UNITED NATIONS ENVIRONMENT ASSEMBLY

70th SESSION ISSUES BOOK

PROMOTING SUSTAINABLE AND ENVIRONMENTALLY SOUND URBANIZATION

STRENGTHENING CAPACITY-BUILDING AT NATIONAL AND LOCAL LEVELS TO ADDRESS ENVIRONMENTAL CONCERNS

ADDRESSING MARINE POLLUTION IN LIGHT OF SDG NUMBER 14

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70TH ANNUAL SESSION

THE SUSTAINABLE DEVELOPMENT GOALS: LEAVE NO ONE BEHIND

UNEA's functions include setting the global environmental agenda; providing overarching policy guidance and defining policy responses to address emerging environmental challenges; undertaking policy review, dialogue and exchange of experiences; setting strategic guidance on the future direction of UNEP; organizing multi-stakeholder dialogue; and fostering partnerships for achieving environmental goals and resources mobilization. The Assembly reports to the General Assembly through ECOSOC.

Since the establishment of the universal membership in 2013, all 193 UN Member States have been members of the Environment Assembly.
(UN Handbook, 2017-18)

THE UNITED NATIONS ENVIRONMENT ASSEMBLY BOOK WAS PREPARED BY THE STUDENTS OF WESTERN OREGON UNIVERSITY FOR THE 70TH SESSION OF MODEL UNITED NATIONS OF THE FAR WEST

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UNITED NATIONS ENVIRONMENT ASSEMBLY
ISSUES BOOK

1. Promoting sustainable and environmentally sound urbanization
2. Strengthening capacity-building at national and local levels to address environmental concerns
3. Addressing marine pollution in light of SDG number 14

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PROMOTING SUSTAINABLE AND ENVIRONMENTALLY SOUND URBANIZATION

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The world passed a milestone in 2016; for the first time more than half of the world's human population will live in an urban environment but only account for 2.8% of the world's land use.[1] According to the United Nations Population Fund, the growth in urbanization will continue as by 2030 almost 5 billion people will live in "towns and cities."[2] In response to the growth of urbanization, the United Nations incorporated sustainable urban development into Sustainable Development Goal #11 "Sustainable Cities and Communities" which seeks to "Make cities and human settlements inclusive, safe, resilient and sustainable." The targets for this goal work to ensure access for all to adequate housing and basic services, provide access to safe, affordable and accessible transport systems as well as road safety, reduce the negative environmental impact of cities, and support the least developed states through financial and technical assistance.[3]

Urbanization poses a unique challenge to Member States. As more people move to urban areas, more resources and land will be needed to support the growing urban population. This creates a vicious cycle in which too many people move to a small space and overuse resources, thereby depleting resources in rural areas which in turns causes more migration to urban areas and cities which in turn grow rapidly in size. In addition, urban land will increase to 1.2 million km in 2030, nearly tripling the land use between 2000 and 2030.[4] This transition is prominent in Asia; for example in 1969, the urbanization rate was less than 20% for Asia and the pacific region; that number grew to 55% in

[1] United Nations System Chief Executives Board for Coordination (CEB), April 27, 2016
"Urbanization and Sustainable Development: A United Nations System Input to a New Urban Agenda". Accessed August 10, 2019.
https://www.unsceb.org/CEBPublicFiles/Urbanization%20and%20Sustainable%20Development_a%20UN%20system%20input%20to%20the%20New%20Urban%20Agenda-ODS.pdf
[2] United Nations Population Fund, 2019, "Urbanization" https://www.unfpa.org/urbanization, accessed October 10, 2019.
[3] United Nations, 2015, Sustainable Development Goal #1 https://sustainabledevelopment.un.org/sdg11.
[4] United Nations Development Program, 2016 "Support to Sustainable, Inclusive and Resilient Cities in the Developing World." 2016. Accessed August 10, 2019. https://www.undp.org/content/undp/en/home/librarypage/poverty-reduction/sustainable-urbanization-strategy.html.

2015. By 2050, 6.5 billion people will be living in urban communities around the world.[5] Most importantly for this topic and the UNEA committee, environmental degradation caused by urbanization diminishes the quality of life for urban dwellers, but can also serve as "an opportunity to build more sustainable, innovative and equitable towns and cities, and to use the world's natural resources more efficiently."[6]

More than just a subset of migration, urbanization can be seen as the transitioning of societies. All around the world, cities are centers of vast economic potential. The rise of industry in developing states has provided increasing job opportunities. Cities also provide greater opportunities for education and political representation. Additionally, in times of strife, rural populations typically move to cities for greater access to security, resources and opportunity.

Urbanization has brought major economic growth to Member States by creating new jobs, increasing production, and generating more than 80% of global Gross Domestic Product (GDP). By 2025 this will rise to 88% of global GDP, and the potential generation of 230 new cities. By using urbanization to create new jobs, states have been able to grow their middle class. In 2009, 1.8 billion people were considered to be middle-class, but by 2030 it is estimated that the middle class will account for 5 billion out of the world's 8 billion people.[7] Developing nations especially have successfully used urbanization as an effective tool for material growth, poverty reduction, and growing their middle class.

However, because so many people have moved to urban areas, the demand for resources has spiked. Current conditions and trends in urbanization suggest communities will face many challenges such as limited access to basic needs such as clean water, proper sanitation and insufficient government support, and limited capacity to respond to natural disasters and climate change. In addition, the number of urban dwellers living in slums continues to rise. The UN

[5] Arfanuzzaman M, Dahiya B. Sustainable urbanization in Southeast Asia and beyond: Challenges of population growth, land use change, and environmental health. Growth and Change. 2019;50:725–744. https://doi.org/10.1111/grow.12297
[6] United Nations Environment Program, 2014, "Urbanization Provides Unprecedented Opportunities to Transition to a Green Economy Says New Report" https://www.unenvironment.org/news-and-stories/press-release/urbanization-provides-unprecedented-opportunities-transition-green, accessed October 10, 2019.
[7] Pezzini, Mario, 2012, "An emerging middle class" OECD Observer http://oecdobserver.org/news/fullstory.php/aid/3681/An_emerging_middle_class.html, accessed August 10, 2019.

Development Programme states that "828 million people are estimated to live in slums, and the number is rising."[8] UN-HABITAT defines a slum household as a group of individuals living under the same roof in an urban area who lack one or more of the following:

1. Durable housing of a permanent nature that protects against extreme climate conditions.
2. Sufficient living space which means not more than three people sharing the same room.
3. Easy access to safe water in sufficient amounts at an affordable price.
4. Access to adequate sanitation in the form of a private or public toilet shared by a reasonable number of people.
5. Security of tenure that prevents forced evictions.[9]

Slums are created when cities grow without proper planning from local governments. As the city grows unchecked, local governments are unable to provide housing for their new population and the poorest of the population are forced into areas and live in small make shifts houses. By 2020, it is estimated that two billion people will be living in slum conditions.[10] It is slum households in particular that will be the most negatively impacted by and the most vulnerable to the vagaries of environmental degradation. Likewise, developing states often face a lack of resources that populations need to survive, leading to further threats for states that already suffer from a lack of resources. Inadequate funding for infrastructure, leads people to live without basic services like clean water, food, transportation, and sanitation.

While there is substantial progress toward sustainable urbanization, a reluctance to enact policies that promote sustainable development favors the short-term benefits over the long-term impacts of environmental degradation and places billions of lives in a precarious position. These threatening conditions require immediate action to reduce and prevent substandard living conditions and for policies pursuant to the objectives of SDG #11 for creating methods designed to achieve long-term sustainable economic growth.

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[8] United Nations Development Programme, 2019, "Goal 11: Sustainable cities and communities" https://www.undp.org/content/undp/en/home/sustainable-development-goals/goal-11-sustainable-cities-and-communities.html, accessed October 10, 2019.
[9] UN-Habitat, 2006 "Slums: Some Definitions" http://mirror.unhabitat.org/documents/media_centre/sowcr2006/SOWCR%205.pdf accessed October 10, 2019.
[10] United Nations Human Settlements Programme (UN-Habitat), 2016, "World Cities Report 2016—Urbanization and Development—Emerging Features" http://wcr.unhabitat.org/, accessed on August 6, 2019.

SHORTAGE OF WATER

Several examples serve to further demonstrate the needs and interests of Member States in relation to urbanization and achieving SDG #11. As noted above, as a population grows so too does its demand for necessary resources, especially clean water. At the same time the dramatic increase in urbanization has brought the need to build massive amounts of infrastructure, such as water pipes and sewage systems, in order to meet the needs of the growing population. Yet, most developing nations have been unable to build the necessary infrastructure that their population needs due to technical, knowledge and financial constraints, leading to extreme water shortages and water pollution. While, the percent of the world's population having access to safely managed drinking water increased from 61% to 71% between 2000 and 2016, globally, 785 million people still lack access to safe drinking water. In 170 countries, 80 percent have medium-to-low implementation of water resource management standards and practices.[11]

This year, in the city of Chennai, India, the four reservoirs that have provided the city's water supply have run dry and the pipes that had pumped water to the city have been completely dry for five months now. Chennai is currently in a drought, the city has seen 55% less rainfall than normal. However, the drought is not the only reason why the reservoirs are drying up. The city has expanded onto wetlands that are crucial to the ecosystem and the water circulation system. Wetlands, like the Pallikaranai marshlands, allow Chennai's reservoirs to fill with water during the rainy season and that water can be used during droughts. However, as the city was expanding, these wetlands were converted into commercial areas for Information Technology companies. Additionally, in the middle of the Pallikaranai marshlands the city has placed the Perungundi garbage dump.[12] The destruction of these wetlands has damaged the ecosystem and as a result water has become dangerously scarcer during droughts and more contaminated.

[11] United Nations Economic and Social Council, 2019, E/2019/68. "Special edition: progress towards the Sustainable Development Goals." https://undocs.org/E/2019/68. Accessed August 11, 2019.
[12] "Viewpoint: Why India's Chennai Has Run out of Water." BBC News. July 02, 2019. Accessed August 11, 2019. https://www.bbc.com/news/world-asia-india-48797399.

Chennai is not the only city that has sacrificed water ecosystems in the name of expansion. Dhaka, Bangladesh, if it continues to grow at its current rate, will have no water body or vegetation area left in the city after 10 years, resulting in groundwater depletion for almost half of the city. The bodies of water that surround Dhaka are being destroyed. Every day, over 60,000 m^3 of toxic waste and 7,000 tons of solid waste were dumped into the three main river basins by businesses and citizens.[13] This not only creates pollution for a vital water source for the city but also destroys the entire river ecosystem. Additionally, that amount of waste not being properly disposed of will have a deleterious health impact on the people who live in the city, especially the poorest communities who have the least amount of resources to provide sanitary waste disposal and potable water. Dhaka's Water Supply and Sewerage Authority (DWASA), however, with assistance from numerous international organizations including the Asian Development Bank, has gone from having a loan withdrawn by the World Bank "because of procurement irregularities" to "investments in the physical system [that are] aimed at expanding and improving the supply of water to 8 million people in Dhaka. At least 15% of the additional supply resulting from the project was to go to low-income communities through standpipes and communal taps."[14] Success stories to help growing cities build essential infrastructure demonstrate both the need for action as well as the potential to solve the problem of sustainable urbanization.

URBANIZATION AND ENERGY

Another environmental example is the need for sustainable energy in urban areas. In terms of energy use, urban areas are projected to use 50 to 70% more from 2010 to 2050. Therefore, energy use by urban areas must be addressed as energy use around the world is expected to rely predominantly on fossil fuels, making energy production the biggest factor in greenhouse gas

[13] Kaur, Mehar, 2019 "Solid waste pollution in the South Asian Seas" The Energy Resources Institute, https://www.teriin.org/article/solid-waste-pollution-south-asian-seas-sas Accessed August 12, 2019.
[14] Manoj Sharma and Melissa Alipalo, 2017 "The Dhaka Water Services Turnaround" Asian Development Bank (report), https://www.adb.org/sites/default/files/publication/384631/dhaka-water-services.pdf. accessed October 20, 2019.

emissions and air pollution that causes poor health.[15] Additionally, if Member States are committed to moving forward toward SDG #11, refusing to focus on sustainable energy production and use will be astronomically more expensive and detrimental than investing in sustainable methods to grow and expand urban areas. Special attention must be paid to poor and vulnerable social groups who will be disproportionately affected by environmental degradation, especially in population-dense urban areas.

Two Contrasting Cases – Nigeria and Singapore

Nigeria currently faces significant challenges in the face of rapid urbanization, which has resulted in the formation of an urban health crisis resulting from insecure water supplies, slums, and poor water management as well as disease and congested, risky transport systems. There are three states in the world that are expected to account for 37% of projected world population between 2014 and 2015. These states are Nigeria, India, and China.[16]

Between 1980-96 the proportion of urban dwellers in poverty in Nigeria doubled. This has presented a host of challenges. While Nigeria has many water sources, urban areas still struggle. A report revealed that only 3% of residents of the capital, Ibadan, have access to piped water and in Lagos, only 9% of its 10 million residents have access. Additionally, a recent Nigeria Demographic and Health Survey (NDHS) report indicated that there was no significant improvement in access among urban households between 2008 and 2013. To compound this crisis, the water that is available tends to be highly turbid with sediment and there is limited access to piped water whether in the household or even public sources of water. Due to a lack of foresight and planning without empirical data, political and administrative interventions, and financial constraints, most urban water systems for urban environments have become outmoded before they even come into commission.[17]

Singapore, in contrast has been a prime example of sustainable urbanization. The state has the 3rd highest population density in the world[18] and has been able to achieve universal access to clean,

[15] United Nations Economic and Social Council, E/2019/66. "Long-term impact of current trends in the economic, social and environmental areas on the realization of the Sustainable Development Goals." https://undocs.org/en/E/2019/66 accessed October 10, 2019.
[16] Alhaji A Aliyu and Lawal Amadu, "Urbanization, Cities, and Health: The Challenges to Nigeria - A Review," Annals of African medicine (Medknow Publications & Media Pvt Ltd, 2017), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5676403/.
[17] Ibid.
[18] Barrientos, Miguel, 2018, "Country Comparison Population Density." Population Density - Country Comparison. https://www.indexmundi.com/g/r.aspx?v=21000. Accessed August 14, 2019.

safe, and potable water. It has created a power grid that runs 95% off natural gas and is available to every citizen. Singapore has been able to grow at a sustainable rate, all due to long-term city planning. They have also thrived from a growing economy and GDP.[19]

One area Singapore has excelled in is its infrastructure, especially their systems for sanitation, waste, and clean water. For their water systems, they have developed a diverse system that draws water from four different sources: (1) Local water catchment, (2) imported water from Malaysia, (3) water reuse from their NEWater Initiative, and (4) seawater desalination. The NEWater Initiative allows Singapore to reuse all the water that is drained and turn it into new clean drinking water. The system uses membrane technology and ultraviolet disinfection to purify the water. Normally, desalination requires a large amount of energy, making it a poor option for developing countries. Singapore's current water efficiency is due to the complex and comprehensive systems, and policies that work together to overcome any inefficiency. Currently, the country has three desalination plants, contributing over 130 million imperial gallons per day. By 2060, NEWater and desalination will meet 55 percent of Singapore's water needs.[20]

CURRENT ACTIONS TO ADDRESS URBANIZATION

The UN has acted on many levels over the past decades to research strategies, elicit funding and provide the technical and material resources necessary to assist Member States facing urbanization. While addressing urbanization and sustainable cities is an ambitious goal for all parts of the United Nations, it is important in particular for the UNEA to confront environmental threats caused by large urban areas as well as the threats posed by environmental degradation to the urban residents. The main goal of SDG #11 is not to limit the growth of cities, which have provided a means for states to increase the size of their middle class and grow their economies, but to create ways for cities to grow in a sustainable way. Member States must recognize that short-term choices may seem

[19] Singapore. Ministry of Foreign Affairs. "Towards a More Sustainable and Resilient Singapore". 2018. https://sustainabledevelopment.un.org/content/documents/19439Singapores_Voluntary_National_Review_Report_v2.pdf. Accessed August 14, 2019.
[20] Thai Pin Tan and Stuti Rawat. 2018. "NEWater in Singapore" http://www.globalwaterforum.org/2018/01/15/newater-in-singapore/. Accessed August 14, 2019.

more viable because they will often have immediate effects and have a low up-front cost. However, looking at a cost benefit analysis, long-term investments and planning will cost less overall.

A significant recent action of the UN took place at the 2016 meeting of the United Nations Conference on Housing and Sustainable Urban Development[21] where Member States crafted further actions to promote the "New Urban Agenda" (also known as Habitat III).

The New Urban Agenda is

> an action oriented 24-page document that provides the global principles, policies and standards required to achieve sustainable urban development, to transform the way we construct, manage, operate and live in our cities. It will guide the efforts around urbanization for a wide range of actors including nation states, city and regional leaders, funders of international development, the private sector, the United Nations programmes and civil society for the next 20 years.

In addition, the Agenda has three Guiding Principles: (1) Leave no one behind, ensure urban equity and eradicate poverty, (2) Achieve sustainable and inclusive urban prosperity and opportunities for all, and, most important for the UNEA, (3) Foster ecological and resilient cities and human settlements.[22] The Agenda encourages a significant focus on ecologically sound cities as well as the creation and implementation of strategies to promote environmentally sustainable urban areas. Along with this is the important goal of funding these proposals with international organizations such as the World Bank who identified "Three big ideas, countless solutions" to promote the New Urban Agenda, and in particular financial gap. "Globally, $4.5-$5.4 trillion is needed to fill the urban infrastructure finance gap."[23]

Another area that Member States have focused on is sustainable urban energy systems in their focus on long-term growth. Phillips and Smith (2015) describe numerous steps cities can take to promote sustainable urban energy and assert that

> Implementing renewable energy strategies in city environments is rapidly becoming "energetically imperative". Making the transition involves not only switching the energy source,

[21] United Nations Conference on Housing and Sustainable Urban Development, 2016 "The New Urban Agenda" http://habitat3.org/the-new-urban-agenda/ accessed October 10, 2019.
[22] Alice Charles, 2016 "The New Urban Agenda has been adopted. So what happens next?" https://www.weforum.org/agenda/2016/11/last-month-a-new-global-agreement-to-drive-sustainable-urban-development-was-reached-so-what-is-it-and-happens-next/ accessed October 10, 2019.
[23] World Bank, 2018, "Big Ideas to Achieve Sustainable Cities and Communities" https://www.worldbank.org/en/news/immersive-story/2018/01/31/3-big-ideas-to-achieve-sustainable-cities-and-communities, accessed October 10, 2019.

> but making sure it is cost-effective, sustainable and beneficial for development. Cities around the world are pledging to make use of 100 per cent clean energy; Copenhagen pledges to be carbon-neutral by 2025, Aspen, Colorado, is expected to use 100 per cent renewable energies by 2015, and Munich is planning to have 100 per cent of its electricity powered by renewables by 2025.

Energy production and use is a good example of how developed and developing states may at times be unable or unwilling to afford the upfront costs to make the long-term choice, and instead are forced to pick the cheaper short-term choice. However, renewable energy sources such as solar and wind power are proven means to create "eco-cities" that can provide cheaper and cleaner energy in the long term. [24]

In addition, sustainable cities should focus on waste management, including the release of waste that contributes to water and air pollution. Many states have allowed pollution to occur to increase the economic growth urban areas can create and are now struggling to reduce the environmental hazards; for example, China has recently put new laws in place to reduce the severe air pollution in its capital city of Beijing.[25] Technological fixes such as anaerobic digestion of waste can be a win-win proposition for developing states who must carefully plan and invest in new technologies.[26] If cities start developing these kinds of ecofriendly technologies as they are developing, as opposed to after they have developed, the costs of it decrease dramatically. It is much more expensive to completely change systems that cities depend on, rather than start using the necessary ecofriendly systems from the start. SDG #11 is formulated to help states find innovative ways to make their cities grow but use and create sustainable ways to do so.

Another option for sustainable urbanization was introduced in 2019 in the "World social situation 2019: shaping the future of inequality" (Note by the Secretariat), which states that "The current speed of urbanization, especially in poor countries, makes urban governance and adequate planning increasingly pressing." Additionally, it lists four components which have been identified as key to

[24] Laura Phillips and Pete Smith, December 2015, "Sustainable Urban Energy is the future" https://unchronicle.un.org/article/sustainable-urban-energy-future, accessed October 10, 2019.
[25] J.P., 2018, January 25, "How China cut its air pollution" *The Economist*, https://www.economist.com/the-economist-explains/2018/01/25/how-china-cut-its-air-pollution
accessed October 10, 2019.
[26] Phillips and Smith.

reducing inequality in urban environments. The first is the securing of land rights for the impoverished with a focus on housing and on equitable provision of public services. The second is the improvement of the transportation system, particularly between residential and commercial zones. Third, states must promote access to formal employment. Finally, the capacities of local governments must be strengthened to address increasingly complex problems efficiently such as using data and strengthening coordination between them and national governments.[27]

CONCLUSION

There has been steady progress to meet the 2030 sustainable development goals and particular SDG#11. However, more ambitious plans and improvements are needed to be made in order to fully meet the goals. While there are many benefits to be found in the trends toward urbanization such as increases in population, Gross Domestic Product and other economic boons, urbanization is something of a double-edged sword and can do just as much harm as good if left unchecked and poorly executed. For many megacities, their current growth rate is unsustainable resulting in water shortages, health crises, and overcrowded living standards. Additionally, the current urbanization trends are posing extreme environmental degradation. Developed and developing states face their own unique challenges in addressing sustainable urbanization. The challenges of financing sustainable growth and city planning are ever present, with many states struggling as they lack the ability to plan for housing, sewage, and other vital services. In order to achieve Sustainable Development Goal 11 all Member States and parts of the United Nations, and especially the UNEA must work together to build a sustainable future.

[27] United Nations General Assembly, 2019, "World social situation 2019: shaping the future of inequality" https://undocs.org/A/74/135, pp. 10-11, accessed October 10, 2019.

QUESTIONS TO CONSIDER

1. What are the current trends regarding urbanization in your state?
2. Does your state have the financial, educational and technical resources to sustainably grow your cities?
3. What types of environmental problems are caused by the cities in your state? What environmental threats do the residents of your state face due to urbanization?
4. Is your state supportive of increasing financial, educational and technical resources such as international loans and grants to developing states for sustainable urbanization?
5. What partnerships has your state established (including in the United Nations, other international organizations and CSOs) to address sustainable urbanization?

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Climate change, defined by the United Nations (UN) in 1992, is "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods."[1] Climate change is an existential threat to all living creatures on the Earth. Even after almost three decades of international negotiations to address the crisis there have been no substantive improvements. The average global temperature of the Earth's atmosphere is rising, and there is warming of the oceans, shrinking of ice sheets, glacial retreat, decreased snow cover, rising sea level, declining arctic sea ice, ocean acidification, and extreme natural disasters exacerbated by the warming atmosphere.[2] It is necessary for all Member States to understand the climate crisis and take action to mitigate climate change as well as to prepare to adapt to the threat climate change presents. It is essential that Member States focus their attention on building the capacity of all states to mitigate and adapt to the climate crisis in order to reduce vulnerability and increase resilience.

As Member States negotiate further efforts to address this topic, we must recognize that while all states will be affected, some states will suffer greater consequences. Currently, many island nations face the hazard of non-existence due to rising sea levels. The Marshall Islands are being challenged on whether to relocate or elevate themselves as their beaches are eroding, and their land and drinking water is salinized by sea water. It is projected that within 80 years, islands such as the Solomon Islands, Maldives, Palau, Micronesia, Fiji, Tuvalu, Seychelles, Kiribati, the Cook Islands, French Polynesia, Tangier Island (Virginia, USA), Shishmaref (Alaska, USA), and the Marshall Islands will be underwater.[3]

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[1] United Nations. "United Nations Framework Convention on Climate Change." *United Nations Framework Convention on Climate Change*. UNFCCC. unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf.

[2] "Climate Change Evidence: How Do We Know?" Edited by Holly Shaftel, *NASA*, 30 Sept. 2019, climate.nasa.gov/evidence/.

[3] Mettler, Lyn. "13 Islands That Will Disappear in the Next 80 Years." *Reader's Digest*, 2019, www.rd.com/advice/travel/islands-will-disappear-80-years/.

Alongside this threat, as rates of climate change increase, so do the severity of specific natural disasters. While hurricanes, typhoons and cyclones are not caused by climate change, the warming of the atmosphere and the oceans is creating new mega storms that are larger and stronger than seen before. The United States has faced drastic effects due to hurricanes striking Florida, Louisiana, Texas and North Carolina with storm surges, flooding from extreme rainfall, and erosion of coastal areas. In addition, many areas in the United States are facing a constant cycle of floods and droughts due to the changing climate. Events such as Typhoon Hagibis in Japan, and Hurricane Dorian and Hurricane Katrina in the United States can threaten the lives of those directly hit, and importantly negatively damage the economies present. Hurricane Katrina was recorded as being the "most destructive natural disaster in U.S. history, costing over $125 billion supplied in repairs and reconstruction.[4] Other states highly affected by these disasters include India, China, Ethiopia, Malawi, Somalia, Vietnam, the Philippines, and Haiti—all which experience high fatality rates alongside high destruction rates.[5]

All states will need to build their capacity to respond to climate change. However, many developing states are more vulnerable to the effects of climate change because they do not have the infrastructure and economic means to adapt to the threats posted by climate change. The Netherlands, for example, has built extensive infrastructure to withstand storm surge. In contrast, Tuvalu does not have the economic strength to build the capacity to withstand rising sea levels, and more frequent and stronger storms.[6]

UN ACTIONS, SUSTAINABLE DEVELOPMENT GOAL 13, AND UNEA

The UN has held numerous conferences to address climate change, including the creation and ratification of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992 and the Kyoto Protocol in 1997, as well as the yearly UNFCCC Conference of the Parties (COPs). The

[4] Amadeo, Kimberly, "Hurricane Katrina Facts, Damage and Costs" *The Balance* https://www.thebalance.com/hurricane-katrina-facts-damage-and-economic-effects-3306023

[5] Dillinger, Jessica. "Countries Most Prone to Natural Disasters." *World Atlas*, 21 Jan. 2016, www.worldatlas.com/articles/countries-with-the-deadliest-natural-disasters.html.

[6] Leslie Allen, "Will Tuvalu Disappear Beneath the Sea?" *Smithsonian Magazine*, https://www.smithsonianmag.com/science-nature/will-tuvalu-disappear-beneath-the-sea-180940704/

UNFCCC negotiations have focused on mitigating (reducing the greenhouse gases that contribute to climate change) and adaptation (responding to the consequences of climate change). These and more recent efforts have emphasized the need to address climate change and to help states to prepare and build their capacity to respond. Other recent efforts include the 2030 Agenda and specifically Sustainable Development Goal (SDG) 13, which states "take urgent action to combat climate change and its impacts."[7] As of April of 2019, 185 parties have ratified the Paris Agreement negotiated as part of the UNFCCC efforts, in which all members must submit new nationally determined contributions and ambitions by 2020. In addition, the Agreement continues specific provisions to support capacity building in Articles 9, 10 and 11. At the same time, global climate finance flows have increased by 17 percent in the time slot of 2015-2016 comparative to 2013-2014. In addition, the Green Climate Fund (GCF), created by the Copenhagen Agreement, was designed to provide financial assistance from "advanced states" to developing states to assist with mitigation and adaptation actions. As of June 2019, 259 activities have been approved by the GCF, with 225 funded in 115 countries, totaling USD 54.68 million.[8]

On March 15, 2019, the United Nations Environment Assembly closed their fourth session, hosted at its headquarters in Nairobi, Kenya on the theme of Innovative Solutions for Environmental Challenges and Sustainable Consumption and Production. In their fifth resolution (UNEP/EA.4/Res.5), the UNEA calls for the production and collaboration of sustainable infrastructure, with emphasis on utilizing previous frameworks and initiatives, as well as inclusion and progress towards the SDGs.[9] Resolutions 21 (UNEP/EA.4/Res.21)[10] and 23 (UNEP/EA.4/Res.23)[11] also focus on mitigating climate change as well as promoting further research on the environment and the global climate impacts.

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[7] "Goal 13 Sustainable Development Knowledge Platform." *United Nations*, United Nations, sustainabledevelopment.un.org/sdg13.

[8] Green Climate Fund, Meeting of the Board "Eighth Report of the Green Climate Fund to the Conference of the Parties to the United Nations Framework Convention on Climate Change" https://www.greenclimate.fund/documents/20182/1674504/GCF_B.23_10_-_Eighth_Report_of_the_Green_Climate_Fund_to_the_Conference_of_the_Parties_to_the_United_Nations_Framework_Convention_on_Climate_Change.pdf/3a253685-3375-563e-00e5-88fce8ef2dd1

[9] UNEA. "Sustainable Infrastructure." *United Nations Environment Assembly of the United Nations Environment Programme*, UNEP, 15 Mar. 2019, wedocs.unep.org/bitstream/handle/20.500.11822/28470/English.pdf?sequence=3&isAllowed=y.

[10] Ibid.

[11] UNEA. "Keeping the World Environment under Review: Enhancing the United Nations Environment Programme Science-Policy Interface and Endorsement of the Global Environment Outlook." *United Nations Environment Assembly of the United Nations*

Many Member States have taken initial steps towards achieving SDG13; however, many more ambitious steps must be made as the rate of climate change continues to rise above those expected. Access to financial resources and strengthened capacities need to be scaled up at a much faster rate, particularly for the least developed and small island developing States.

CAPACITY BUILDING

Capacity building is the "process of developing and strengthening the skills, instincts, abilities, processes and resources that organizations and communities need to survive, adapt, and thrive in a fast-changing world,"[12] and requires actions on the local, national, and international levels. According to the United Nations Development Programme (UNDP) capacity development "starts from the principle that people are best empowered to realize their full potential when the means of development are sustainable – home-grown, long-term, and generated and managed collectively by those who stand to benefit." In a more literal sense, capacity building starts from the principle that people are the core solution to their own problems. In other words, local solutions are essential for success so that developing nations have the capability to form and manage infrastructure which can ensure future independence from international aid. At the core, local, or community, capacity building focuses on understanding the obstacles that inhibit people, governments, international organizations, and non-governmental organizations (NGOs) from realizing the development goals that allow them to achieve sustainable results.[13]

CLIMATE-AWARE CAPACITY BUILDING

In the context of climate change and environmental concerns, capacity building has evolved to include measures to mitigate pollution, environmental decay, and biohazards, as well as provide

Environment Programme, UNEP, 15 Mar. 2019, wedocs.unep.org/bitstream/handle/20.500.11822/28486/K1901170.pdf?sequence=3&isAllowed=y.

[12] "Capacity-Building | Academic Impact." *United Nations*, United Nations, academicimpact.un.org/content/capacity-building.

[13]"Capacity Development: a UNDP Primer." Edited by Kanni Wignaraja, *United Nations Development Programme*, UNDP, 2009, www.undp.org/content/dam/aplaws/publication/en/publications/capacity-development/capacity-development-a-undp-primer/CDG_PrimerReport_final_web.pdf.

solutions and plans towards post-natural disaster and environment aid. All of these steps are designed to reduce vulnerabilities and risks, and increase climate resiliency.[14] Because of these factors, all forms of capacity building have become an important foundation of the newly adopted Paris Agreement. However, these measures still vary between Member States. For instance, many developing countries lack the necessary capacity for their daily livelihood, as well as the means to mitigate and adapt to climate action, for a plethora of reasons. These may include

> a lack of public awareness and support for climate action . . . fragmentation of information and research institutions . . . a lack of international support specifically directed towards building and retaining skills . . . a lack of established or strong policies, systems and processes . . . to efficiently and effectively plan, manage and coordinate capacity building activities.[15]

Plus, many of these challenges strongly persist due to the short-term project based approach to capacity building created by the fragmentation of international institutions providing support.

Additionally, capacity building efforts need "greater coordination, coherence, monitoring, review, and reporting." Currently, there is no regular monitoring, review process, or centralized institution in place to provide the necessary guidance to coordinate, as well as shift towards climate-aware capacity building. In addition, it has been suggested that increasing coordination and coherence between the thematic bodies and entities under the United Nations Framework Convention on Climate Change (UNFCCC) will improve institutional architecture as well as promote climate action.[16]

One item to note, the Paris Agreement sets a road map on capacity building. Countries agreed during the 21st Conference of the Parties (COP21) to "enhance capacity building activities together with the associated institutional arrangements by establishing the Paris Committee in Capacity Building (PCCB)." The committee is mandated to oversee a comprehensive work program over the next four years, including to:

> identify capacity gaps and needs, foster international, regional, national, and subnational cooperation, assess how to increase synergies, coordination, coherence, and collaboration among existing bodies and activities within, and outside, the UNFCCC, promote the development and spread of relevant tools and methodologies,

[14] UNFCCC, "What do Adaptation to climate change and Climate Resiliency mean? https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/what-do-adaptation-to-climate-change-and-climate-resilience-mean

[15] Dagnet, Yamide, and Eliza Northrop. "3 Reasons Why Capacity Building Is Critical for Implementing the Paris Agreement." *World Resources Institute*, 26 Sept. 2018, www.wri.org/blog/2015/12/3-reasons-why-capacity-building-critical-implementing-paris-agreement.

[16] *Ibid.*

> and collect the best practices and lessons learned, with the goal of enhancing ownership and retention of capacity at national, regional, and subnational levels.[17]

Member States will choose the initial institutional arrangements under the Paris Agreement as well as cooperate to enhance capacity building activities, climate change education, public awareness, participation, and access to information. Developed countries have also agreed to improve support in developing countries with less capacity.

But what does it mean for Member States to create, adapt, and follow climate-aware capacity building? First, the impacts of climate change will be felt on all sectors, however mostly on natural resources and vulnerable areas including water, agriculture, forests, and coastal zones. These impacts are likely to be substantial and, depending on the region, could be catastrophic as have been seen by the events mentioned earlier. The UN Food and Agriculture Organization (FAO) has researched and identified possible measures to promote adaptation and capacity building in relation to climate shifts and vulnerability. According to the FAO there are three strategies for coping with climate variability:

1. Science and Assessment,
2. Before the fact: Preparedness, and
3. After the fact: Relief.

The three strategies are structured to ensure well-balanced and carefully formulated capacity building strategies. However, there are three important challenges that must be recognized while designing and implementing the core strategies:

1. Building effective knowledge generation systems,
2. Meeting financial considerations, and
3. Enabling institutional transformations.[18]

Most of these challenges though are easily "fixed" via the called for collaboration and coherence among Parties and Member States in regard to capacity building institutions and as emphasized in SDG17-Partnerships for the Goals.

Other possible solutions provided by the FAO include a list of how-to and not-to enhance the institutionalization of capacity building. First, the scope must be framed in broad terms, for narrowly focused capacity building institutions typically do not address or are not beneficial to economies or

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[17] *Ibid.*

[18] Kandlikar, Milind, and Ambuj Sagar. "Capacity Building for Climate Change: a Risk Management Approach." *Food and Agricultural Organization of the United Nations*, FAO, http://www.fao.org/docs/eims/upload/288690/oct-climate-milind.ppt.

human security. Second, do not "reinvent the wheel" — many organizations tend to begin without consultation with those who have taken action previously when formulating structures and goals. It is easier and more beneficial to build on previous structures and from knowledge achieved from beneficial and non-beneficial strategies. Third, it is essential to research "success stories" that may provide viable frameworks from multiple sources such as other international organizations and Civil Society Organizations (CSOs). Finally, local knowledge must be gathered and incorporated as those who are most vulnerable tend to be the most understanding of local issues and as discussed above (UNDP report) local people are the core solution to achieving success. Expert communities can assist with knowledge sharing but must be in balance with local knowledge. In addition, change must come on the local level, and it is often this level that has the most need of education and capacity building. [19] These are all steps that have been established as possible means to assist in sustainable, adaptable and effective capacity building, especially in regard to climate awareness and adaptation.

CONCLUSION

Climate change poses an existential threat to the human race as well as the livelihood of all Member States. As the negative effects of climate change grow, the capacity of all states to mitigate and adapt to climate change will be increasingly challenged. Awareness and concrete actions to build capacity are essential on the international, national and local levels. By focusing on implementing SDG13, and finding sustainable and effective ways to generate climate-aware capacity building, we are guaranteeing the success and prosperity of future generations, as well as the health and future of all creatures on the Earth. The scientific evidence is present and simple: climate change equals the extinction of many species; extinction may equal no humans — effective actions need to be taken now.

[19] *Ibid.*

QUESTIONS TO CONSIDER

1.In what ways is your state vulnerable to the effects of climate change?

2.What capacity does your state have to address your climate vulnerabilities and build climate resiliency?

3.Is your state in a position to assist in providing capacity building frameworks, or is your state in the need of assistance?

4.How has climate change already affected your state economically, physically, and/or morally?

5.Are people migrating to or from your state because of the effects of climate change?

6. What plans does your state have in relation to the Paris Agreement and capacity building?

7. Will your state engage in local, national and international collaboration regarding capacity building? Are there specific steps your state would like to see taken or considered?

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ADDRESSING MARINE POLLUTION IN LIGHT OF SDG NUMBER 14

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MUNFW 70th Session – UN Environment Assembly

> We recognize that our ocean covers three quarters of our planet, connects our populations and markets and forms an important part of our natural and cultural heritage. It supplies nearly half the oxygen we breathe, absorbs over a quarter of the carbon dioxide we produce, plays a vital role in the water cycle and the climate system and is an important source of our planet's biodiversity and of ecosystem services. It contributes to sustainable development and sustainable ocean-based economies, as well as to poverty eradication, food security and nutrition, maritime trade and transportation, decent work and livelihoods.
>
> *A/RES/71/312: Our Oceans, Our Future: Call for Action*

INTRODUCTION

Marine pollution is an extreme threat as over three billion people depend on marine and coastal biodiversity for their livelihoods. The UN Development Programme (UNDP) noted that "the market value of marine and coastal resources and industries is estimated at US$3 trillion per year, about 5 percent of global GDP."[1] However, despite numerous efforts by the United Nations, marine pollution continues to rise with an estimated 5.25 trillion plastic debris in the ocean as of 2018.[2] Globally, 13,000-15,000 pieces of plastic are dumped into the ocean every day. In addition, the increasing costs of recycling and more states becoming unwilling to be the waste processors for the world have further exacerbated the crisis of plastic waste disposal.[3] At the same time, oil spills are polluting large amount of ocean water and coastal zones. In 2018 the International Tanker Owners Pollution Federation Limited (ITOPF) recorded three enormous ocean oil spills. The estimated loss of oil that year to the environment was 116,000 tonnes, a majority of which was attributed to the *Sanchi* collision in the East China Sea.[4] In addition, the Ocean Conservancy reports that oil spills have grown

[1] United Nations, Sustainable Development Goal 14: Life Below Water https://www.un.org/sustainabledevelopment/oceans/
[2] Ocean Crusaders, http://oceancrusaders.org/plastic-crusades/plastic-statistics/
[3] A recent example of this is China no longer buying the United States' recycling, this has made it much more difficult for communities to get rid of their waste in a sustainable way.
[4] International Tanker Owners Pollution Federation Limited (ITOPF) 2019, https://www.itopf.org/knowledge-resources/data-statistics/statistics/

larger over the past 20 years.[5] Understanding what has and should be done to address this serious problem is essential to finding solutions.

UN ACTIONS

The United Nations (UN) has been combating marine pollution for several decades. One of the first actions was the adoption of The International Convention for the Prevention of Pollution from Ships (MARPOL) by the International Maritime Organization (IMO) in 1973. The Convention created many regulations "aimed at preventing and minimizing pollution from ships - both accidental pollution and that from routine operations."[6] An important annex of MARPOL is Annex 6, "Prevention of Pollution by Garbage from Ships." The Annex set specific distances from land that trash and waste from a ship's bilge could be dumped. Furthermore, the first United Nations Convention on the Law of the Sea (UNCLOS) created a comprehensive system of laws to govern and protect the oceans and its resources[7] and subsequent UNCLOS meetings have generated stronger environmental protections that pertain directly to marine pollution. In addition, the UN 2030 Agenda "Transforming Our World" gives special focus to environmental issues with Sustainable Development Goal (SDG), 14 "Conserve and sustainably use the oceans, seas and marine resources for sustainable development," sets out seven targets combatting overfishing, marine pollution, environmental protections, and coastal eutrophication.

In response to continued ocean degradation and the goals set forth in SDG 14, the General Assembly of the United Nations convened the Ocean Conference and passed A/RES/71/312, "Our Oceans, Our Future: Call for Action." This resolution and the Conference have aimed to combat the current causes of marine pollution as well as increase resource conservation and clean-up efforts. While emphasizing cooperation, it acknowledges "that each country faces specific challenges in its pursuit of sustainable development, in particular least developed countries (LDCs), landlocked

[5] The Ocean Conservancy, "What have we learned from 50 years of off-shore oil spills" https://oceanconservancy.org/blog/2019/02/05/learned-50-years-offshore-oil-disasters/
[6] International Maritime Organisation, http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx
[7] S.S. Rana & Co, https://www.lexology.com/library/detail.aspx?g=b5b618ab-f09d-43f4-a518-01b31599bf61

developing countries, small island developing States (SIDS), and African States, including coastal ones, as do others recognized in the 2030 Agenda."[8] During the Ocean Conference they also appointed Peter Thomas of Fiji as Special Envoy for the Ocean.

MARINE DEBRIS

Marine debris is a major threat to the ocean's health and is defined as "any persistent solid material that is manufactured or processed and directly or indirectly, intentionally or unintentionally, disposed of or abandoned into the marine environment."[9] It poses a serious and long-term danger to marine animals, ecosystems, navigation and human health.

Our Plastic Planet

Plastic production took off in the 1950s and less than 9% of plastic produced between 1950 - 2015 was recycled. Single use plastic has become a central part of most peoples lives. Whether we realize it or not, we are surrounded by plastic. We are producing more than 300 million tons of plastic per year, and UNDP estimates that 89% of that is single use plastics[10]. Plastic bottle consumption alone accounts for 14% of plastic waste. "According to the Container Recycling Institute, "100.7 billion plastic beverage bottles were sold in the U.S. in 2014, or 315 bottles per person. 57% of those units were plastic water bottles: 57.3 billion sold in 2014. This is up from 3.8 billion plastic water bottles sold in 1996, the earliest year for available data." In fact, a billion gallons of oil are used to supply plastic water bottles for the US alone.[11] It is estimated that this year every person on the planet will produce about 300 pounds of single use plastics. While an individual using a plastic water bottle seems insignificant, it is done by many on a global scale.[12] According to National Geographic " 'half the world's mismanaged plastic waste was generated by just five Asian countries: China, Indonesia, the

[8] The United Nations, https://oceanconference.un.org/callforaction
[9] National Oceanic and Atmospheric Administration (NOAA), 2019, https://oceanservice.noaa.gov/facts/marinedebris.html
[10] United Nations Development Programme, https://feature.undp.org/plastic-tidal-wave/
[11] Craig Lesson, 2013, "A Plastic Ocean" (documentary), Sima Studios.
[12] For emphasis on other potential producers of plastic products, Coca-Cola produces 3 million tons of plastic packaging per year, https://www.forbes.com/sites/heatherfarmbrough/2019/03/15/coca-cola-reveals-it-produces-3m-tonnes-of-plastic-packaging-a-year-in-ground-breaking-report/#147964a6670f .

Philippines, Vietnam, and Sri Lanka. . . . Let's say you recycle 100 percent in all of North America and Europe' " says Ramani Narayan, a chemical engineering professor at Michigan State University who also works in his native India, " 'You still would not make a dent on the plastics released into the oceans. If you want to do something about this, you have to go there, to these countries, and deal with the mismanaged waste.' "[13]

At the UN Environment Assembly in Nairobi in 2019, 170 Member States pledged to significantly reduce their plastic usage by 2030. This pledged followed the 2016 conference during which the Assembly adopted UNEP/EA.2/RES.11 addressing marine pollution and microplastics. It called for further implementation of resolution 1/6 regarding "Marine plastic debris and microplastics," encouraged international cooperation on transboundary watercourses where surface runoff transports litter and eutrophication, and welcomed cooperation with other UN bodies, IGOs and NGOs.

These global commitments and the growing awareness of this problem has led to multiple actions. More than 60 countries have set goals to cut back plastic waste. Canada has aimed to ban single use plastics by 2021. Chile and Peru have also worked to ban and reduce single use plastic waste. "Chile's Constitutional Court ratified a bill that bans retail use of plastic bags across the country on July 6, ruling against an appeal that had been filed by the plastics industry." This bill was the first plastic ban bill in the Americas. Big companies such as Disney and United Airlines have set goals to remove plastic from their facilities. As of 2018 companies "PepsiCo, Coca-Cola, Procter and Gamble, Danone, Unilever, and Dow are committed to funding the $90 million investment, and Circulate Capital says a deal will be inked by early 2019."[14] Combating plastic pollution requires joint strategies between countries, public-private partnerships, and other organizations in order to be effective. While plastic is a valuable resource, plastic pollution is irresponsible and unnecessary. "Ocean plastic is not as complicated as climate change. There are no ocean trash deniers, at least so far. To do something about it, we don't have to remake our planet's entire energy system."[15]

[13] Laura Parker, 2018, "We Made Plastic. We Depend on It. Now We're Drowning in It. https://www.nationalgeographic.com/magazine/2018/06/plastic-planet-waste-pollution-trash-crisis/
[14] Brian Clark Howard, et al, 2019, "A running list of action on plastic pollution" National Geographic https://www.nationalgeographic.com/environment/2018/07/ocean-plastic-pollution-solutions/
[15] Laura Parker, 2018.

Our Ocean Dumping

Abandoned or discarded fishing gear is a significant problem for ocean life "because this trash can entangle, injure, maim, and drown marine wildlife and damage property."[16] UNEP/EA.2/Res.11 references the role of the International Maritime Organization in reducing marine litter. It also outlined strategies to mitigate marine pollution by establishing effective port reception facilities, creating harbor fees to cover trash recovery and disposal costs and other incentives.

The dumping of waste in the ocean creates another problem. The waste collects into large patches due to the circulation of ocean currents, the most notable being the Pacific Garbage Patch. A recent study showed a majority of the waste in the Pacific Garbage Patch was not from straw or bags, but from fishing gear. Approximately "79,000 tons [of waste was fishing gear]. The study also found that fishing nets account for 46 percent of the trash, with the majority of the rest composed of other fishing industry gear, including ropes, oyster spacers, eel traps, crates, and baskets." Over 100,000 marine animals are entangled and suffocated by discarded or lost fishing nets annually. Clearly, ocean pollution is a serious threat as it is estimated that by 2050 due to the overall the accumulation of plastic waste and marine litter there will be more plastic in the ocean than fish.[17]

SOURCE POLLUTION

In addition to the dumping of waste in the oceans, marine pollution can come from the land. The U.S. Environmental Protection Agency (EPA) defines point source pollution as "any single identifiable source of pollution from which pollutants are discharged, such as a pipe, ditch, ship or factory smokestack." A common source is from factories, such as oil refineries, or sewage treatment plants who discharge their effluents into water which makes its way into rivers and the ocean. Unregulated point source pollution contaminates water sources and has a severe negative impact on human health and the ocean environment.

[16] NOAA, 2019, https://oceanservice.noaa.gov/facts/marinedebris.html
[17] Laura Parker, 2018, https://www.nationalgeographic.com/magazine/2018/06/plastic-planet-waste-pollution-trash-crisis/

A second common example is debris from natural disasters. It is estimated that 20% of trash in the Pacific Garbage Patch is from the 2011 Japan tsunami. In addition, the meltdown of the Fukushima Nuclear Plant contaminated one million tons of water. The Japanese government is currently debating dumping the radioactive water into the ocean to dilute it, no longer making it harmful to humans. However, there has been a strong backlash from local fisheries and fishermen whose livelihood is dependent on the health of the fish.[18]

Point source pollution can be attributed to single events such as oil spills. On January 6th 2018 the Panama- registered Iranian oil tanker *Sanchi,* going to South Korea carrying condensate,[19] and Chinese cargo ship *CF Crystal* collided off the Shanghai coast. "The Sanchi was carrying a highly flammable fuel oil, equivalent to one million barrels of oil."[20] The tanker drifted and sank into the South China Sea, an area already with a vulnerable ecosystem, making the worst-case scenario a disastrous reality. China and Japan's territorial disputes delayed clean up because it was unclear who was responsible for environmental protection in the area. "Despite being obliged by the UN Convention on the Law of the Sea to protect the marine environment, both China, in whose 200-nautical-mile exclusive economic zone the accident occurred, and Japan, in whose claimed exclusive economic zone the vessel sank, were slow to respond."[21] While Japan and China have agreements over the disputed waters to avoid clashes, there are no joint contingency plans to deal with environmental disasters.[22] The crash posed a major threat to Japan, South Korea and marine life; many compare the disaster to the same extent as Exxon Valdez[23].

[18] James Patterson, 2019, "Japan to Dump Radioactive Water from Fukushima Reactor into Pacific Ocean," https://www.ibtimes.com/japan-dump-radioactive-water-fukushima-reactor-pacific-ocean-2830468

[19] According to Mark Valencia (2018), condensate is a highly volatile, highly toxic material that is greatly harmful to the environment. In addition to the slick on the water's surface, the sinking of the ship means that the remaining condensate cargo and bunker oil – a heavier form of fuel oil – threaten the depths of the sea from the wreckage. An estimated 2,000 tonnes (2,200 short tons) of bunker oil is thought to have been in *Sanchi*'s fuel storage tanks. The accident sight is also where many edible fish were spawning and in the path of a whale migration. https://www.scmp.com/comment/insight-opinion/article/2134058/muddy-waters-how-china-japan-territorial-disputes-delayed

[20] South China Morning Post, 2019, "How the Sanchi oil tanker environmental disaster unfolded" http://multimedia.scmp.com/news/china/article/sanchi/

[22] Mark Valencia, 2019, https://www.scmp.com/comment/insight-opinion/article/2134058/muddy-waters-how-china-japan-territorial-disputes-delayed

[23] Stephen Leahy, 2019 "Exxon Valdez changed the oil industry forever-but new threats emerge" https://www.nationalgeographic.com/environment/2019/03/oil-spills-30-years-after-exxon-valdez/

NON-POINT SOURCE

Most non-point source pollution is a result of land run off from agricultural and urban areas into rivers causing deoxygenation. Oxygen is critical to the health of our planet and oxygen breathing plants and animals in the oceans. Despite it being an essential part of marine life, we are seeing an exponential increase of deoxygenation in our ocean systems. The nutrients from agriculture, sewage and industrial waste are causing ocean dead zones, fish kills, worsening habitat loss, and the alteration of biogeochemical cycles and food webs. Excess fertilizers, herbicides and insecticides from agricultural lands and residential areas are the leading remaining causes of water quality problems. Nonpoint source pollution not only affects ecosystems; it can also have harmful effects on the economy. For example, U.S. Coastal and marine waters support 28.3 million jobs, generate $54 billion in goods and services through activities like shipping, boating, and tourism, and contribute $30 billion to the U.S. economy through recreational fishing alone. If pollution leads to mass die-offs of fish and dirty-looking water, many areas will experience deep financial losses.[24]

The UN Food and Agriculture Organization (FAO) published a report in 2017, "The executive summary of Water Pollution from Agriculture: A Global Review," examining the growing concern over the agriculture industries impact on water quality. Eduardo Mansur, Director of FAO's Land and Water Division, said "In most high-income countries and many emerging economies, agricultural pollution has overtaken contamination from settlements and industries as the main factor in the degradation of inland and coastal waters." FAO reports that many countries, such as Argentina, Malaysia, South Africa and Pakistan, have experienced exponential economic growth by using pesticides; however, nitrate from agriculture is now the most common chemical contaminant in the world's groundwater aquifers and is leading to fetal illness, birth defects, cancer and more. In addition, fertilizers are entering rivers and flowing out to pollute the ocean. The FAO has suggested responding through policies/incentives, and on-farm practices and off-farm practices. One proposal that shows promise is establishing

[24] NOAA, https://oceanservice.noaa.gov/education/tutorial_pollution/04nonpointsource.html

protection zones along surface watercourses, within farms and in buffer zones around farms and improving irrigation systems.[25]

CONCLUSION

Awareness of the harmful effects of marine pollution is an important first step toward addressing this crisis. Actions taken by the United Nations, NGOs and Member States point in a positive direction that together we can reduce, prevent, and potentially repair the damage from marine pollution. Plastic is a valuable resource- it keeps medical supplies sterile, provides water to contaminated areas; it's durable and lasts multiple lifetimes; however, the waste produced by our current plastic use is unmanageable and unnecessary. The 300 million tons created this year is expected to triple when the global population reaches 8 billion people, unless we respond quickly. Likewise, the UN, in its 2018 Progress report on SGD14, noted that among other concerning marine pollution trends "Global trends point to continued deterioration of coastal waters due to pollution and eutrophication."[26]

As of 2019 there has been very limited progress on marine pollution. Awareness has increased, commitments have been made, but very few consequential international actions have been taken to significantly reduce the problem. Clearly, further steps need to be taken to identify those who are creating the waste, and Member States must negotiate tangible policies and actions by developed states, and provide support for developing states so all Member States can reduce their marine pollution. The UNEA needs to do more to raise awareness of the dangers of marine pollution by Member States, and design concrete and realistic strategies to fund and implement positive change. Possible steps could be to build on SDG 17 ("Strengthen the means of Implementation and revitalize the global partnership for sustainable development") by creating partnerships with NGOs and non-UN IGOs to educate shipping companies and to encourage Member States to create and enforce environmental protection policies. Increasing focus on SDG14's Targets and Indicators 14.1, 14.1.1 and

[25] Food and Agriculture Organization, 2019, "Land & Water" http://www.fao.org/land-water/news-archive/news-detail/en/c/1032702/
[26] The United Nations, 2019, https://sustainabledevelopment.un.org/sdg14

14.C are vital in moving towards a healthy ocean with greater effort. Our planet, marine life, and all living creatures need Member States to create sustainable solutions in order to achieve the progress called for by Sustainable Development Goal 14 by 2030.

QUESTIONS TO CONSIDER

1. What are the major sources of marine pollution in your country?
2. What waste water management and solid waste recycling systems are in place?
3. Is your country landlocked or coastal; does it have rivers that drain to the ocean? How does this affect your policies, use of chemicals, waste systems, etc.?
4. What commitments has your country set for SDG 14? Have you taken any concrete actions to achieve them?
5. What systems does your country have in place to handle an environmental disaster?

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