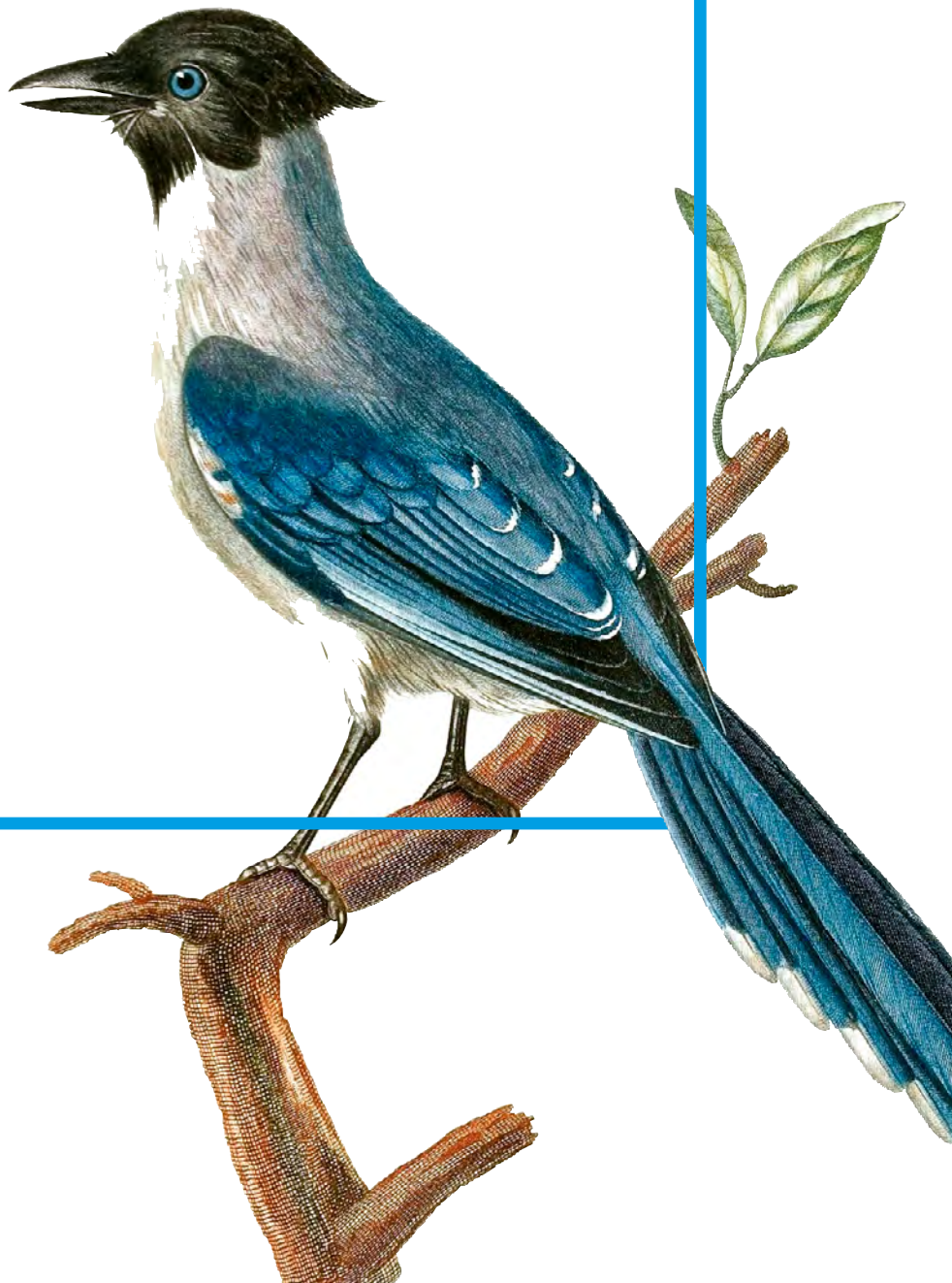
TOWARDS A POLLUTION-FREE PLANET

Report: Private Sector Engagement at the 2017 UN Environment Assembly

UN environment assembly

United Nations
Environment Assembly
of the United Nations
Environment Programme



Acknowledgement

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The team that organized the 2017 *Sustainable Innovation Expo* was led by Jorge Laguna-Celis, Director of the Governance Affairs Office, with overall coordination by Kamar Yousuf and Mia Turner. We would like to recognize in particular the following colleagues who substantially contributed to the *Expo* and other private sector related activities during the 2017 UN Environment Assembly: Abarta Pandey, Anne Kanake, Carina Mutschele, Charlotte Ndakorerwa, Moses Mbego, Isabella Aquilini, Raphaelle Vignol and Stephanie VanderPoel.

In addition, we would like to thank all the participating companies who exhibited their technology during the 2017 *Sustainable Innovation Expo*.

EMBASSY OF DENMARK
DANIDA | INTERNATIONAL DEVELOPMENT COOPERATION

Ministry of Environment and Food of Denmark

TOWARDS A POLLUTION-FREE PLANET

Report: Private Sector Engagement at the 2017 UN Environment Assembly

Ellie Goulding at the 2017 UN Environment Assembly. © Natalia Mroz/UN Environment.

Opening of the Sustainable Innovation Expo. Left: H.E. Mr. Edgar Gutiérrez, Minister of Environment and Energy of Costa Rica and President of the 2017 UN Environment Assembly. Center: H.E. Mr. Miroslav Lajčák, President of the UN General Assembly. Right: Mr. Erik Solheim, Executive Director of UN Environment. © Natalia Mroz/UN Environment.

INTRODUCTION

The 2017 Environment Assembly, the United Nations leading authority on the environment, gathered in Nairobi, Kenya between 3-6 December 2017, under the overarching theme "towards a pollution-free planet".

The Assembly provided a groundbreaking platform for leadership on global environmental policy. This was a unique opportunity for governments and leaders from civil society and the private sector to convene and discuss the world's greatest environmental challenges and the solutions for achieving global sustainable development.

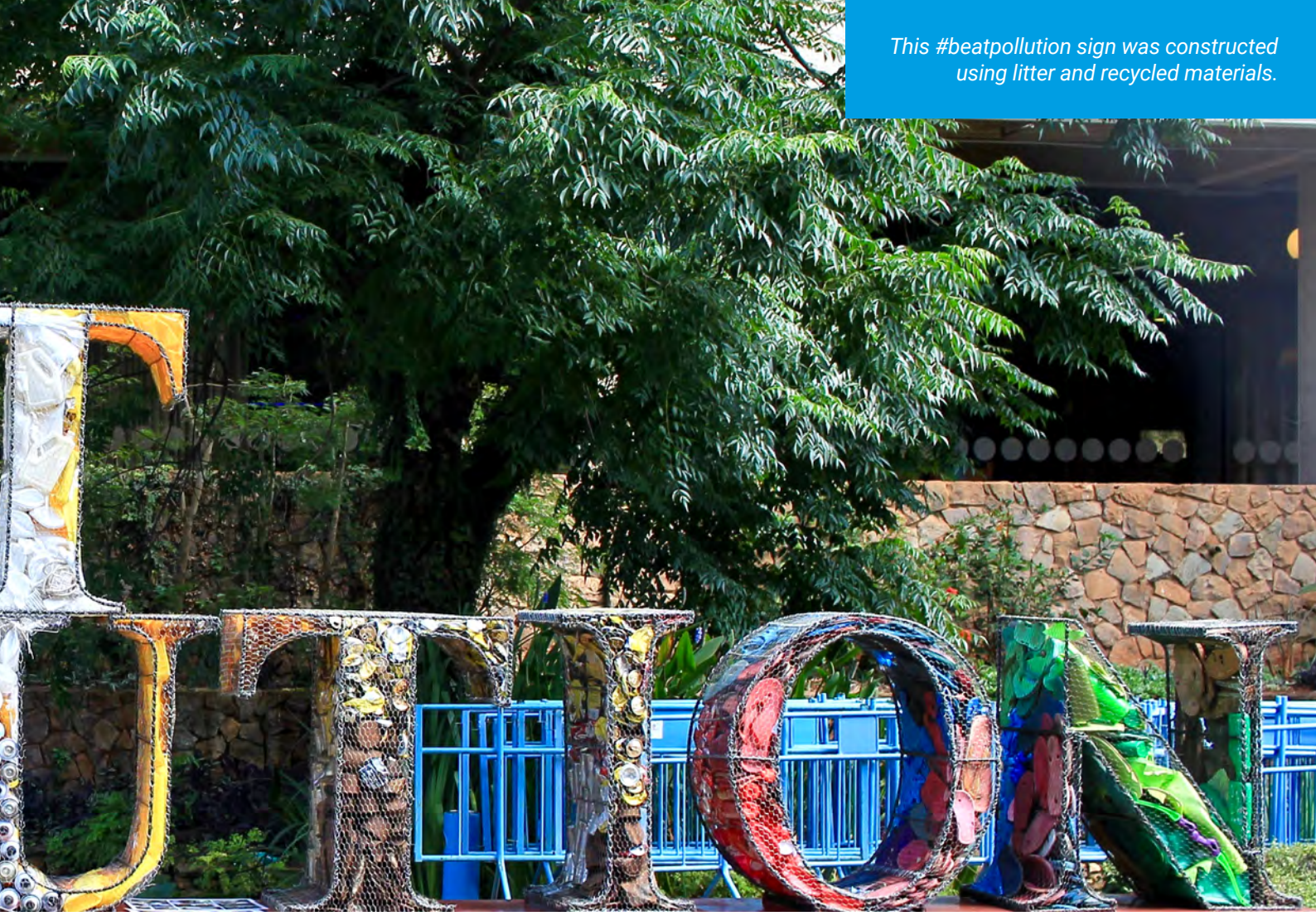
The 2017 Assembly, consisting of over 4,000 participants, concluded with 13 resolutions, and nearly 2.5 million pledges from governments, civil society, businesses, and individuals to tackle pollution. If all commitments are met, 1.49 billion people will breathe clean air and one third of the world's coastlines will be clean.

UN Environment has been strengthening its engagement with the private sector at all levels, including through the UN Environment Assembly. Since the last *Expo* at the 2016 Assembly (23-25 May 2016), UN Environment has organized several activities in Copenhagen, Berlin, Puntarenas (Costa Rica) and Manila that brought together ministers, senior policymakers and leaders in the private sector to advocate for the 2017 Assembly and its theme of pollution. These events have significantly contributed to the dialogue between the private sector, civil society and governments on the challenges and solutions to pollution and to the commitments needed to achieve a clean sustainable planet.

The private sector plays a pivotal role in achieving the 17 Sustainable Development Goals that defined the 2030 Agenda for Sustainable Development. These global partnerships have already spurred a number of solutions to critical environmental issues and UN Environment will continue to expand these partnerships in the years to come.

UN Environment has sought to strengthen its partnerships with the private sector through its new Private Sector Unit, now housed in the Governance Affairs Office. The Unit's aim is to integrate private sector at all levels by (i) empowering and promoting decentralization within the organization; (ii) leading UN Environment's private sector engagement in key UN platforms and other international initiatives; (iii) adding value and promoting transparency in private sector engagement vis-à-vis the Governing Bodies and other partners; and (iv) positioning UN Environment as a cutting-edge and open organization in dealing with the business community.

The United Nations Office at Nairobi.



This #beatpollution sign was constructed using litter and recycled materials.

SUSTAINABLE INNOVATION EXPO

The 2017 *Sustainable Innovation Expo* was the UN Environment Assembly's platform for engaging the private sector through 42 exhibits showcasing innovation and technology to tackle pollution, connecting the science to the solution. The *Expo* also provided a simulated planetarium where participants could visit the past, present and future as viewed from the Cosmos – with participation from former astronauts Dr. Mae Jemison and Wing Commander Rakesh Sharma. Additionally, there was a virtual reality hub, organized by the Brookline Interactive Group, which created real-life experiences to inform choices and inspire change; and a Networking Space which hosted a series of informal pop-up "Chats" to highlight the work of the private sector on environmental technology and innovations.

By working to understand the problems and collaborate on solutions, the global community will be able to take concrete action to create the conditions necessary to allow these solutions to flourish. The *Expo* was a reminder to participants that unless we work together as humans to find these critical solutions, we risk destroying the only life that we know exists in the universe.

For more information on the companies featured in the Expo, please refer to Annex 1, which can be found at: **www.unep.org/unenvironmentassembly.com**

The cutting of the ribbon at the opening of the 2017 Sustainable Innovation Expo. © Natalia Mroz/UN Environment.

© Natalia Mroz/UN Environment.

VIRTUAL REALITY

Brookline Interactive Group and its start-up project, **the Public VR Lab**, demonstrated three virtual reality experiences. It was the first time virtual reality was used in the Assembly as a tool for environmental education, to inspire action, and to experience environmental data and stories in a new way.

The Brookline team, led by Amy Kamarainen, shared with Assembly participants Harvard's immersive ecoMUVE project and how it teaches youth to be active scientists by collecting data, debriefing on their experiences, and mapping new data to local ecosystems on online maps and using augmented reality. Participants discussed how this technology might be used in their own countries to engage their communities in solutions to tackling global environmental challenges.

In a panel discussion on Art & Activism, Kathy Brisbee of the Brookline team also elaborated on how virtual reality can shift the viewers to a more hands-on, visceral understanding of environmental issues through art, storytelling, and the physical sense of presence and increased empathy that virtual reality provides. She pointed out that the Public VR Lab is working to make Virtual Reality more accessible and training the next generation of creators and environmental educators. The Lab is also working to provide low-cost virtual reality demos, or creator toolkits, as an outreach and public service, to demonstrate how virtual reality can be used in the public interest.

NETWORKING SPACE "POP-UP CHATS"

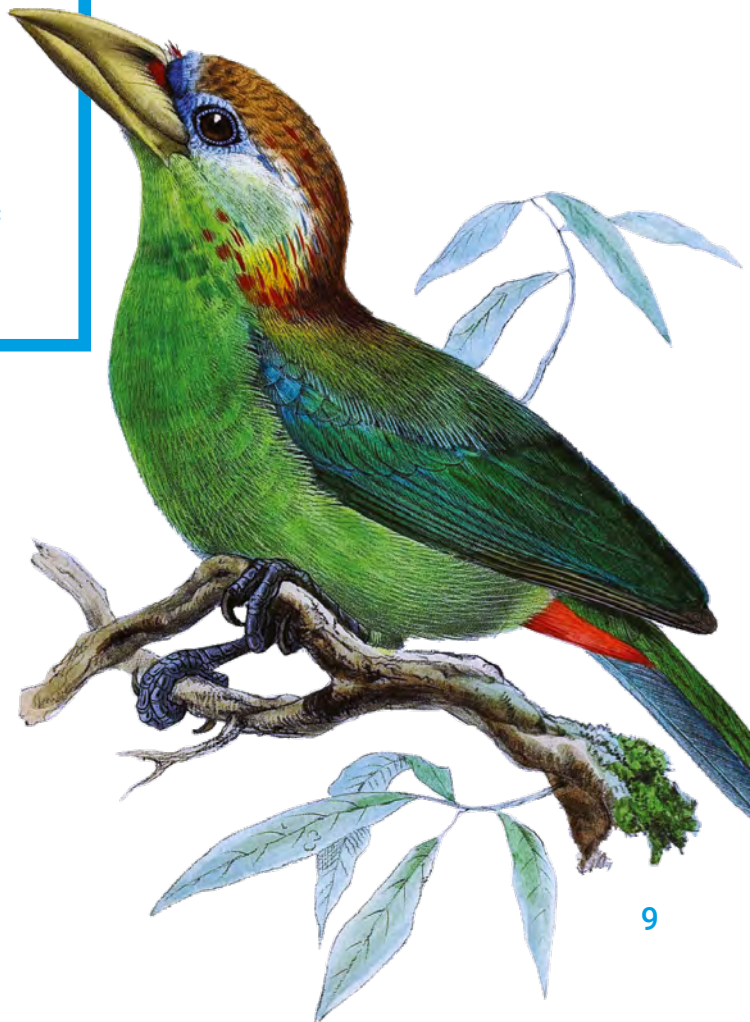
These "Chats" were organized as part of the Expo, providing private sector companies with an opportunity to highlight their work.

HOW TO FASHION SUSTAINABLE FASHION

Organized by the Sustainable Apparel Coalition

The apparel, footwear and textile industries are mass contributors to pollution on this planet. The Sustainable Apparel Coalition – the organizer of the Chat – is an example of a company working to engage retailers, manufacturers, researchers, unions and environmental advocates to address environmental and social labour impacts across the fashion supply chain.

The Coalition is working to understand the magnitude and science around the environmental and health impacts of the fashion industry; exploring the sustainable lifecycle of production and consumption of fashion products; and working to clarify the role of policymakers and UN Environment. Beauty and fashion can play a major role in realizing the Sustainable Development Goals due to its magnitude of impacts on environment, and economic growth, health, gender dynamics and labour conditions.



Special Guest

This Chat featured three special guests: Kaya Dorey, the 2017 Young Champion of the Earth for North America; Rakesh Sharma, the first Indian to travel to space; and Jason Kibbey, the Chief Executive Officer of the Sustainable Coalition Apparel.

Kaya Dorey realized her passion during school where she first understood the amount of textiles going into the landfill. She has taken that understanding to a new level to study sustainable fabrics. Her goal is now to create a brand that is sustainable and stylish, hence the creation of the Novel Supply company.

Jason Kibbey sees fashion as expressing our values. Additionally, he notes that it is also a gateway to sustainable consumption – hence, his creation of sustainable underwear.

After returning from space, Rakesh Sharma became aware of how pollution travels across borders. "We have to adopt sustainable practices primarily because the Earth will not be able to sustain us for long because it has limited resources", he emphasized. His conclusions from his own venture into space are that pollution levels are high and must be tackled, our planet is fragile, and there is no other place that provides us with the habitation we have on Earth.

Left: Mr. Rakesh Sharma. Center: Mr. Jason Kibbey. Right: Ms. Kaya Dorey.

Discussion Points

While the challenge remains to create a product that is truly sustainable and economically feasible, it is not insurmountable. When organic food first became advertised it was also more expensive, but as it became more of a social norm, it has become more affordable than previously. Kaya believes the same thing could happen to sustainable fashion. However, she outlined two requirements for this to happen: 1) we need to educate consumers on what is a sustainable product, and 2) we need to increase the volume of manufacturing and cost orders.

Furthermore, fast fashion is a key factor that counteracts sustainable fashion. Fast fashion is a cycle consisting of the creation, distribution, and usage of clothing at a rapid rate, being a disposable model with much more waste. Informing consumers of the product has the potential to be a solution by identifying what kind of fibers the product uses and its sustainability impact. If people are made aware of what they are buying, then they may not want to be a part of the fibers used.

Participants in the Chat raised a number of questions such as: Is there a movement in the market right now for more sustainable materials? Is bamboo really sustainable? How do you allow designers and consumers to make better decisions about what they choose? How many times do you wear a garment before you set it aside? How do we motivate people to make more conscious choices? What is the role of government in sustainable fashion? How can we change the regulation to one that encourages things to be circular rather than be sent to the landfill? What is sustainable living? And what are the advantages of doing that?

Conclusions

- Each material should be rated along the lines of energy use, among many other criteria, to show their sustainability. This will help both designers and consumers determine for themselves what is the most sustainable. The panel noted how they want to make something that lasts with material blends and compositions that can turn back to the same product again or become a new product.

- We are presupposing that people discard apparel because it is not usable anymore from the longevity standpoint. However, the problem is due to items not being “cool” or “trendy” enough. Hence, consumer choice is part of the solution.

- Currently, businesses are not taking responsibility for their products and in order for a change to be made, companies need to start taking responsibility for the products that they are producing.

- Overall, we need to modify the behaviour of the consumer. The industry needs to claim responsibility by e.g. checking their producers’ sustainability, and checking the credibility of everything.

- The government can play an important role in incentivizing innovation and regulating to ensure that people are actually creating a plan and following through on those commitments. The producer, consumer, and government all play an equally important role in making a change to sustainable fashion.

- Moving forward, there is a need to identify the presence and magnitude of the problem (not only the polluter) and how to get everyone involved and cooperate with the interventions.

SOLUTIONS TO POLLUTION USING ARTIFICIAL INTELLIGENCE

Organized by IBM Research

IBM has developed an application to foster solar energy solutions for small businesses and homeowners. This application takes in factors, such as location, tilt angle, and dimensions of the user's roof in order to design a system perfectly suited for the user. The goal is to empower people to use solar energy.

IBM also wants to be able to answer the question of cost in order to empower people to have an understanding of solar technology in terms of pricing and what to expect when going to a solar installer. When thinking of solar energy and solar power, the assumption is often that the only way to utilize this source is through massive solar panels that span the entire house. However, this assumption is false. This application is accessible on all devices as IBM research wants it to be accessible for everyone even they do not have the app.

Discussion Points

A common theme of IBM's research is how to use data for insight and apply the data to make decisions. These questions can apply to, for example, solar energy, or IBM's research projects such as the Jefferson Water Project of Lake George.

Discussants also noted that artificial intelligence is something that looks at the information that one provides and the outcomes that one wants, to suggest from the information inputted. Artificial intelligence is a sub-learning machine that is able to predict an outcome. How does artificial intelligence solve pollution? An example would be the application that IBM Research has created; it is very simple and easily accessible, allowing everyone to make the changes needed in order to beat pollution.

Conclusions

The application is meant to serve as a tool for fostering renewable energy. Technology is here whether people welcome it or are afraid of it. Therefore, IBM Research wants to train technology machines in a way that is correct, in a way that helps humans, similar to the way machines that doctors use assist in providing aid for people.

The VIP tent networking space. © Cyril Villemain.

GEO-SPATIAL TECHNOLOGY AND INDICATORS FOR ENVIRONMENTAL POLICY AND ACTION

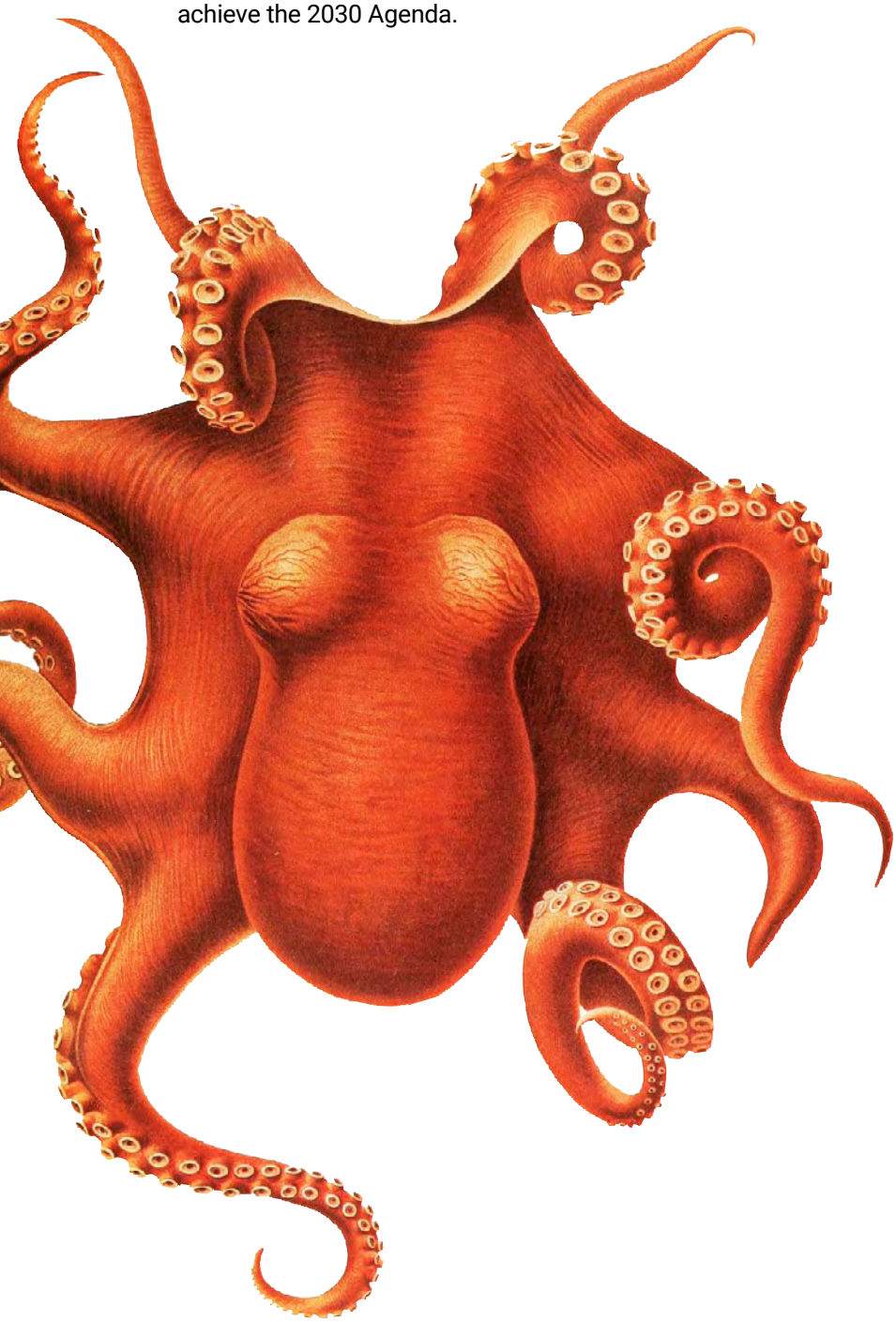
Organized by Abu Dhabi Environmental Data Initiative (AGEDI) on behalf of the "Eye-on-Earth Alliance" and UN Environment's Science Division

The Chat created a setting that openly discussed setting-up a global partnership for research and development of the *World Environment Situation Room*. The purpose for this *Room* is to become a global online platform for policy and action on the environmental dimension of Agenda 2030 and sustainable development.

The *World Environment Situation Room* will be a high-quality, impact-driven research and development platform with state-of-the-art science and technology tools such as geo-referenced, remote-sensing and Earth observation information. In addition, the function of the *Room* is to integrate this information into a global platform to be used as an instrument for policy and action on global green solutions for the environment. The discussion also included novel ways to access and communicate environmental data through story maps.

Discussion Points

The purpose of this Chat was to foster the ideas discussed at the third UN Environment Assembly to become tangible substantial plans that we, as a global community, can combine and use our collective resources and innovative ways to help achieve the 2030 Agenda.



HOW THE HUMBLE BICYCLE CAN CHANGE THE WORLD AND TACKLE CLIMATE CHANGE

Organized by Mobike

What is Mobike?

The Chat introduced Mobike as a dockless transport using smart technology. Mobike was founded due to a need for last minute transport in traffic situations. With Mobike, not only is traffic no longer a hindrance, the customer also does not need to worry about parking or finding appropriate docking spaces. Mobikes are always readily available and can take users from almost any location to their destination.

The bikes have been built for long lasting use and are very durable. They do not have spokes, no air in the tires, the break wires are inside the bike, it does not have a chain, the aluminium is very sturdy, and the bikes do not rust. Each bike has a smart lock with a sim card and a built in GPS which allows the company to always know where the bikes are located and how they are moving. Once a ride has been completed, the bikes lock themselves and do not require docks. The cost of one trip is approximately US$0.15.

Ms. Hu Weiwei, Founder of Mobike.
© Natalia Mroz/UN Environment.

Discussion Points

What makes Mobike unique is the notion that a bike becomes an enhanced extension of walking because you can take it anywhere without having to plan the route. Users only need to park it in a responsible way so that the next user can easily access and use the bike. After the launch of Mobike, bike share usage has increased massively. Thirty million trips are being made every single day.

What makes Mobike different from other bike-sharing companies is that it runs through an application. To use a Mobike, the user simply scans the bike using the application to unlock it.

Once the ride has been completed, the bike locks itself.

Mobikes have been built to be very durable and were created with the purpose of bettering cities. Due to the high levels of pollution, people have not been as eager to go cycling. However, Mobike offers an environmentally-friendly and easy- to-use transport system which has been encouraging people to take care of their cities.

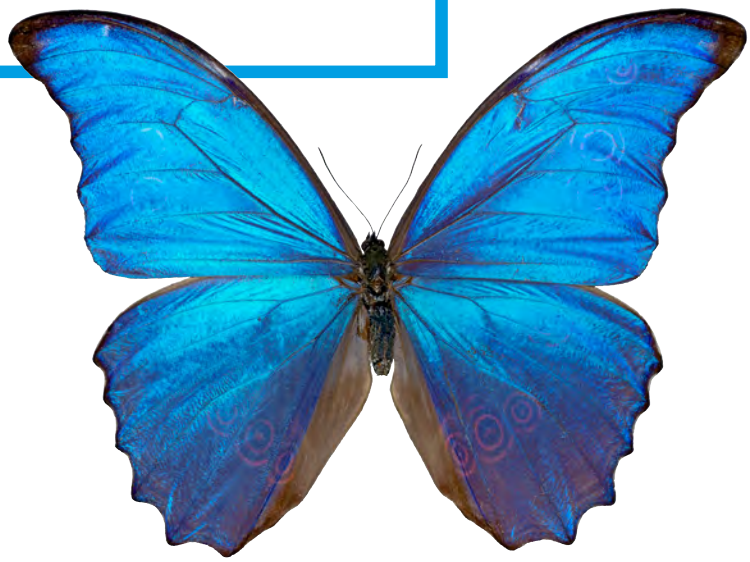
Mobike also actively works on economic growth and infrastructure development to enhance the relevance and sustainability of Mobike.

The Mobike.

HOW CAN SLAUGHTERHOUSES HELP CLEAN UP THE ENVIRONMENT?

Organized by Keekonyokie Biogas Enterprise and David Chege

David Chege, a mechanical engineer who works as the technical manager at a slaughterhouse near Nairobi, wanted to find a way to allow slaughterhouses to help the environment. He used biodigesters to make energy and was able to start a packaging unit due to the excess biogas that was being produced. It is possible now to easily manage waste in a slaughterhouse and even make money out of the waste. Currently, the slaughterhouse is generating enough biogas to power the whole slaughterhouse in addition to the bottled biogas being produced and sold.



Challenges

The main issues that the company has encountered are that Kenya does not have a policy in place for biogas. At the same time, the petroleum industry has already been set up and firmly established in the country.

There has also been a lack of know-how and insufficient willingness for people to enter into the dirty work required when working with waste. In some places, waste is managed by the county, but generally, slaughterhouse waste should be treated on-site. The treatment works via a rock filtration system. In the last chamber, the water is disinfected and followed by a natural filtration through the soil. They send samples and get new certification every three months.

At one time, the biogas was also distributed in tyres which are fairly easy to refill and people are able to easily take them home to use the biogas for cooking. Discussions are underway to work with the government to start a bottling unit, and to import cookstoves which can run with biogas.

New regulations are also needed where biodigesters can be located in order to work to make biodigesters more commonly used. Biodigesters need to be moved to residential areas to make them more accessible. Regulation has proven to be a major hindrance to this.

Discussion Points

Keekonyokie Biogas Enterprise has the capacity to produce 100 cylinders per day at 6 kilograms each. They seek to target those who cannot afford higher prices. One 6 kilograms cylinder currently costs 400 Kenyan Shillings (US$4), and lasts for about three to four weeks. It is possible to sell the biogas at such low prices because the input is waste, which is free.

David has been working with other slaughterhouses to teach them how to convert their waste to energy. The slaughterhouse has served as a pilot for such a waste to energy conversion system. They are working with various players such as county governments, academics, and with the National Environmental Management Association which is now hoping to make it a national policy that all slaughterhouses must have a waste to energy conversion strategy.

The biogas distribution model has been designed to support women run enterprises. The goal is to allow every household to use clean energy in their cookstoves. The next goal is now to upgrade the system and be able to generate more power in order to sell it to Kenya Power.

Conclusions

- Having found a way to make use of slaughterhouse waste has the benefit of making for a very clean slaughterhouse while also being highly beneficial for the environment.
- Having waste from organic matter will release biogas anyways, so it makes sense to harness the biogas to avoid double the emissions being released in order to reduce the slaughterhouse's contribution to climate change.
- There is a need for collaboration on bringing biodigesters into the common public domain. There were multiple audience members who engaged in a lively discussion and appeared eager to collaborate with David and the Keekonyokie slaughterhouse project.
- Using an enzyme which can help to enhance the slaughterhouse waste conversion process. A biogas calculator has been developed to help determine how to establish a successful biogas plant. It can help determine how to sustain the production of a biogas plant and how to maintain it efficiently in order to create a sustainable permanent system for generations to come. It is very important to see this as a permanent approach and to acknowledge the need for collaboration and knowledge sharing.
- There is a need for us as humans to become generational thinkers rather than focusing so much on profit. David Chege noted that settings such as communal kitchens are good target locations for biogas to be used, in order to increase the reach and impact of the biogas. This will also provide a form of income for people while working towards maintaining a clean environment.
- Emphasis was also placed on the importance of including local people in this conversation, especially when it comes to urban development.

PLANETARIUM CHATS

Run by the Traveling Telescope UK

COMBATING CLIMATE CHANGE AND GREEN TECHNOLOGY

As human beings, we have a tendency to tell ourselves stories that are sometimes limited by our surroundings. For example, through living in cities we have lost our connection due to light pollution. Stars are a great way to reconnect ourselves and our perspective of space.

Discussion Points

Light pollution

In the last decade, we have seen dramatic changes in the Earth at night. In this time LED lights have gained popularity. Unfortunately, due to some LED's being cheaper, people are lighting more as well as lighting irresponsibly. Light pollution is an indicator for many things beyond itself. For instance, light pollution is a market of progress between countries and is often tracked alongside economic activity. In fact, having a dark star-lit sky has become an economic resource. For instance, individuals from heavily populated cities, such as those main hubs in Europe, will travel to rural Kenya to escape light pollution.

The Cosmic World

The Traveling Telescope company works to look at our planet from an astronomical view in order to change the individuals perspective. They are currently in the works of creating large conservations where one will be able to see natural light and can consider how to fix light pollution. The first of these will be implemented and located two hours away from Nairobi. This will create an environment where one can escape from light and air pollution.

Technology for this work is quite expensive and there are people who are naturally curious but do not have access to the facilities mentioned. It is important to find a solution for children and adults to be more aware of what is going on with the planet.

The Traveling Telescope company is trying to use technology to make a quick impact, as it is necessary to connect together as a global community.

Conclusions

- How is climate change connected with planetariums? Planetariums are designed for astronomy education as well as work with the international planetarium society, to coordinate and distribute research. The company's planetarium and immersive data allows information to be presented in a different environment, as many people retain information better in a submersive environment.

- Does the effect of a planetarium decrease as you get used to it (the novelty factor)? The reality is, it would be great to have more studies than we have now. However, there is so much data available that it is unlikely that the effect of a planetarium decreases. For instance, there are a little over a million galaxies shown in the largest map known yet. The amount of knowledge, data, and information from both our Earth, and beyond, is infinite.

Inside the planetarium during one of the Planetarium Chats.

Cardboard device that connects one to the stars.

HOW WE KNOW WHAT WE KNOW

'How we know what we know' focused on the role of science within our society. By beginning the discussion with the first civilizations to leave a scientific trace (i.e. Stonehenge & the Pyramids), the Planetarium examined how the scientific method works and how the industrial revolution began a measurable rise in atmospheric pollution, specifically carbon dioxide. This discussion continued to explore how some innovations in society began as pure research, and how science can help to tackle some of the problems we face. Examples of this are in the form of green tech – solar panels, wind turbines, tidal power, and carbon capture.

Discussion Points

The Planetariums display of Earth as a tiny dot in the distance, provided perspective for how small we, as a planet, are in the vast universe. Through examining an increase of temperature over the years, displaying high increase in the last decade (with 2016 as the hottest year yet), the Planetarium was able to visually display how we have dramatically changed the Earth's atmosphere over the years. This was done through using data such as the Keeling Curve. We can see environmental change in various other ways beyond graphs and tables, such as through cherry blossom trees. Records of cherry blossoms in Kyoto, Japan, are actually a marker for the average temperature in March, and has been so for centuries. Therefore, there are many ways to see how the Earth is warming.

Science is observation and theory which is then tested by the scientific peer review. "There is a disconnect from what we know to be true and from what a lot of people in the world believe", said Mark SubbaRao, the President Elect of the International Planetarium Society. As a community, we need to understand better, but how do we do this as a community? The moment that the conversation is turned into 'doomsday', is the moment that the science is being watered down. We need to focus on science and data in order to make positive climate change.

Conclusions

- How do we capture the attention of those who are skeptical to climate change? Is climate change becoming more of a business rather than looking at the efforts of a business? How do we help students to grasp climate change and environmental science? A hope for this Planetarium is to use it as a tool of communication to help people understand the world through a powerful visualization tool.
- The effects that climate change has towards farmers continually arose throughout the discussion. People at the grassroots level are the most affected, however, they are not the ones who can affect policy.
- Often the people in places causing climate change are not the ones who feel it the most. “We are putting in huge costs for the future, but we are not paying for it now”, said Mark SubbaRao.
- Due to the scientific tools we have, we know what we are doing and how we are polluting the atmosphere ourselves. That is the difference between now and 5,000 years ago. Through science we have also discovered that there is enough sunlight landing on the Earth that could power us for hundreds of years. If we destroy the Earth, the Earth will survive. It is the people who will be destroyed.

Learning about the universe inside the Planetarium.

The International Planetarium Society and the Traveling Telescope teams working together to make the Planetarium at the Sustainable Innovation Expo a success.

ASTRONOMY AND SUSTAINABILITY

WHY IS ASTRONOMY IMPORTANT WHEN DISCUSSING CLIMATE CHANGE?

Astronomy is the oldest science of all. The environmentalist movement was first sparked when astronauts visited space years ago and were able to view Earth from space for the first time. They were able to see an increase in pollution on Earth over time. Satellites which are constantly monitoring the planet, have produced records which show how the Earth has changed due to pollution. These satellites use scientific measurements to monitor Earth's carbon dioxide levels and there has been a visible increase in the concentration of carbon dioxide on Earth.

The Planetarium.

Discussion Points

The habitable zone of a planet is where life can exist due to the presence of water. We need to find ways of making cities greener and less polluted in order to maintain these habitable zones. It is important for us to realize that what happens on one side of the planet will affect people on the other side of the world. We are all connected.

From space, we are able to see the light pollution around the Earth. Through satellite images and via astronauts who have experienced it, the Ozone Layer was having the effect of trapping more heat. It was determined that a specific gas which was used in the building of fridges was causing major damage to the Ozone Layer. Once this was discovered, the manufacturing of fridges was altered to eliminate this gas.

Conclusions

- Although there is a lot which needs to be done to preserve our planet, there is also hope for solutions to pollution problems. The planetarium team noted that there were positive vibes coming from the *Expo* and its participants. Bringing people together, can be a game-changer.

- Despite negative decisions or discouraging moves being made by governments, there are always people banding together as allies of the environmental movement to work against these negative decisions being made.

- There is a need to empower children and youth to help them realize the power they have to be able to make a great impact in this world and for the planet.

- It is important to note that astronomy played an important factor in identifying and monitoring climate change. The invention of the telescope initially allowed us to learn that we live on a planet, and sparked our overall understanding of the planetary system. Today, the international space station is constantly orbiting the Earth, which allows us to keep track of the environmental changes that are occurring on Earth.

CLIMATE CHANGE FROM AN ASTRONAUT'S PERSPECTIVE

OUR VIEW OF EARTH

The first picture of Earth was taken from space almost fifty years ago. This picture has changed humankind. It was at the start of the environment revolution. Shortly after came the first environmental conferences and the creation of UN Environment.

Highlights: What has this picture contributed to where we are today?

Speaker: Mr. Rob De Jong, Head of Air Quality and Mobility Programme at UN Environment.

Panelist 1: Mr. Rakesh Sharma, Former Indian Airforce Pilot, First Indian to travel into space.

Rakesh Sharma flew into space in 1984 as part of a "Near Earth Orbit Mission." He flew at a height of 500 kilometers which means his field of view was limited. Another astronaut, Paul Weitz, who travelled to space twice, ten years apart, says the Earth looked more grey and less blue on his second trip. From space, one can see the effects of bad land use practice, deforestation, and wildfires. Pollution affects everyone and does not respect borders, especially, for example, air pollution. The effects of waste on land and industrial pollution are all visible from space, and having gone into space greatly altered Mr. Sharma's perspective. There are major implications of uncontrolled and unregulated human activity and it is important that we address the behavioural problems of humankind.

Panelist 2: Ms. Mae Jemison, Astronaut, Engineer, Medical Doctor, CEO of 100-year Starship.

Mae Jemison traveled to space in 1992. She explains feeling a connection with the entire universe when she went into space. She is working to ensure we have the capabilities to launch into space in the next 100 years and to travel beyond our solar system. We need these capabilities in order to survive. We have the capability to go to Mars, but traveling to another solar system is a whole other story. Voyager has been travelling at approximately 56,000 kilometers per hour since 1977 and has only just now left our solar system. We need to understand the ecosystem which sustains us in order to know which surroundings can support our lifeform. How can we invest in a sustainable future? Currently, people are looking for quick returns, but we need to focus on how we can rejuvenate the environment.

She introduced her *Look Up Project* in which humans take one day a year to look up and see themselves as an earthling. It is important not just to develop the necessary technology to make this possible but to do the emotional building as well. She stressed that we need to think about how we can work towards the longer-term goal and how we can include a wider range of people.

Panelist 3: Ms. Susan Murabana, CEO of Travelling Telescope.

Susan Murabana works to teach children about astronomy in Kenyan schools. She discusses the

Mr. Rakesh Sharma

Ms. Mae Jemison

Ms. Susan Murabana

Mr. Fabio Vescovi

© Cyril Villemain

increases in light pollution, and notes that we can no longer see certain constellations in the sky in Nairobi. Earth is the only planet we know of which can support life. She is working to inspire kids to protect the planet and to develop an interest in science. She believes in the importance of teaching kids greater environmental awareness and states that it is valuable to allow kids to learn more about the environment.

Panelist 4: Mr. Fabio Vescovi, Earth Observation Consultant, Airbus Defence and Space.

Mr. Vescovi works on managing satellite imaging and big data for Airbus Defence and Space. Airbus launched a satellite which is looking at air pollution (Sentinel 5). He has been working with satellite technologies for many years and concludes that there is a need to connect new technologies with communities. He has been working to connect with farmers in Kenya and has been finding that farmers are more in need of scientific data than scientists themselves. Computers have become dominant and are used more, but we need to find a way to communicate with people in a more natural way in order to effectively transfer information. There is currently a lack of emotional participation. We need to bring technologies to people in a useful way otherwise what is the point of developing any new technologies.

Conclusions

- There is a need to coordinate and combine the information at hand. If we really want to address pollution we need to coordinate. Rather than investing in further data generation, we need a data organizer so that we can communicate a better story and a better narrative. It is also necessary to shift our common perspective in order to remember that no matter who we are or where we go, Earth is still our home.

- We need to learn to be less careless so that we do not end up going to another planet and export our problems to outer space.

- We need to change our way of living in order to create a more sustainable way of existing and taking care of our environment. Finally, developing a stronger collective responsibility is vital and we all need to work together in the next ten years in order to protect the planet.

MAE JEMISON IN THE PLANETARIUM

Chat on Space Travel

Blast Off into Space

"To launch off the Earth, you have to basically conduct a controlled explosion for eight minutes. You are sitting on a pile of explosives. The launch position requires you to have your back to the ground. For the first eight minutes, you feel three times as heavy as your regular weight because you are accelerating. It feels like you are on a roller coaster when the shuttle is accelerating. Then when you get to space you feel a weightlessness, like you are floating in water. That is what it feels like to be in space."

"The speed of the shuttle is approximately 28,000 kilometers per hour. You orbit the Earth every 90 minutes. Most shuttles are doing a Near Earth orbit, which is approximately 400-500 kilometers above the Earth's surface. It is difficult to see the sun and the stars at the same time because the sunlight is so bright that it overpowers everything else. You have to wear special sunglasses to protect your eyes from the sun."

Astronauts experiment in space to understand how the human body works, how animal bodies work; "it was like a flying science lab". They eat food which has been freeze dried. Some of the foods they eat include pudding, shrimp cocktail, and chicken stew. As long as it can be freeze dried, it can be taken to space. In space, water is made off the batteries. The fuel system uses oxygen and hydrogen to create electricity, which creates water. Water is the bi-product of this reaction.

Conclusions

- There might be planets with other stars that could be habitable for us. But within our galaxy there is not much possibility of life existing on any of the other planets.

SPACE TECHNOLOGY AND THE ROLE OF SATELLITE IMAGERY

Airbus Defence and Space, Fabio Vescovi

Satellite Imaging

Fabio Vescovi is an expert in Satellite Imaging of the Earth and has been studying images of Africa with a focus on agriculture. As the sun is giving energy to the Earth, the satellites collect this energy. Energy goes from the sun to the Earth and bounces off to the satellite. Periodically, every week we can collect images to see if vegetation on Earth is in good health. Colours are assigned to the images depending on the quality of the crops.

How Can We Use This Data?

As a farmer, the data can be used to monitor the state of crops. The images can also help authorities to financially support farmers in times of drought. Images can be used as a political tool or by insurance companies. A massive flow of information is coming to us from these satellites. The data processing unit is located in the United Kingdom and transforms the data into something that people can use through an application on their mobile phone.

Remote sensing data is coming from governments and private companies. What data is publicly available and which is restricted? How can the data be easily understood?

- A complex system of antennas and hardware require massive private and public funding. People do need to pay for this service. Certain images are available for free, but they are usually a product derived from the satellite image. You have to pay to transform the data.
- The whole data system can be purchased by governments and then sold to people individually. Insurance companies then sell insurance to farmers. Everyone has a role and everyone has to pay a price in an equal and fair way. Only then can the whole system be financially sustainable.

A big portion of East Africa will be covered by this system; however, the system does need to be expanded in order to be able to cover this whole area.

Conclusions

- Women are the solution to ensuring people living in remote areas have access to this app. This technology is quite complex and the information needs to be simplified. As women are often seen as being the trustworthy people in rural villages, they will be the ones who will be able to understand the complexity and also the simplicity of the problems.
- If women in the community stand behind the technology, then there will be a better chance of people understanding and using the technology.
- In addition, women are good at expressing the issues and needs of the community which makes them a valuable link between those creating the technology and those using it.

LEADERS' LUNCHEON

The UN Environment's Governance Affairs Office organized a 90-minute *Leaders' Luncheon*. The Luncheon brought together Heads of State, ministers, leading policymakers and private sector leaders to discuss pollution beyond the normative narrative. The objective of this meeting was to discuss the impacts of pollution, specifically water and air pollution, share best practices and generate ideas about how private sector and government can work together to tackle different kinds of pollution.

Erik Solheim, Executive Director of UN Environment, opened the discussion by highlighting the importance of public-private partnerships and how private sector leaders as change-makers need to be identified in order to encourage others to follow. While Miroslav Lajcak, President of the United Nations General Assembly, encouraged more dialogue around pollution challenges.

Patricia Espinosa, Executive Secretary of the United Nations Framework Convention on Climate Change, linked in the urgency of climate change, which requires global cooperation. This need for cooperation was also a key outcome of the Conference of the Parties 23rd session. Moreover, the resilience of communities to climate change needs to be enhanced and partnerships are necessary in order to make this happen. She noted the need for a full transformation of our societies, and stressed that we need to alter the way we live and govern our societies. She argued that it is important to look at individual countries and understand their specific position, resources, and politics. The UN should support these processes of transformation, she said, and work in an integrated manner taking into account the

realities of individual communities and connect them with those who can provide solutions. She noted that the UN's role in all of this will be to work more closely with business in order to effectively bring advice and offer expertise in the years to come.

Axel Threlfall, Editor at Large at Thomson Reuters, and moderator of the Luncheon, opened the floor and reached out to private sector leaders to identify challenges and the possible solutions for tackling water and air pollution.

Discussion Points

James Donovan, Chief Executive Officer of ADEC Innovations, discussed the challenge for business to work towards the Sustainable Development Goals. He stated that businesses are looking for direction and clear investment signals. There is a need to bridge the gap between business, which is mainly preoccupied with profit, and the world of non-governmental organizations the United Nations.

Nikhil Joshi, Chief Executive Officer of the Sapat Group, identified the major issue needed to change our mindsets to no longer see the environment as an externality. We need to stop dumping waste and consuming resources. Instead we need to focus on regenerating the environment, which can also provide job opportunities.

Fabio Vescovi of Airbus Defence and Space addressed the need to make technology more easily available to people. Developing new technologies will only be beneficial if we can find a way to make the technology accessible to communities and the people who will actually make use of them. This is necessary in order to ensure that we stay in control of technology rather than allowing technology to dominate us.

A representative from Marchica Med highlighted the work the company has been doing with cleaning up lagoons in Morocco. When they experienced push back from the community living around the lagoon, they decided to hire the residents to do the work, thus creating jobs while also cleaning up the environment and raising awareness among community members.

Speaking: Executive Director of UN Environment, Mr. Erik Solheim.

Left: H.E. Mr. Anthony Carmona, President of Trinidad and Tobago. Centre: Mr. Ibrahim Thiaw, Deputy Executive Director of UN Environment. Right: H.E. Mr. Miroslav Lajčák, President of the UN General Assembly.

Second from right: Ms. Mae Jemison, CEO of 100-year Starship. Third from left: Ms Patricia Espinosa, Executive Secretary of UN Framework Convention on Climate Change. Accompanied by UN Environment Staff.

Conclusions

In the conclusion of the Leaders' Luncheon, it was highlighted that the private sector always tends to be ahead of the curve when it comes to new developments and technologies. They are often ahead of government and legislation. Therefore, the government can be slow when it comes to properly regulating the private sector. The solution to this involves private sector and government working together to make decisions together. It will be good for business to think about their longer-term business model, while also allowing government to remain relevant and up to date.

Former NASA Astronaut Mae Jemison emphasized the need to develop an atmosphere which can continue to support our life forms. She pointed out that it is our collective responsibility to ensure that we survive as a species. Innovation and technology can be used as a tool to make things happen in the world. There is so much technical potential but we need a collective narrative which we can all work on together. Mae Jemison discussed her own "Look Up Initiative" which encourages us to look up and see ourselves as Earthlings first above everything else. We are connected to the planet and the sky above us, as well as to each other. The atmosphere is a connecting force and we need to see ourselves as earth inhabitants first in order to work to maintain the planet we live on and sustain the survival of our species.

LEADERSHIP DIALOGUES

The *Leadership Dialogues* were held on 5 December 2017 at the 3rd session of the UN Environment Assembly and were part of the high-level segment. These *Dialogues* were designed to provide participating ministers with an opportunity to intensify high-level engagement with private sector and civil society leaders, and to discuss and articulate solutions and contributions towards a pollution-free planet.

The Dialogues were guided by the recommendations made in the Executive Director's report "*Towards a Pollution-free Planet*". It was an opportunity to address a full spectrum of issues relating to the multifaceted theme of pollution, and to inject political momentum and direction towards addressing key policy, identifying principles and transformative actions at the global, regional, national and local levels on key pollution risk areas.

Dialogue 1

SCIENCE, EVIDENCE AND CITIZENS' AWARENESS FOR CHANGE

Organized by UN Environment's Science Division

This session discussed the potential for harnessing science and technology to catalyze and drive forward a critical step-change toward polices and solutions. Distinguished speakers highlighted several existing and future opportunities that are gaining traction across their respective countries, contexts and constituencies. Several recurring and prominent themes emerged in the session including the need for knowledge integration; strengthened partnerships and collaboration with business sector, effective private enterprise and public policy/decision-making entities; the need to simplify and mainstream science, data and environmental information; the need for real-time data flows including monitoring systems; and the need to realize the critical link between health and environment.

Speakers

H.E. Mr. Lamin B. Dibba, Minister of Environment, Gambia

H.E. Mr. Yasuo Takahasi, vice-Minister for Global Environmental Affairs, Japan

Mr. Enrique Lendo Fuentes, Head of International Affairs, Ministry of Environment, Mexico

Dr. Maria Neira, Director, WHO

Dr. Joao Rando, InpEV, Brazil

H.E. Mr. Harsh Varadhan, Minister of Environment, Forest and Climate Change, India

Ms. Cristiana P. Palmer, UN Assistant Secretary General and Executive Secretary, CBD

Ms. Inger Andersen, Director General, IUCN

Mr. Wayne Balta, Vice President of Corporate Environmental Affairs, IBM

Mr. Roald Lapperre, Director General for the Environment and International Affairs, The Netherlands

Mr. Yonglong Lu, Co-Director Research Center for Eco-Environmental Sciences (RCEES), Chinese Academy of Sciences (CAS)

Main takeaway messages

1) Science-based decision making remains the most effective approach for developing response options and mitigating problems; deployment of solutions has at its core technology and innovation which are enabling new ways for tackling complex problems (such as artificial intelligence systems).
2) Growing awareness of the nexus between health and environment—in large part driven by advancements in science and technology – has revolutionized how decision-makers respond to complex environment pressures; there is, for example, improved understanding that the price of pollution is often paid in human lives, and that the health benefits generated by interventions can greatly offset their costs.
3) Despite massive proliferation of ("big") data and the advancements in data analytics and computing, attaining reliable and relevant information to our citizens and particularly those most vulnerable in an affordable and timely manner remains a key barrier.
4) Technology, science and innovation contribute to improving early warning systems; this is of critical importance as our populations become increasingly concentrated and exposed to environmental threats (for example through urbanization).
5) Mainstreaming science and making technological innovation both available and accessible is a critical next step; it is in particular important to think about new ways to engage with and include youth and to bring together science and private industry, as they are important driving forces in leveraging technology and innovation solutions.

It is imperative for the collective environmental community to think about new ways to engage and include youth and to bring together science and private industry/ business. These are playing a more important role than ever before in leveraging technology and pushing innovation toward solutions.

Commitments

Please Note: The following were not expressed as specific "commitments" as such, but were offered as new actions being taken to address various issues related to pollution:

Government of The Gambia has implemented a real-time system for detecting wildfires.

The World Health Organization is committed to near-real time data provisioning and has released a map that connects urban pollution levels with their related health impacts.

Government of Japan is systematically promoting Education for Sustainable Development across the country.

Government of India has approved an act against smoking in public spaces and launched a targeted campaign to mainstream awareness about health and the environment.

The **Netherlands** have established a legally independent agency for environmental assessment of policy and a Global Centre of Excellence for Climate Change Adaptation together with UN Environment for sharing knowledge.

IBM is using advanced big data analytics and Artificial Intelligence to improve the environmental sustainability of its business.

IUCN has created a global register of introduced and invasive species in collaboration with CBD.

In **Brazil**, the **InpEv** has put in place a system for addressing the environmental impacts of the pesticides industry that includes 100% of manufacturers.

Dialogue 2

REGULATORY FRAMEWORKS, INSTITUTIONS AND THE RULE OF LAW TO ADDRESS POLLUTION

Organized by UN Environment's Law Division

This session explored why legal, regulatory and institutional frameworks are of such vital importance in effectively addressing pollution and how they can - and have been - used to empower governments, the private sector, civil society and individual citizens in the transition towards a pollution-free planet.

Speakers

Mr Karmenu Vella, EU Commissioner for the Environment, Maritime Affairs and Fisheries

Prof Geoffrey Wahungu, Director General, National Environmental Management Authority of Kenya

Mr Sverre Thomas Jahre, Senior Advisor, Ministry of Climate and Environment of Norway

Mr Laurent Fabius, President of the Constitutional Council, Republic of France and UN Environment Patron on Environmental Governance

Ms Patricia Espinosa, Executive Secretary of the Secretariat to the United Nations Framework Convention on Climate Change

Mr Jorge Jurado, Undersecretary of Environmental Quality of Ecuador

Ms Tina Birmpili, Executive Secretary of the Ozone Secretariat

Mr Rolph Payet, Executive Secretary of the Joint Secretariat of the Basel, Rotterdam and Stockholm Conventions

Mr Marco Lambertini, Director General of WWF International

Ms Olga Algayerova, Executive Secretary of United Nations Economic Commission for Europe

Prof John Knox, UN Special Rapporteur on Human Rights and the Environment

Main takeaway messages

1) Legal and regulatory frameworks are essential for tackling pollution, which does not respect borders and requires a cross-cutting response. A mix of legal instruments is needed for the achievement of political aspirations and to support policy. Legislation needs to be customized to suit national circumstances and provide adequate flexibility in order to achieve countries' defined targets. Robust institutions are a prerequisite for the implementation of the law.

2) All stakeholders, including the private sector, civil society and citizens, should be engaged in addressing pollution. The rule of law empowers stakeholders to take action, which can be improved through greater transparency and access to information.

3) Systemic challenges include long time frames required to enact new legislation, which is in contrast with the urgency of many environmental challenges. Once laws have been enacted, strong political will is required for effective implementation. Moreover, implementation requires enhanced financial resources, in particular in developing countries, and more can be done to effectively ensure punitive action for crimes relating to pollution.

4) There is a need for greater international cooperation. Multilateral environmental agreements provide internationally-agreed ground rules on, among other things, tackling climate change, sound management of hazardous wastes and harmful chemicals, and the phase-out of ozone-depleting substances, all of which are designed to address pollution. At the regional level, various Conventions, notably in Europe, relating to waste, environmental impact assessment in a transboundary context, long-range transboundary air pollution, and access to information, public participation in decision-making and access to justice in environmental matters serve as good examples of cooperation at regional level. However, national legislation is absolutely necessary for their implementation. There is a need to learn from each agreement, and to share country experiences and best practices in the successful implementation of these agreements.

5) The need for a comprehensive international legal instrument may be considered to assist in specifying environmental rights, tackling environmental damage, and provide a basis for a third generation of environmental law. UN Environment can play an important role to play to support such an initiative.

Note: Many of the key messages discussed during this Dialogue emerged from the experiences of Ecuador, the European Union, Kenya and Norway.

Dialogue
3

PRACTICAL SOLUTIONS TOWARDS A POLLUTION FREE PLANET

Organized by UN Environment's Ecosystems Division

This session discussed practical solutions on addressing pollution challenges and how those are supported by science, business, and innovation. Speakers were invited to share their experiences and lessons learnt, highlighting what they considered success factors. The discussions focused on air, land and soil, freshwater, marine and coastal, and waste.

Speakers

Ms Judith Garber, Principal Deputy Assistant Secretary, Bureau of Oceans and International Environment and Scientific Affairs, USA

Ms Hu Weiwei, CEO, Founder Mo-Bike Ltd, China

Mr Alexander Jones, Director, Climate and Environment Division, FAO

Mr Tony Simons, Director General, World Agroforestry Centre

Ms Martha Rojas Urrego, Secretary General of the Ramsar Convention on Wetlands

H.E. Mr Zeev Elkin, Minister of Environmental Protection of Israel

H.E. Mr Masagos Zulkifli Bin Masagos Mohamad, Minister of the Environment of Singapore

H.E. Mr Kimmo Tiilikainen, Minister of Environment of Finland

H.E. Mr Said Zarrou, President Marchica Med Board, Morocco

Main takeaway messages

1) Partnerships comprises both public-private partnerships and multi-stakeholder partnerships across different levels – from federal to state, regional and local levels, including transboundary collaboration (such as the Global Soil Partnership).

2) Data collection and analysis are of key importance for science-based decision-making and for establishing the economic and social costs of pollution.

3) Effective communication, working from a common knowledge base, and making full use of scientific evidence is essential to promote practical solutions.

4) Cheaper, more affordable and accessible new technologies can transform as well as adapt old and more polluting technologies; using new technologies such as the Internet, Global Positioning Systems and smartphones can for example promote public transportation, such as bike sharing.

5) More involvement of the private sector is crucial, for example in finding options for de-risking through farming insurance and other financial instruments.

6) In the context of land and soil pollution, proven practical solutions include rapid and cheap assessments to guide fertilizer use.

7) Food should be produced without polluting our agriculture base, safeguarding the health and vitality of our land.

8) Natural infrastructure can be used as an approach to pollution management, i.e. sustainable use of wetlands can be included as part of pollution and waste management strategies, to restore ecosystems, recycle and re-use wastewater. The use of bio-remediation was also discussed.

9) Inclusive participation of all stakeholders is key to build a greater sense of ownership; for example, “electronic government” can minimize the need for travel to access public services.

10) There is a need to use more holistic approaches – looking at regulation, pricing of freshwater, creating economic incentives for technologies development in an integrated manner –also to bring together responsible ministries (e.g. ministries of agriculture, energy, environment and finance).

11) The innovative power of the private sector can be harnessed by using demonstration projects, provided it is kept under regulatory control.

12) Regulation and economic incentives such as eco-taxes to support waste management is key to promote practical solutions, as is guidance for green public procurement.

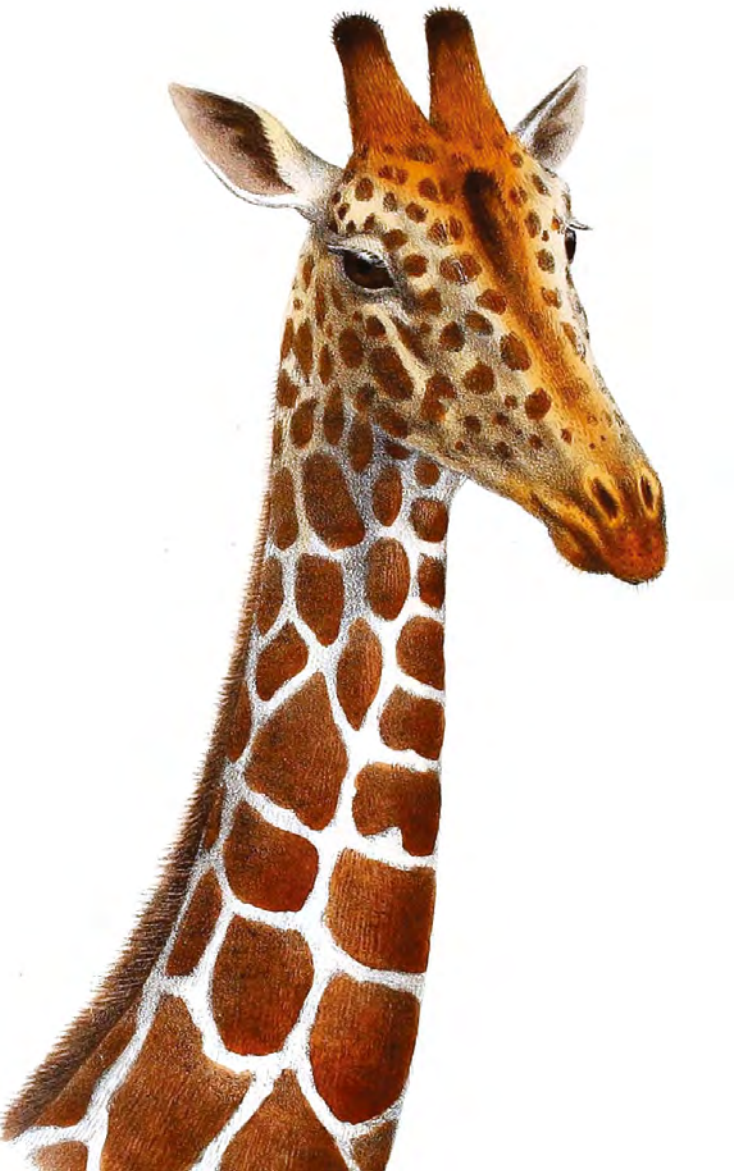
Commitments

Please Note: *The following were not expressed as specific "commitments" as such, but are worth noting.*

United States of America (USA): Megacities partnership announced as part of the US commitments for the 3rd UN Environment Assembly.

The Food and Agricultural Organization (FAO): Voluntary Guidelines on Sustainable Soil Management was published earlier this year.

Israel: Created a special interdepartmental framework to address water pollution and scarcity issues.



Dialogue

4

FINANCING AND INNOVATION TO COMBAT POLLUTION

Organized by UN Environment's Economy Division

This session explored the importance of policy formulation in harnessing financing and innovation to combat pollution. Participants shared successful models of engaging with the private sector and financial institutions, of incentivizing green investments, and of creating markets for more environmentally friendly and resource efficient goods and services.

Speakers

Ms Edna Molewa, Minister of Environment of South Africa

H.E. Jochen Flasbarth, State Secretary, Federal Environment Ministry, Germany

Ms Caroline Heider, Director General, Evaluation, Senior VP, World Bank Group

Mr. Daniel Calleja Crespo, Director General for the Environment, European Commission

H.E. Ms Carole Dieschbourg, Minister of Environment for Luxembourg

Mr Rob Barker, Director for Sustainable Investment, BNP Paribas

H.E. Mr Norbert Kurilla, State Secretary, Ministry of Environment, Slovakia

Main takeaway messages

1) The scope of financing required to address the challenges of climate change, pollution and environmental degradation, while also promoting the transition to a green economy, requires significant efforts to optimize investment from the private sector.

2) It is important to broaden efforts beyond 'climate finance' to leverage investments towards pollution abatements, resource efficiency and a green/circular economy.

3) Providing platforms to gather relevant stakeholders and engage with the private sector and financial community has proved key to ensuring effective communication and collaboration and foster partnerships. This includes intra-governmental communication and cooperation. The convening power of international organizations is important in this respect.

4) There is a range of policy instruments available to governments, including a) taxation, b) enabling regulation to modify behaviour, c) direct investment, d) leveraging the convening power, and d) leading the way for example through public procurement.

5) Demonstrating the business opportunities has been key to engaging the private sector.

6) There is a need for further training and skill development in sustainable finance and green sectors, in particular among youth.

Commitments

Please Note: The following were not expressed as specific "commitments" as such, but were offered as new actions being taken to address various issues related to pollution:

South Africa has introduced both regulatory and voluntary banking and sustainable finance initiatives that have proven effective in leveraging sustainable finance. These include voluntary principles introduced by the Banking Association for the management of environmental and social risks, and a Code for Responsible Investing in South Africa (CRISA).

Luxemburg shared their experience in securing 50% of global green bond issuance on their stock exchange, including the establishment of a multi-stakeholder Task Force to create a Toolbox of innovative instruments. Collaboration with the European Investment Bank (EIB) led to the development of a Climate Finance Platform, which has been expanded to cover biodiversity, pollution and sustainable development more broadly. They were also involved in developing the Climate Finance Accelerator and its training mechanism.

Canada provided examples of the public sector leading the way through direct investment such as their multi-billion Clean Infrastructure Fund.

Germany highlighted the importance of public investment in promoting investment in new markets, providing the example of their feed-in tariff for renewable energies.

Slovakia described how they are leading a Green Economy Transition Platform at the EU-level, bringing policy makers, businesses, academia and civil society to gather best practices and enhance partnership and replication. At the national level, they have collaborated with the private sector and education to develop a Green Education Fund to promote awareness raising activities aimed at youth.

The **European Commission** mentioned its successful Emissions Trading Scheme, the EU external investment plan for investment in a green economy in developing countries, and its upcoming Strategy on Sustainable Finance which will include guidance on green bonds and sustainable finance, taxation, disclosure and risks.

Indonesia has just launched an Environmental Management Regulation, which will allow for incentives and financial schemes.

The United Arab Emirates has green finance and the contribution of the private sector as a key component of its Green Growth Strategy and has launched two green funds – one of US$ 5.5 billion, and one by the Government of Dubai for US$ 10 billion. The Dubai Declaration has been signed by more than 13 financial institutions.

BNP Paribas presented the Tropic Landscapes Financing Facility – a 1 billion US$ Partnership with UN Environment in Indonesia with the aim of securing private capital for long term sustainable development projects at scale.

Ant Financial presented their mobile payment application and associated tree planting scheme as an example of how digital technology and innovation can drive behavioral change for environmental protection.

WAY FORWARD

The private sector is becoming more aware of the global environmental challenges and the need for a universal solution, as reflected in the 2030 Agenda for Sustainable Development. The private sector, ranging from micro-enterprises to cooperatives to multinationals, is expected to play a pivotal role in achieving the 17 Sustainable Development Goals that define the 2030 Agenda. Ultimately, the private sector will be an active source of innovation, solutions and finance in tackling the environmental challenges of our world, such as pollution, in the quest for sustainable development.

Through the success of the 2017 *Sustainable Innovation Expo*, the Leaders' Luncheon and Leadership Dialogues, private sector leaders, policymakers, environment ministers, heads of UN Agencies, government leaders, and civil society representatives were able to showcase and discuss solutions to environmental challenges and, in so doing, support meaningful progress. Moving forward, we need to foster and take action on the resulting solutions from this Assembly in order to create a sustainable, healthy environment.

In the coming year, UN Environment is continuing to strengthen the Private Sector Unit which serves as the catalyzing and coordinating hub for the organization's engagement with private sector entities. Discussions will continue to be held, bringing together policymakers and private sector leaders to find solutions to the world's greatest environmental challenges.

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The closing plenary session of the 2017 United Nations Environment Assembly.
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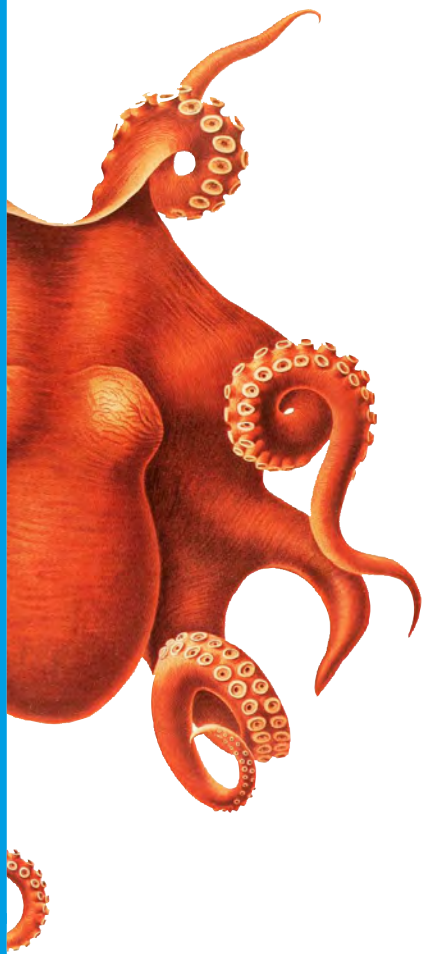
Contacts

Kamar Yousuf
Senior Programme Officer &
Coordinator, Private Sector Unit
Governance Affairs Office
Email: kamar.yousuf@un.org
Telephone: +254 20 762 5133

Mia Turner
Programme Officer
Private Sector Unit
Governance Affairs Office
Email: mia.turner@un.org
Telephone: +254 20 762 5243

Charlotte Ndakorerwa
Associate Programme Officer
Private Sector Unit
Governance Affairs Office
Email: charlotte.ndakorerwa@un.org
Telephone: +254 20 762 5122



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