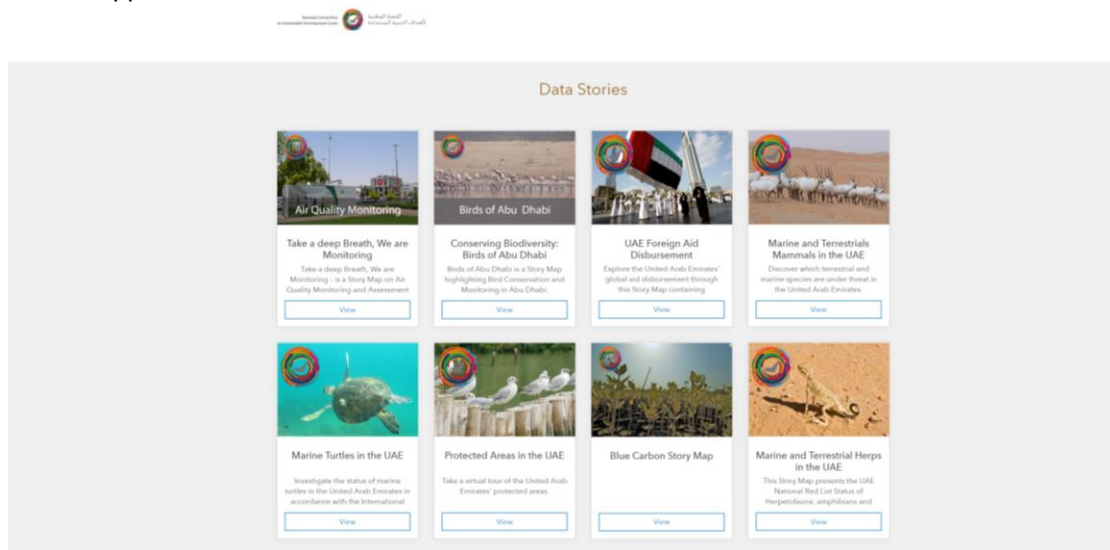


Figure 4: UAE SDG Data Hub showing data stories element

SDG initiatives – The United Arab Emirates inspires global innovations and therefore, the secretariat in collaboration with stakeholders and Esri Global Inc., identified the potential of having initiatives related to the SDGs to be included on the SDG Data Hub platform. The initiative page – a first of its kind in the world – is an

introduction to goal specific initiatives within the UAE and at the international front. The initiative element includes an understanding by setting the goal of the initiative that explains the purpose, track the progress made to date (or impact) via an interactive map with data, numbers and figures. Setting the focus area of the initiative was key to determine the value attribute to the visitor, who will leave inspired to make a difference in their daily lives. Additional features may include surveys to engage the public to understand their perception of specific goals and/or initiatives. SDG initiatives from MOCCAIE and MOFAIC is displayed on the SDG Data Hub (Figure 5). These initiatives include the goal and description, progress made, interactive maps that highlights the specific areas of interest and whole-of-society engagements through surveys, sign ups to track progress and an initiative specific application.

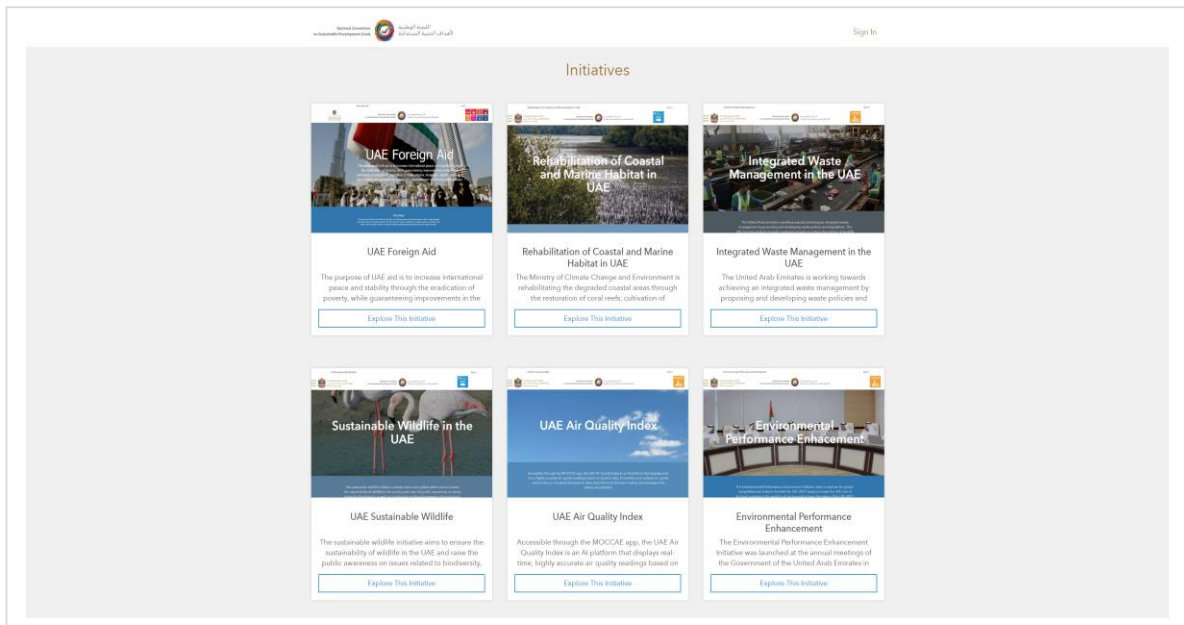


Figure 5: Initiatives that feature on the UAE SDG data hub from MOCCAIE and MOFAIC include sustainable wildlife in the UAE, integrated waste management in UAE, environment performance enhancement, UAE air quality index and UAE foreign aid

Additionally to the three-fold approach, whole-of-society engagements include videos of ministers in the UAE who spoke about the importance of the SDGs in their respective ministries.

Connecting the SDG Data Hub to the FIS4SDGs:

Upon launching the SDG data hub, and since SDG implementation of the SDGs goes beyond national implementation to international implementation, the UAE SDG Data Hub was established to feed the Federated System for the SDGs (FIS4SDGs) with the essential information. Thus, 8 indicators and 4 data stories were connected from UAE SDG Data Hub to FIS4SDGs through establishing common workgroups which enabled content sharing on the ArcGIS hub platform.

The SDG Data Hub Results:

Bringing Location Intelligence to National Statistics:

Adding geo-statistical intelligence to SDGs will help governments and organizations to visualize patterns in order to address areas that need policy adaptations or policy development to improve the sustainable development of the country. The ability to overlay different datasets into a one-map view helps a better understanding of the challenge. Furthermore, mapping data helps identify data gaps and therefore, it can be assumed that geo-enabling SDG statistical data was a key to successfully implement the SDG Data Hub. The GIS technology and tools allows the conversion of tabular data into maps that resulted in publishing data on the SDG Data Hub. The data will assist decision and policymakers to make informed decisions and policy recommendations to specific SDG targets and indicators at national and international level. This is also meaningful as it provides an insight on missing indicators and data gaps.

Launching the SDG Data Hub:

The SDG Data Hub was successfully launched at the World Data Forum in October 2018 in the presence of His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President of the UAE and Ruler of Dubai and Her Excellence Amina J. Mohammed, Deputy Secretary-General of the United Nations.

The SDG Data Hub presents four (4) main elements, which are:

1. SDG Indicators

Statistical data for each available indicator is available in this part on the sub-national level (emirate level). The SDG Data Hub visitor can see the description of indicator and view or download its data in tabular, map or API formats.

2. Data stories;

National stories related to sustainability or environment are published here to increase the public awareness about SDG related topics.

3. SDG Initiatives

Each initiative summarizes how an entity is addressing specific SDG, by describing related projects, achievements and emphasizing with data stories.

4. SDG Media content

This element of the SDG Data Hub allows the visitor to learn more about national SDG events and initiatives. Additionally, it serves the purpose of engaging the society with the ministers of the UAE.



Figure 6: His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President of the UAE and Ruler of Dubai and Her Excellence Amina J. Mohammed, Deputy Secretary-General of the United Nations

Connecting the SDG Data Hub to the FIS4SDGs:

In February 2019, the UAE became the second country to connect its SDG Data Hub to the UNSD. The UAE's SDG Data Hub included SDG indicator data, data stories and the world pioneering initiatives element. The initiatives element inspires the global community to engage and replicate in their respective countries to have all global initiatives directly reported to the UNSD through the FIS4SDGs platform.

The UAE SDG Data Hub is built on Esri's ArcGIS platform. The platform leverage the web GIS principles that allows connecting data from multiple sources and organizations without the need to re-implement or import data content. This allows a smooth operable and collaborative platform for UAE government and semi-government entities to engage.

The Abu Dhabi Environment Agency (EAD), a semi-government entity based in the Emirate of Abu Dhabi, collaborated with the NCSDGs to support data stories in the SDG Data Hub. Below follows images of the data stories as it displayed on the SDG Data Hub through connecting platforms.

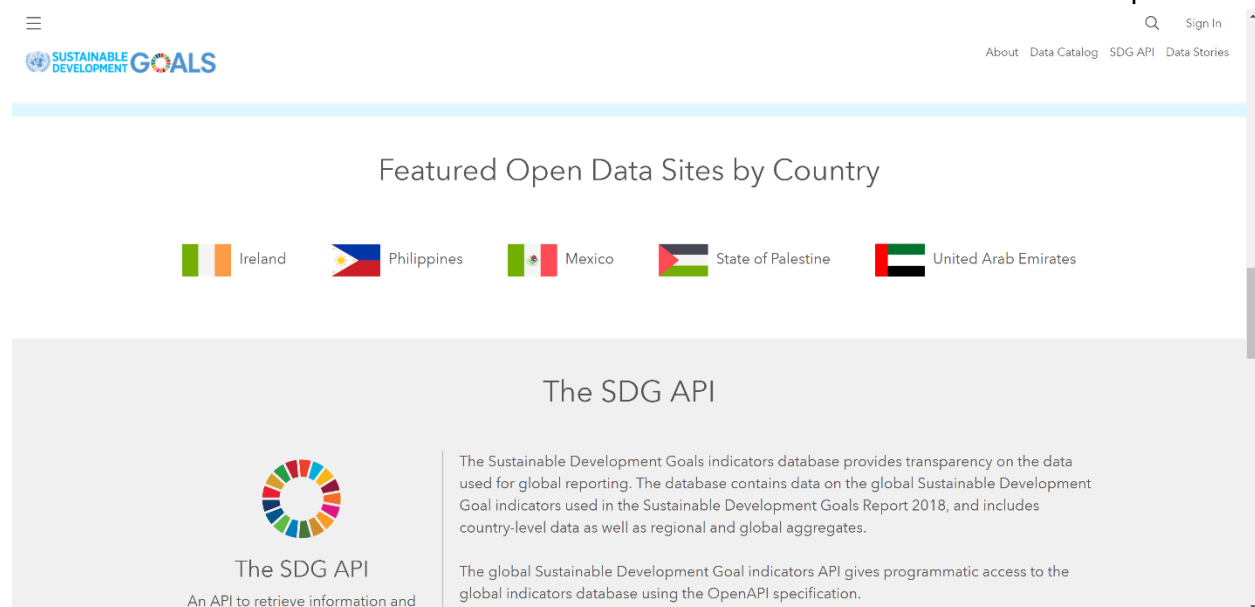


Figure 7: FIS4SDGs links to featured data hubs including UAE

Establishing a Collaborative platform with governmental entities

The UAE SDG data hub is built on Esri ArcGIS Platform and takes advantage of the web GIS principles allowing connections data from multiple sources and organizations without having to re-implement or import data content.

For example the below images in Figure 8 from the data hub shows some stories created on Abu Dhabi government (Environment Agency of Abu Dhabi) ArcGIS platform.

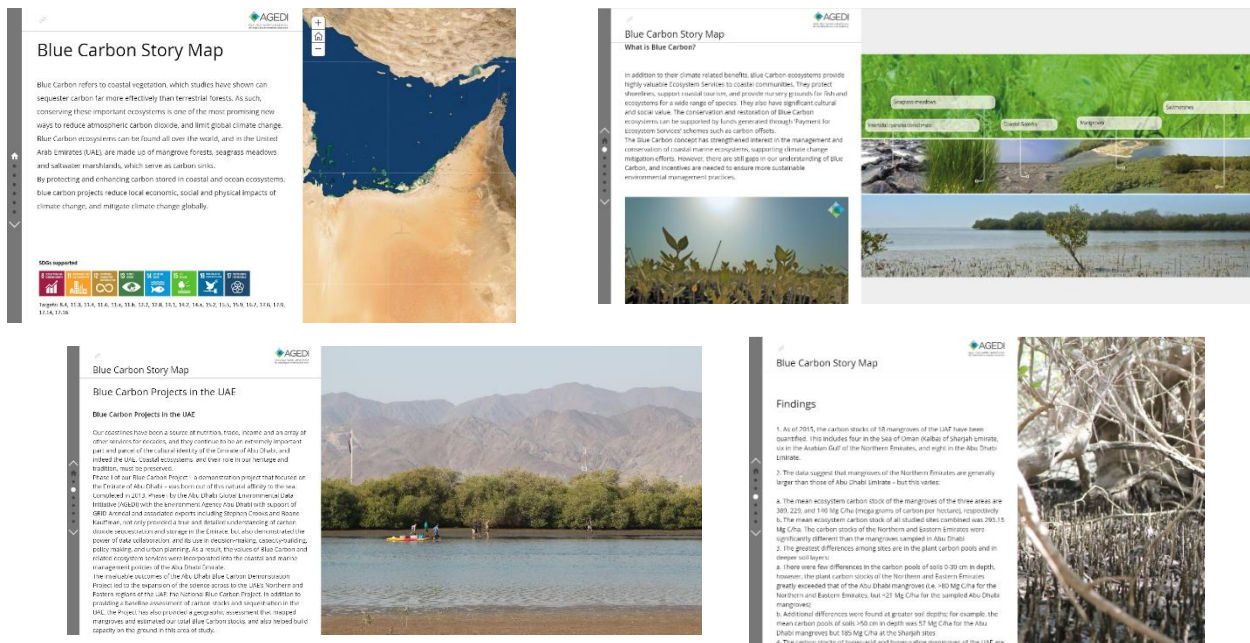


Figure 8: Story Maps from environment Agency of Abu Dhabi

Promoting data openness initiatives

It is of the essence to promote data openness between the government and the public. Data should be easy to interpret, to search and to download in different formats that complement different data users. The SDG Data Hub include self-explanatory maps, ease of navigation and downloadable data in tabular and map formats. It also enable technical users to include the data in API format in their respective applications (Figure 10). By providing open data to the individual, organization and other government entities will raise their knowledge and awareness that is essential to address any sort of challenges.



Figure 9: Open data can be downloaded in various formats to serve different users' needs

SDG Data Hub Discussion and Conclusion:

The SDG Data hub serves as a tool to promote open data, globally. It allows organizations and individuals increase their knowledge and awareness of the Global Goals. Furthermore, it encourage the visitors to learn more about current initiatives and how to address goal related challenges.

The SDG Data Hub simplifies the monitoring and reporting structure and enable decision and policy makers to make informed decisions and recommendations through timely, disaggregated, accessible data and statistics. The hub advocates sustainable partnerships between national and international stakeholders. Furthermore, the SDG Data Hub serve as an educational tool that address the lack of public awareness of the SDGs through open data, SDG related data stories and initiatives that inspires aspirations to actions. The SDG Data Hub inspire further partnerships with national stakeholders, including the public and private sector and soon academic institutions and the UAE youth. The partnerships takes advantage of the web GIS principles that allows data connections from multiple sources and serve as a tool to further open data between government, sectors and the society. Ultimately, the SDG Data Hub will assist decision and policy makers to make well informed decisions to implement the SDGs at the national level.

The SDG data hub- initiatives element capture and highlight the works of particular entities, by connecting it with a specific SDG or SDGs, through easy-to-visualize interactive story maps. This is meaningful as it share with the public the government's efforts to accomplish SDG targets. Moreover, it inspires visitors to adopt initiatives in their daily routines and promote a sustainable environment. For example, informing visitors about domestic recycling centers in the neighborhood can inspire a recycling behavior, or sharing protected areas in an interactive data story map can prevent unnecessary actions that can damage the cause. Surveys can also assist in a better understanding of the public's behavior, preferences and beliefs..

At the international level, the SDG Data Hub serves as a knowledge hub of best practices in the UAE to achieve the SDGs. This element is also being promoted by the FIS4SDGs as a best practice and encourage other country participants to adopt and replicate in their respective SDG data hubs. This will allow a centralized SDG platform with best practices around the world.

The initiatives element of the SDG Data Hub serve as a model to inspire global adoption that can facilitate analyses and decision-making. It also encourage actions and active drive to success in the SDGs. The initiatives element respond to fundamental challenges of reporting in a cohesive manner to track national progress made to the SDGs through a fun and engaging manner.

In conclusion, the UAE reports 25 indicators, 9 data stories and 6 initiatives to the FIS4SDGs platform. The UAE's SDG Data Hub translate to inspire actions. It has proved that there is a hunger to sector wide engagement and to have a centralized system highlighting SDGs progress and achievements. The SDG Data Hub does inspire decision and policy makers to make informed recommendations and further the open data partnerships between government, sectors and society. Sustainable partnerships are at the forefront with many entities, including the NCSDGs, Private Sector, and semi-government organizations in process of having their

respective data, data stories and initiatives on the platform. The initiatives tell a story that serve as a tool to translate aspirations into actions. They foster awareness of the SDGs and serve as potential models that may be adopted by any organization or country, worldwide. The SDG Data Hub engage the global community in spirit of open data. The UAE leads the way as the only country to highlight initiatives on the FIS4SDGs, thereby fostering a global data and initiative sharing community. The secretariat of the NCSDGs is in continuous discussions and meetings with Esri Middle East LLC to determine the roadmap for the next calendar year. This is being done to facilitate sustainable partnerships amongst the UAE government, sectors, and society.

The UAE's SDG Data Hub inspires a global movement to highlight initiatives related to the SDGs at national level, to the international community and promote sustainable partnerships towards the Sustainable Development Goals.

Abbreviations:

FCSA – Federal Competitiveness and Statistics Authority

SDGs – Sustainable Development Goals

UAE – United Arab Emirates

GIS - Geographic Information Systems

UN – United Nations

FIS4SDGs - Federated Information System for the Sustainable Development Goals

UNDESA - United Nations Department of Economic and Social Affairs

NCSDGs - National Committee on SDGs

MOFAIC – Ministry of Foreign Affairs and International Cooperation

GBC – Gender Balance Council

MOU – Memorandum of Understanding

MOHAP – Ministry of Health and Prevention

MOCCAEC – Ministry of Climate Change and Environment

MOE – Ministry of Education

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