United Nations Environment Programme

Fourth GEO-6 Innovative Scenarios and Policy Pathways Stakeholder Visioning Workshop

Regent Singapore Hotel
Singapore
February 21, 2018

SUMMARY REPORT

This workshop report has been produced as part of the UN Environment's sixth Global Environment Outlook (GEO6) process and the development of the *Innovative Outlooks* section of the forthcoming assessment. The following report summarizes the outcomes and deliberations of participants in the first of a series of stakeholder visioning workshops to elicit and explore innovative ideas (or 'seeds of change') that stakeholders believe could lead to positive futures and help realize the achievement of the sustainable development goals (SDGs). Building on the "*Seeds of Good Anthropocenes*" initiative[1], the basic concept was to identify a suite of complementary existing initiatives (social, technological, economic or otherwise) that are not yet widespread or well-known, that together, provide elements with which to envision alternative scenarios. The ideas and discussions generated from the interactive exercise described here will provide input into the GEO6 narrative on outlooks and the assessment of target-seeking pathways. The experience of the workshop will also inform ongoing work on new ways to approach scenario analysis in global environmental assessments including future GEO processes. The workshop took place in Singapore on February 21, 2017 and involved approximately x participants.

Visioning Workshop Objectives

1. To elicit innovative initiatives or ("seeds") and proposals that stakeholders believe could help achieve the Sustainable Development Goals (SDGs);
2. To provide examples of specific solutions within the pathways generated by the modeling section of the outlook; and
3. To start the process of linking the innovative scenarios with the policy section in a way that is most useful for decision makers.

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[1] The "Seeds of a Good Anthropocene" is a collaboration led by McGill University, the Stockholm Resilience Centre, and the Centre for Complex Systems in Transition at Stellenbosch University. The initiative, which began in 2014, is premised on the notion that dystopian visions of the future may be inhibiting our ability to move towards a positive future for the Earth and humanity. For more information see: https://goodanthropocenes.net/

<u>**Wednesday, February 21**</u> – 9:30 to 14:00

<u>Introduction to the GEO 6 Outlooks chapter and workshop goals</u>

A brief video introduced participants to the 6th Global Environmental Outlook (GEO 6) report, the *Innovative Outlooks* process, and the goals of the workshop. The video captured framing remarks from Dr. Joyeeta Gupta, Co-Chair of the Global Environmental Outlook, who provided an overview of the Global Environmental Outlook Report, which brings researchers from around the world together to discuss ways to address environmental challenges. Dr. Gupta outlined the report's focus on identifying: the *driving forces* and *pressures* behind environmental challenges, and the resulting change in the *state of the environment*; the *impacts* of this altered environment, and potential *responses* to these consequences (the DPSIR method). The report, she noted, aims to convince "all the different actors, from a local to global level, from governments to the private sector to be able to engage with trying to create a healthy planet for healthy people."

Dr. Detlef van Vuuren, a Lead Author of the GEO 6 Outlooks Chapter, continued the video's overview with a description of the Outlook Chapter's approach to using scenarios to identify strategies for achieving an integrated set of Sustainable Development Goals (SDGs). The path to realizing the SDGs remains uncertain, as does the path to accomplishing these goals simultaneously, in ways that account for trade-offs and harness linkages and synergies between them. For instance, one route to achieving increased agricultural yields and securing greater food security could involve the use of greater fertilizer inputs, potentially jeopardizing goals related to freshwater protection and climate change. The Outlook section explores the interactions and feedback loops between social, economic and environmental drivers, in order to assess the effectiveness of different policy pathways in moving the world towards a more sustainable and desirable development trajectory.

Professor van Vuuren's research group has applied an integrated assessment model to identify strategies for achieving the SDGs, highlighting three potential pathways: global technology, which focuses on large-scale, technologically-optimal solutions (e.g., intensive agriculture supported by a high level of international cooperation); lifestyle and consumption changes, which focuses on shifting human consumption patterns (e.g., limiting meat consumption, reducing waste, and adopting less energy-intensive lifestyles), and decentralized solutions (e.g., local renewable energy production, national policies that foster equitable access to food) (see Table 1).

Pathway	Main assumption
Global Technology	Achieves the 2050 targets, with a focus on large-scale technologically optimal solutions, such as intensive agriculture and a high level of international coordination; for instance, though trade liberalisation
Decentralised Solutions	Achieves the 2050 targets, with a focus on decentralised solutions, such as local energy production, agriculture that is interwoven with natural corridors and national policies that regulate equitable access to food
Consumption Change	Achieves the 2050 targets, with a focus on changes in human consumption patterns, most notably by limiting meat intake per capita, by ambitious efforts to reduce waste in the agricultural production chain and through the choice of a less energy-intensive lifestyle

Table 1: Different pathways (combinations of technological and life-style measures) to achieve a set of goals. (Source: PBL, 2012)

As Dr. Laura Pereira, a Lead Author of the Outlooks Chapter, explained, a section within this chapter will ground these aggregated pathways in concrete examples of specific solutions. These "game changer" projects help achieve the SDGs, especially if they work together. To identify game-changing projects, a series of events and platforms are engaging a broad set of stakeholders, spanning government, business and civil society, to contribute project ideas and suggest strategies for combining different initiatives. Stakeholder workshops in Bangkok, Guangzhou, Nairobi, and Singapore aim to directly engage and foster collaboration and dialogue between different sectors, to gather ideas about innovative projects as well as the policy enabling environments needed to foster and grow these activities. The GEO-6 Outlooks chapter has also engaged Massachusetts Institute of Technology's (MIT) Climate Co-Lab Project to host a contest for synergistic solutions for sustainable development to encourage crowd-sourced solutions to meeting multiple SDGs by 2030.[2]
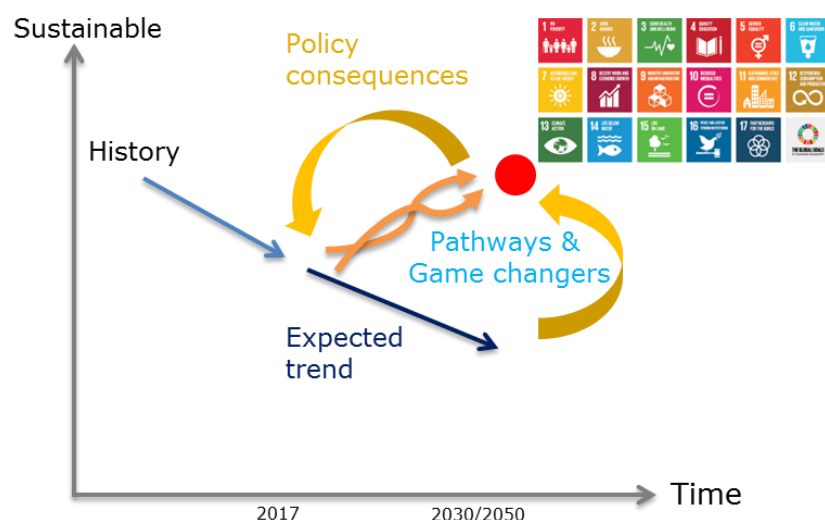

Figure 1. A conceptual framing of the proposed overarching narrative of the Outlooks chapter.

In summary, as Figure 1 illustrates, the Outlooks chapter will consider both a top-down assessment of pathways and a bottom-up assessment of game-changers. These dual perspectives will inform the chapter's exploration of how to achieve the SDGs in 2030 and its identification long-term or mid-century strategies for achieving sustainability in 2050.

Seeds and Pathways Workshop

Following this introduction to the GEO report and the Outlooks Chapter, Dr. Pereira provided an introduction to the workshop and explained the objectives and the overall proceedings for the interactive game-changer session. She noted that the current workshop would explore how different but complementary scenarios and policy pathways could help achieve of the sustainable development goals (SDGs), and shared the guidelines around the workshop's game-changer workshop and visioning exercise.

The game-changer visioning exercise is an attempt to counterbalance the current dystopian visions of the future that may be inhibiting the world's ability to envisage and move towards more positive futures, including the attainment of the SDGs. The exercise has been adapted from the *Seeds of Good*

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[2] Additional details about the contest are available at: https://www.climatecolab.org/contests/2017/exploring-synergistic-solutions-for-sustainable-development.

Anthropocenes project (Bennett *et al.,* 2016), and seeks to solicit, explore and develop a suite of alternative, plausible and positive visions of desirable futures.

Participants worked together, in six groups, to identify "game-changer seeds," based on initiatives or ideas that already exist. Each group focused on identifying seeds that fall within one of the three previously identified pathways towards the SDGs: global technology, decentralised solutions, or lifestyle change. These seeds could include social initiatives, new technologies, economic tools or social-ecological projects, as well as organisations, movements or new ways of acting that help create a just, prosperous and sustainable future (Hamann *et al.,* 2016). Worksheets and an online form prompted participants to generate new seeds (Appendix I and Appendix II), and to consider their strengths, weaknesses, and ability to grow, be replicated, or foster deeper change. Through dialogues, participants then developed proposals that combined two or more seeds to create new, integrated solutions that helped realize the SDGs (Appendix III and Appendix IV). Appendix V includes a full list of the seeds and proposals elicited through the game. Judges circulated among the groups, helping foster discussions and prompting participants to identify seeds and proposals that fit within their designated pathways. The game's scoring system rewarded the generation of new seeds and proposals and the creation of proposals addressing multiple SDGs.

Participants charted the current state, potential game-changers, and desired state in several areas and sectors including: energy, technology, transport, agriculture, and infrastructure. Several key threads emerged from these discussions:

- *Environmental monitoring* - How can citizens and stakeholders help monitor, track, and access changing environmental conditions? Seeds submitted brought up the use blockchain-based open source reporting, smart water sensors to monitor drainage, open data platforms, satellite imagery, and app-based citizen monitoring of pollution.
- *Circular economy* – How can resource and material loops be closed? Participants spoke about "trash to treasure" flea markets, a circular economy initiative database, and training people to repair their broken products. A large focus is on actions that can be taken at the community level.
- *New and improved methods of farming* - How can food production be increased, particularly in urban environments? Seeds included the use of shipping container farming, local community gardens, and smart farming.

The conversation closed with a call to submit entries to the Climate Co-Lab competition on *Exploring Synergistic Solutions for Sustainable Development*, or to send them to the workshop organizers via email.

References

Bennett, E.M., Solan, M., Biggs, R., McPhearson, T., Norström, A.V., Olsson, P., Pereira, L., Peterson, G.D., Raudsepp-Hearne, C., Biermann, F. and Carpenter, S.R., 2016. Bright spots: seeds of a good Anthropocene. *Frontiers in Ecology and the Environment*, *14*(8), pp.441-448.

Hamann M., Biggs R., Pereira L., Preiser R., Hichert T., Merrie A., Cloete D., Poskitt S., Loubser G., Salley R., Blanchard R., Coetzee H., Fioramonti L., Gomera M., Hermanus L., Johnson G., Johnson L., Karakashian A., Khan Z., King N., Mannetti L., Mbete S., Moteane S., Mthembi F., Mumba M., Nilsson W., Nkontwana P., Odendaal P., Sanchez Betancourt D., Shimahara E., Xaba N., Ziervogel. 2017. Report on the Anthropocene Visioning Workshop, 15-18 November 2016, Cape Town, South Africa. GRAID project workshop. Centre for Complex Systems in Transition, Stellenbosch University, South Africa

PBL (2012). Roads from Rio+20: Pathways to achieve global sustainability goals by 2050, in: Van Vuuren, D.P., Kok, M.T.J. (Eds.). PBL Netherlands Environmental Assessment Agency, Den Haag/Bilthoven, the Netherlands.

Sharpe, B., Hodgson, A., Leicester, G., Lyon, A., & Fazey, I. (2016). Three horizons: a pathways practice for transformation. *Ecology and Society*, *21*(2).

Appendix I: Seeds and Pathways game – Paper seed form

A brief description of the seed initiative	
What social, environmental or integrated challenges is it engaging with? What SDGs does this seed address?	
What stage is it in? Startup? Established? Long-running?	
Where is it based?	
What are the initiative's most innovative aspects and main strengths?	
Why is it particularly interesting when we are looking for ways to tackle the global challenges related to the GEO?	
What are the seed initiative's main weaknesses?	
Which types of actors are involved? Government? Grassroots organizations? Private sector? Etc.	

Appendix II: Seeds and Pathways game - Online seed form

What is the title of your seed?	Open-ended response
A brief description of the seed initiative. Be sure to highlight the main strengths or innovations of your seed.	Open-ended response
What social, environmental or integrated challenges is it engaging with?	Open-ended response
Which SDGs does your seed address?	Form Options: - All 17 SDGs
At which geographic scale is your seed targeted?	Form Options:

	- Individual - Local/community - Regional/national - Global
Is there a specific country where your seed occurs?	Open-ended response
What system is addressed?	Form Options: - Food (agriculture, land use and biodiversity) - Energy (climate change and air pollution) - Water (fresh water and oceans) - Human development
Which types of actors are involved?	Form options: - National governments - Subnational and local - Business/private sector - Intergovernmental agencies/international groups - Civil society (grassroots organizations, NGOs) - Academic institutions/higher education - Individuals and households
Are there any trade-offs associated with your seed (e.g. in terms of SDGs)?	

Appendix III: Seeds and Pathways Game - Paper proposal form

What Seeds are part of this proposal? Which Pathway Seeds did you add yourself?	Check
How are the seeds combined?	

How does the proposal help realize the pathway – toward what SDGs?	
What policy changes are needed to help realize the proposal in this pathway? How can policies help deal with any trade-offs related to other SDGS?	

Appendix III: Seeds and Pathways Game - Online proposal form

What is the name of your proposal?	Open-ended response
What seeds are part of this proposal?	Open-ended response
How do the seeds work together to achieve your proposal's goal?	Open-ended response
How does your proposal help realize the pathway (i.e., Global Tech, Decentralized Governance, Consumption Change)?	Open-ended response
What policy changes are needed to help realize the proposal pathway? How can policies help deal with any trade-offs related to other SDGs?	Open-ended response

Appendix IV: Game-changer seeds and proposals elicited from participants

Name	Description
Renewable energy microgrids	Renewable energy microgrids implemented in climate and disaster vulnerable areas to strengthen the energy security, resilience and the ability for remote or secluded communities to bounce back from climate events.
Celebrating Singapore Shores	Platform to bring together marine groups to celebrate the

	International Year of the Reefs. This occurs every 10 years.
Plastic waste footprint calculator	Similar to carbon footprint calculation for individuals, an app/website that approximates the plastic waste footprint of individuals based on their daily lifestyle. The app can then summarize or extrapolate how much the person generates in a week/month/year and provide suggestions on how they can personally tweak their lifestyle to reduce plastic waste.
Blockchain open source reporting	Using blockchain as a tool to aid in CSOs reporting. Using technology to ease reporting and measuring data and impact so as it could help cso to report and raise awareness.
Solar Light Cooperative	Decentralized community and cooperative based power grid. Prioritizes poor and underserved communities. Communities manage their own systems and operates like a cooperative.
Implementation of biomimetics for lifestyle change	To keep the linkage between industry and biodiversity conservation. A project to promote biomimicry - technology inspired by nature. Biomimetics as cultural services inspired by ecosystem services. For example, we have swimsuits that are inspired by the skin of the shark, city planning model inspired by the ecosystem itself.
Marina barrage	Using barrage as a case study to alleviate flooding issues auto flood gates
Using Drone to environmental assessment before development	Collect of Real time environmental informations such as air quality and forest structure
Repair Kopitiam	Conducting monthly repair workshops to teach residents in different areas to repair appliances and reduce e-waste. Also involves uploading a series of videos so that anyone can conduct their own workshops. A strength is that everyone can gain repair skills and this also brings back a culture of repairing items.
Drainage water level sensors	Sensors to monitor water level of drains and canals to provide real-time site conditions update during heavy storms, to improve response times to floods. This would be really useful for urban cities with dense canal system.
Melbourne open data platform for environmental management	Collate information on all the trees in the city of Melbourne
Satellite imagery to detect the palms health	Ability to detect the affected trees without a need to destructive methods.
Urban Farming by using traditional vegetables	Urban Farming in Tokyo Metropolitan area of traditional and indigenous vegetables. Agricultural cooperatives that keep the traditional seeds to promote regional culture and identity. (for example, white radish)
Citizen pollution monitoring	Giving citizens the tools to report on local pollution (especially vehicles). One strength is that is leverages pre-existing technology and another strength is that it makes pollution visible.

China Black and Smelly Waters app	Citizens can report instances of foul or smelly water in urban areas through a smartphone app that connects to WeChat. Local government officials have to respond within 7 days to the complaint.
Repair Kopitiam	"Kopitiam" is a neighborhood coffee shop. This project is run by SL2 (Sustainable Living Lab). Underneath public housing the organisation sets up an area where residents can bring down broken items to get fixed. The volunteers teach the residents how to fix electronics, clothing, household and consumer items etc. Typically items of emotional value. Afterwards, pictures are taken. This is set up somewhere around the city every Sunday.
Citizen science reporting	Shared data collected by individuals helping the different cause.
Carbon dioxide capture for decarbonisation of atmosphere	Direct air capture of CO2 from ambient air through engineered chemical reactions. The plant sits on top of a waste heat recovery facility that powers the process. Fans push air through a filter system that collects CO2. When the filter is saturated, CO2 is separated at temperatures above 100 degrees Celsius. The gas is then sent through an underground pipeline to a greenhouse.
Seed water	You can drink water without plastic bottle water
Seaweed farming for livestock feed	Seaweed as a feed substitute for livestock and dairy cattle. Seaweed has been shown to to reduce the amount of methane produce by ruminating animals.
Transport Network Vehicle Systems	Big data-based transport system. Users hail rides in the most convenient way using smart phone apps. Offers lower ownership costs per passenger-km and reduces environmental impacts of transport. It is a potential solution to reduce private car use. People get to share rides, while still having the comfort and convenience of private transport.
Underwater reporting	Using a single video recording equipment and live share the video image for different people are the world to observe without being there
Versatile solar panel	Having solar panels everywhere to increase renewable energy use
Solar farming	Solar farming, large scale transition to renewable energy. Located on Low yielding agricultural land solar farming has provided Farmers experiencing reducing yields and effects of climate change with an alternative source of income. Additional solar farming supports the reductions of emissions and the transition to renewable energy. Solar farming has also created a new job market and income for many rural communities. Livestock as sheep can still be grazed under and around the panels.
Ecological Mangrove Restoration - Restore Ubin Mangroves Initiative	A community project to restore mangroves in abandoned Aquaculture ponds at Pulau Ubin. Mangrove restoration without planting. Community-based effort involving academics, fish farmers, nature enthusiasts, fishermen, marine advocates. Technology - based on scientific geographical mapping of the site to be restored

	(mangroves)
Swapping resources	To reduce buying and encourage swapping existing resources
Blue SG - Electric Carsharing	Similar to bike-sharing, 3-4 electric cars with charging stations are placed in heartland carparks. Residents can use it any time. Better than owning their own car.
Smart Farm	Smart farm uses a variety of technologies to monitor the state of vegetables. It helps farmers to know how much the vegetables and fruits need the sun and waters. It helps to make sure the food security.
Karthavyam (Dutiful citizens for SDG)	A hands on student diploma on public problem solving through the Sustainable Development Goals. The diploma is a 6 month programme with 4 pathways where children are taught via films, podcasts, and other media that can be easily shared. Classes involve experiential learning, designing localised initiatives, writing story books, watching films, and engaging with the community. A strength is that it uses visual mediums (filmmaking) to create a decentralised platform for knowledge sharing.
Heka Leka	bring together for social cohesion, community building through education.
Repair Kopitiam	Bring residents together to learn how to repair broken appliances in order to reduce waste. It also aims to reduce consumption, and also equip residents with employable skills. At the same time it also preserves legacies of twilight industries (such as cobblers, etc.)
Great British Bee Count	Individuals are encouraged to engage with bees (and biodiversity) by taking photos of bees and sharing it on a centralised platform. Individuals can also buy bee saving materials to plant flowers in neighbourhoods in exchange for photos of bees. A strength of the initiative is that it allows for data collection on bees. Additionally, it leverages pre-existing technology.
Global Circular Economy Database	A database that captures circular economy initiatives and sharing the information on a central platform. A strength is that it can mobilise many different groups to contribute to the database without much effort. This database can then act as a learning platform for others.
Edible cutlery	Cutlery made from wheat, rice, and sorghum. There are over 160 million tons of plastic cutlery used in India every year. An initiative sponsored by the Govt of India.
Horticulture along the banks of perennial rivers in India	The idea would be to replace plants by trees along the banks of perennial rivers in order to prevent soil erosion and to promote economic growth for farmers.
Trash to Treasure (Free flea market)	A free flea market where personal items and belongings that are unwanted can be redistributed to those who need them or could better utilise them. A strength is that it's free for everyone, can be organised anywhere, and doesn't require any technology.

Green Roofs	Planned and built green roofs and not just those green roofs that are imposed upon existing buildings. These green roofs can reduce energy use from air conditioning. Well built green roofs also collect rainwater and reduce the flow fast-flowing water, and also reduces the risk of flooding in flood-prone areas. Provides habitat for biodiversity.
Carpooling	Encourage students and faculty members of a given university to use car pooling as much as they can
Setting up of Wormery	The setting up of wormeries allows for the decentralization of food waste collection. Food waste is collected locally and composted locally using earthworms. The castings (worm poop) are used as fertilizers and they are sent to the community gardens.
Smart Solar Charging	Electric car sharing initiative in Utrecht
Skillsfuture SG	Decentralised education through multiple course providers and institutions, conducted on a governmental platform with government funding. A strength is that it leverages government budgets, which are much larger. Additionally, it sponsors and increases the educational level of the country.
Regulate diet	The aim is to encourage people to change their diet by promoting vegetarian options
Environmentalist foundation of India	Volunteering opportunities for individuals to restore urban lakes and rural water bodies through community action. A strength is that it is simple and connects with people's volunteering aspirations.
Sustainable Alternative Lighting (SALt) lamp	It is an environment-friendly and sustainable alternative light source that runs on saltwater
Community in Bloom	Setting up of localised community gardens in Singapore. Around 2000 of such gardens have already been set up all over Singapore. Gardens are also managed by their own communities.
Electricity productions from ocean currents	Production of electricity by the use of underwater turbines based on the difference of temperatures in water.
Intel Make Tomorrow	Skills development in using micro Controllers and IoT for vocational institution students.
Refugee crisis management	Using technology to help refugees like a message alert that can reach out to them
Fresh Direct Container Farms	A Nigerian entrepreneur turned shipping containers into indoor governments, and employ mainly needy women
Smartphone app to monitor energy consumption	Powershop is a company that provides an app platform that enable consumers to track the energy consumption of their home. The tracking is live and accounts for energy inputs from solar PV. The app also provides monetary incentives to reduce consumption by displaying $ values supported from solar energy input which supports conscious consumption and transition to renewable energy.

Solar-powered Water Purification	Used by local communities for water filtration and sanitation. Filtration system within a bottle which allows communities to use the water.
Green Building Standards	Setting standards for new buildings construction and renovations
App for plant identification	The app helps to identify trees, plants, and flowers. People who see unknown plants, they can take a photo using the app. It plays a significant role in educating people.
AI driverless electric cars	To integrate AI INTO our transport system
Palm oil-targeting activist organizations like People's Movement to Stop Haze	The seed initiative tries to promote the use of sustainable palm oil in the Singapore market by engaging both F&B sector(supply side) and consumers (demand side).
Precious Plastic	A startup that provides open-source guides and designs for communities to create plastic recycling machines and tools. The startup provides support and guidance for anyone interested in creating such machines. A strength is that all the information is open sourced and it allows decentralised recycling initiatives to emerge.
Youth Ki Awaaz	A decentralised online platform for people to write stories on social issues. It allows anyone to create a campaign and facilitate change. Additionally, stories are powerful in tackling global challenges and this platform allows anyone to participate.
Wearable devices	Wearable devices for people's health
Gaia Grid	An off grid farming community that uses crowdfunding and social media to create a self sustaining community. It co-ops tribal villages, weeds out social problems, and encourages organic farming.
Gravity Light	Using gravity to create electricity
Safe spaces for deep conservations on climate change	A NGO that trains facilitators to help facilitate home-based, friend networked conversations on climate change. This activates individuals to lead community actions.
Street Feeders of KL	A regular gathering of volunteers to distribute perishable and non-perishable food to the homeless. This also helps increase the understanding on the background of the homeless. The homeless can also be linked to job opportunities. A strength is that this facilitates face-to-face conversations that help connect communities with the homeless. It also offers hope to the underprivileged.
UN REDD+ Carbon Credit System in a Quirino Protected	To restore fragmented landscapes and promote planting of fruit trees (for food security as well) and provide subsidy to Farmers for being advocates of the protected area
Sharks Fin Database	A centralised database that allows citizens to share the location and names of restaurants that serve sharks fin. This creates awareness of these restaurants and allows citizens to boycott or engage with the restaurants that serve sharks fin. A strength is that this is citizen sourced data that leverages existing technology and is low cost.

No Straw Tuesdays	Plastic-lite started 1.5 years ago as a way for people to reduce and be mindful of their plastic consumption. Volunteer-run, self-funded group. Rolling out initiatives among communities to promote lifestyle changes. Taps into the power of social media to galvanise participants. 'No Straw Tuesdays', rolled out in schools one day a week.
GrabHitch	A technology platform that connects non-taxi drivers and riders to facilitate carpooling in order to reduce the number of cars and fuel demands. This leverages existing technology and apps to reduce the number of cars on the road.
Amsterdam Rainproof programme	Harnessing urban water runoff for alternative products eg. beer and closing the water loop.
Bitcoin Mining Heater for Homeless	Bitcoin mining releases lot of heat energy.
Dog Poo Bag Station	Provide self sustainable and convenient way to encourage do owners to clean up after their pets, for pet owner to share their unused dog poo plastic bag with fellow pet owners, to clean up dog poo.
Making of pet plastic bottles into t-shirts	Tzu Chi charity employs the use of disposed pet plastic bottles and upscale them into t-shirts and blankets, which are then donated to victims of natural disasters
Lendor (app)	P2P library of things (e.g. household objects) that users can borrow, instead of buying for one-time use
Innisfree Empty Bottle Recycling Campaign	Customers can bring used containers back to stall (up to 50 points redeemed), get discount on future purchases. Campaign uses statistics on how many bottles have been recycled and repurposed. Appeals to consumers, "feel-good" aspect.
500 Women Scientists	Improve openness, equality in science in Latin America. Goal to create scientific culture, promote scientific literacy, embrace technology and sciences. Grassroots movement - get people to recognise the presence of female scientists in particular. Host social events on a monthly basis, invite individuals to chat, speed-dating style. Mentoring, going to schools and talking to girls about S&T, policy in government, does not seem accessible, sense of cultural inferiority (for the Old White Man), means of decolonizing academia and science.
Swapaholic	Online clothes swapping platform. Participants bring in pre-loved, quality clothing in exchange for points that can be spent at clothes swapping events hosted around Singapore on a regular basis.
Plastic Footprint Calculator	http://whatismycarbonfootprint.com/plastic-footprint - Calculates an individuals's plastic footprint, aiming to use information to educate and reduce usage of plastics.
Plastic Bank (app)	https://www.plasticbank.org/what-we-do/ - Turns waste into currency by incentivising individuals to collect plastics in exchange for

	rewards which are distributed and authenticated through the Plastic Bank app which uses Blockchain technology.Transfers values into the hands of those who collect plastic.
Vegan/Vegetarian UN Environment Meals	Provide vegan/vegetarian options during meals at UN/INGO conferences and events to showcase that vegan/vegetarian meals.
Local Water Commissions	Community-organizing in the event of a drought/water rationing, to pool resources, help less abled members collect water, draw on connections. Can also be applied to energy sharing and food security.
Grab (app)	Ride-hailing app, expanded to GrabShare, GrabHitch, incentivise passengers by using cheaper prices as opposed to riding individually. Reduces fuel consumption, company can mobilise clean energy vehicles (e.g. electric cars).
First climate change course in a Costa Rican University	Addresses lack of existing climate change education and communication in the country
SECMDL	An alternative learning school for youth established by local youth in a community. A strength of this is that it is a decentralised, replicable, and self-sustaining project that can be transferred to other communities.
Plant Diet/Veganism	include and promote more plant-based menus
Sustainable Aquaculture	Integrates multi-trophic systems, using outputs (e.g. waste) of a species as inputs (e.g. food) for species up the chain. Also sources for local/indigenous species to breed in Singapore, to encourage Singapore's heritage, change tastes and preferences to reduce carbon footprint from food imports.
Superwomarket	A supermarket/cafe designed by women scientists filled with products they selected. It will have: - Products showing carbon/water footprint and relevant SDGs - Products with minimum wrapping - An breastfeeding and expressing space, which will also have a sit-in nurse who can check/give guidance for breast cancer - A communication space (cafe) for women to network, conduct events, etc. - A childcare space with a sitter where young children can play while the mothers are shopping or networking It will provide a "safe environment" for women to share their expertise.
Greening the GEO Conference	The next GEO meeting will be more green. We must practice what we preach. It could potentially include: - vegetarian/vegan meal options - remote conferencing options using conferencing robots (e.g. "Double")

	(This will be an inclusive option for persons who cannot travel, such as those like myself who cannot travel due to childcare, or persons with mobility issues) - paperless - less air conditioning - sustainable hotel practices - smaller carbon footprint (less plastic) - sourced by renewable energy The existing 2009 UN Environment guidelines (http://www.greeningtheblue.org/sites/default/files/GreenMeetingGuide.pdf) could be updated through online consultations with the GEO authors (e.g. "what do you want to see in the next GEO conference?"), and then e-published together with GEO-6 as a spin-off product.
Alternative energy solutions to promote mixed land use (proposal)	Ppps lock in guaranteed customers for the solar farm; drones can be used for solar farm citing; citizens can help monitor operations through iterative feedback loops
Smart ag systems for sustainable development (proposal)	The tech seeds we came up with can support the urban ag and community indigenous knowledge in the existing seeds.
Appification for Everyday Lifestyle Changex (proposal)	Cover different aspects of daily life
Straw-lite Campaign 'Same Taste, Less Waste' (proposal)	Builds on Straw-lite Campaign to extend to local businesses and eateries, getting eateries in Singapore to not give out straws as a default, working on various zones, to approach eateries to reduce straw usage.
Sustainable Urban Living (proposal)	Green buildings are used for urban farming. These urban farms produce edible cutlery as well as food. Biomimicy technology and ride sharing further promote the community's sustainability
No impact on the environment (proposal)	They can be implemented in the same institution, namely the university or a private company
Change from Consumers to Community (proposal)	All relate to sharing rather than consuming and building communities
Energy efficient community (proposal)	Green building standards require a wide set of sustainability building and renovation rules, and require roofs to be used by solar cooperatives.
Sustainable Urban food production and consumption (proposal)	Both seeds reduce waste from food consumption, and address sustainable production of food.
Community resilient gardens (proposal)	Goals: SDG10, 2, 12, 13, 3, 8, 6. The proposal aims to create synergies between the different seeds proposed by incorporating different metrics and initiatives of environmental sustainability with the fair employment of employees that are mentally challenged.

A Containerized, Modular, Sustainable City (proposal)	Each of our seed in this proposal address a specific urban city challenge, with the function/technology of the seed being transformed into to create a transportable container module which makes up the building blocks of a sustainable city.
Urbanites (engaging citizens in community environment action) (proposal)	Create an international cities platform online where data and environmental action is aggregated. Multiple features are included on this platform, including environmental education, citizen information reporting, enforcement, skills education embedded in circular economy concepts and also logs/pins where activities are for the nearby communities to participate in. SDG17 is fulfilled through multiple partnerships 1. Safe space conversations to tie sustainability to very local impacts (SDG 13) 2. After activating these citizens, they contribute by engaging with this online platform. They can choose to be active citizen information providers, signing up for skills education etc...(SDG12, 11, 4) 3. The platform is not a passive platform but actively engages experts and practitioners. E.g., citizen reporting of biodiversity can be linked to Researchers; citizen reporting of vehicle or water pollution is linked to regulatory enforcement officers, after finishing skills education they can provide paid services (SDG 3, 4, 8) 4. Education arm of the app provides both environmental and skills based education (aka udemy but specialised in environment such as circular economy, repair, waste management, composting skills etc) (SDG 4, 9) 5. Aggregation of multiple community initiatives, including waste reduction, plastic pollution, biodiversity, poverty and hunger (SDG 1, 2, 15, 14) learn from different cities and communities as everyone will upload their initiatives to this platform 6. App enables easy access to action
500 Científicas (500 Women Scientists) (proposal)	Getting people to know female scientists (perhaps due to our family-oriented, traditional culture female scientists will be perceived as more approachable, as most people identify with the "advice of a mother or a sister". This will help create a local science culture and improve scientific literacy. By working with other seeds we can increase the reach of female scientists, motivate women to incur in traditionally male-dominated fields, and improve equality and access.
Off Grid Rural Development (proposal)	Gaia Grid is the foundation of the seed proposal - crowdfunding from social media to purchase degraded non-forested land. Regional farmers are mobilised to do organic farming on the land. Volunteers from the community that need jobs and skills development are invited to help. Farm uses off-grid clean energy. Volunteer programme is set up to develop framing skills that can be used for future integration back into society and explicitly addresses

| | social issues such as alcoholism and drugs that plague the neighbouring community. (SDG 1, 2, 3, 7, 8, 12)

By connecting to additional seeds we achieve extra SDGs synergistically:
- Environmentalist foundation of India: explicitly uses land and water restoration projects and tools (SDG 6, 15)
- SECMDL; Karthavyam; Youth Ki Awaaz: Alternative education which provides bottom-up experiential learning and skills development through mediums like story-telling, filmmaking and using local issues and indigenous local knowledge and perspectives (SDG 4, 18)
- Safe Spaces for Deep Conversations on Climate Change: Introducing climate change perspectives into community conversations using issues that are very relevant to the community to bring abstract global debates into a local context (SDG 13, 17)
- Watly: Bringing access to technology to rural areas in order to give communities access to global networks (SDG 9) |