

Partnering for Solutions

GRID-Arendal Annual Report 2021



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Foreword

The UN Environment Programme has continued to address the critical environmental crises of climate change, nature and biodiversity loss, and pollution and waste during this last year. Our mission to inspire, inform and enable nations to live in harmony with nature has never been more important. The year of 2021 saw major milestones reached in how we prepare to deal with the ever-nearer impacts of climate change, emphasising the need to adapt to build back better in the wake of COVID-19, becoming more resilient to future disruptions and disasters.

Throughout, we valued the support from GRID-Arendal who have continued to deliver high-quality communications in the form of assessments, visualisations, reports, training and more.

GRID-Arendal staff were able to provide scientific evidence on the sources, pathways into, and the impact of plastic pollution on the marine environment. The Drowning in Plastics: Marine Litter and Plastic Waste Vital Graphics and the Pollution to Solution reports were key sources of information and knowledge during 2021. These products were used to support discussions in various forums during preparations for the resumed session of UNEA5 (UNEA5.2).

GRID-Arendal's role as implementing agency in the Blue Forests Project supported UNEP and other partners to recognise the conservation and restoration of coastal and marine ecosystems as a sustainable nature-based solution to climate change. The project applied carbon accounting and ecosystem service valuation in blue forests concepts by the international community and the Global Environment Facility (GEF), paving the way for various

mechanisms to deliver protections for coastal ecosystems that are based on natural ecosystem values.

GRID-Arendal also hosts the UNEP Key Polar Centre, where their main task is to support UNEP in its role as observer to the Arctic Council and its working groups. In doing this, GRID-Arendal also assists some of the working groups' projects and expert groups, including the Arctic marine litter work of the Protection of the Arctic Marine Environment (PAME) working group. During 2021, GRID-Arendal contributed to the Regional Action Plan on Marine Litter in the Arctic, the Arctic Wildland Fire Sharing Circle from the Emergency Prevention, Preparedness and Response working group (EPPR), and to the Sustainable Development Working Group's Gender in The Arctic Report.

We thank the Norwegian Government for their continued support, and the staff at GRID-Arendal for their dedicated work and efforts towards providing sound environmental knowledge towards building nature-positive solutions, and look forward to the further growth of our partnership in the coming year.



Jian Liu
Director of the Science Division
UN Environment Programme

Message from the Managing Director

In 2021, we were given the opportunity to reflect on the past and evaluate what is most essential to consider moving forward. We were reminded how it is more important than ever to provide reliable information to support decision-makers, and GRID-Arendal's role in doing so.

Our local and global partnerships have strengthened. Many of the challenges we face require collective action at multiple levels. We can already see the beginnings of these in the form of the Decade off Ecosystem Restoration, and national commitments. Although countries are important contributors, ideas and solutions are increasingly coming from partnerships between civil society, business, academia and other actors. This is where GRID-Arendal partnerships are working across the world to find solutions to complex and constantly evolving global challenges.

Several projects and collaborations have illustrated how GRID-Arendal has partnered with others to support decision-makers in these times with our environmental knowledge and effective capacity development.

The Blue Forests Project, concluded in 2021, is a clear example of how valuable our partnerships are on a global scale. This was a global initiative focused on improving the understanding of the values associated with coastal carbon and ecosystem services, and exploring how these values can be harnessed to achieve goals in ecosystem management, sustainable communities, and climate change. The project resulted in over 30 countries recognizing the adaptation and mitigation benefits that coastal and marine ecosystems support in their national pledges to fulfil the Paris Climate Agreement, and the significant increase of the area of mangrove forests in the voluntary carbon market, from just over 100 ha of mangrove forest at project inception to over 3000 ha at project completion.

Work by MAMI WATA supported the Abidjan Convention Secretariat formally adopting an Integrated Ocean Management protocol. During the Abidjan CoP 13, two decisions on (1) Marine Spatial Planning and

(2) State of the Marine Environment Report were adopted as a result of the work of this project where GRID-Arendal played a leading role.

Furthermore, GRID-Arendal worked with researchers, industry and decision-makers to review 60 global and 37 regional plastic waste initiatives in 2021. The results indicated important thematical and geographical gaps in plastic waste efforts. The understanding of decision-makers was built up to implement existing global multilateral environmental agreements and work together towards a legally binding international framework to combat plastic pollution. GRID-Arendal released various communication products to facilitate the understanding of what plastic waste is and where it comes from, such as the report "Drowning in Plastics: Marine Litter and Plastics Vital Graphics", and a Story Map titled "Plastic Waste and the Basel Convention".

Finally, GRID-Arendal has completed a 3-year Earth Observation for Sustainable Development – Fragility, Conflict and Security (EO4SD-FCS) project, funded by the European Space Agency facilitating the use of remote sensing tools to reduce state fragility, mitigate conflicts and enhance security.

Looking ahead, GRID-Arendal is growing as an organisation. 2021 saw a return to the office, new employees welcomed and a revision to our strategic goals, which directs our extensive project portfolio even more firmly towards nature-positive solutions to tackle climate change, biodiversity loss and pollution. As we emerge from the pandemic years, I am even more certain that our staff will continue to contribute new knowledge and innovative ways in our efforts.



A handwritten signature in blue ink that reads "Peter T. Harris". The signature is written in a cursive, flowing style.

Peter Harris
Managing Director
GRID-Arendal

Melding fra administrerende direktør

Våre partnerskap har styrket seg ettersom mange av de nye utfordringene vi vil møte krever kollektiv handling på flere nivåer, og vi kan allerede se begynnelsen på disse i form av tiåret for økosystemrestaurering og nasjonale forpliktelser.

Selv om land er viktige bidragsytere, kommer ideer og løsninger i økende grad fra partnerskap mellom sivilsamfunn, næringsliv, akademia og andre aktører, og det er her GRID-Arendal partnerskap jobber over hele verden for å finne løsninger på komplekse og stadig utviklende globale utfordringer.

Flere prosjekter og samarbeid har illustrert hvordan GRID-Arendal har samarbeidet med andre for å støtte beslutningstakere i disse tider med vår miljøkunnskap og effektive kapasitetsutvikling.

Blue Forests-prosjektet som ble avsluttet i 2021 er et tydelig eksempel på hvor verdifulle partnerskapene våre er på global skala. Dette var et globalt initiativ fokusert på å forbedre forståelsen av verdiene knyttet til kystkarbon og økosystemtjenester, og utforske hvordan disse verdiene kan utnyttes for å oppnå mål innen økosystemforvaltning, bærekraftige samfunn og klimaendringer. Prosjektet resulterte i at over 30 land anerkjente tilpasnings- og avbøtende fordeler som kyst- og marine økosystemer støtter i sine nasjonale løfter om å oppfylle Paris-klimaavtalen, og den betydelige økningen av arealet med mangroveskog i det frivillige karbonmarkedet, fra litt over 100 ha mangroveskog ved prosjektstart til over 3000 ha ved ferdigstillelse av prosjektet.

Arbeid fra MAMI WATA støttet Abidjan-konvensjonssekretariatet ved å formelt vedta en protokoll for integrert havforvaltning, og under Abidjan CoP 13 ble to vedtak om (1) marin romlig planlegging og (2) rapporten om tilstanden til det marine miljøet vedtatt som et resultat av arbeidet av dette prosjektet hvor GRID-Arendal spilte en ledende rolle.

Videre jobbet GRID-Arendal sammen med forskere, industri og beslutningstakere for å gjennomgå 60 globale og 37 regionale plastavfallsinitiativer i 2021. Resultatene indikerte viktige tematiske og geografiske hull i plastavfallsarbeidet. Forståelsen til beslutningstakere ble bygget opp for å implementere eksisterende globale multilaterale miljøavtaler og arbeide sammen mot et juridisk bindende internasjonalt rammeverk for å bekjempe plastforurensning.

GRID-Arendal ga ut ulike kommunikasjonsprodukter for å gjøre det lettere å forstå hva plastavfall er og hvor det kommer fra, for eksempel rapporten "Drowning in Plastics: Marine Litter and Plastics Vital Graphics", og et Story Map med tittelen "Plastic Waste and the Basel Convention".

Til slutt har GRID-Arendal fullført et 3-årig Earth Observation for Sustainable Development – Fragility, Conflict and Security (EO4SD-FCS)-prosjekt, finansiert av European Space Agency som tilrettelegger for bruk av fjernmålingsverktøy for å redusere statens skjørhet, dempe konflikter og øke sikkerheten.

Ser vi fremover, vokser GRID-Arendal som organisasjon. I 2021 kom tilbake til kontoret, nye ansatte ble ønsket velkommen og en revidering av våre strategiske mål, som retter vår omfattende prosjektportefølje enda sterkere mot naturpositive løsninger for klimaendringer, tap av biologisk mangfold og forurensning. Når vi kommer ut av pandemiårene, er jeg enda mer sikker på at våre ansatte vil fortsette å bidra med ny kunnskap og innovative måter i vår innsats.



Peter T. Harris

Peter Harris
administrerende direktør
GRID-Arendal

Who we are

GRID-Arendal is a non-profit environmental communications centre based in Norway. We transform environmental data into innovative, science-based information products and provide capacity-building services that enable better environmental governance.

We aim to inform and activate a global audience and motivate decision-makers to effect positive change. Our vision is a society that understands, values, and protects the environment on which it depends.

GRID-Arendal was established in 1989 by the Norwegian Ministry of Environment to support environmentally sustainable development by collaborating with the UN Environment Programme and other partners. The launch of GRID-Arendal was an outgrowth of the World Commission on Environment and Development, also known as the Brundtland Commission. We are supported by the Norwegian Agency for Development

Cooperation (Norad) and Norway's Ministry of Climate and Environment (MoCE).

GRID-Arendal Staff

At GRID-Arendal, we all have different roles in making environmental science accessible to decision-makers. At the end of 2021, we had 43 staff members representing 22 countries from around the world – policy experts, scientists, GIS specialists, videographers, communicators, designers, administration, finance and more. Nearly half of our staff are women, ranging from specialists in film, communication and design, to experienced science professionals, to strong support staff who are well recognised in their fields of expertise.

Our leadership team



Peter Harris
Managing Director



Janet Skaalvik
Chief of
Communications,
Technology and
Innovation



Anette Sørensen
Chief Culture
Officer



**Miles Macmillan-
Lawler**
Chief Scientist



Eivind Halaas
Chief Finance
Officer

What We Do

GRID-Arendal collaborates with a variety of partners – UN agencies, global networks, regional organisations, national governments, NGOs, research groups, and universities – to support the adoption of nature-positive solutions to address climate change, biodiversity loss and pollution.

In 2021, GRID-Arendal's staff of 43 worked on more than 60 projects concerning environmental challenges and solutions around the world. We delivered useful decision-support and training to policymakers, practitioners, researchers, and the public, on topics ranging from climate change impacts to plastic pollution and to species conservation.

Hva vi gjør

GRID-Arendal samarbeider med en rekke partnere – FN-organer, globale nettverk, regionale organisasjoner, nasjonale regjeringer, frivillige organisasjoner, forskningsgrupper og universiteter – for å støtte innføring av naturpositive løsninger for å håndtere klimaendringer, tap av biologisk mangfold og forurensning.

I 2021 jobbet GRID-Arendals stab på 43 på mer enn 60 prosjekter om miljøutfordringer og løsninger rundt om i verden. Vårt arbeid ga nyttig beslutningsstøtte og opplæring til beslutningstakere, utøvere, forskere og publikum, om temaer som spenner fra klimaendringer til plastforurensning til artsbevaring.

GRID-Arendal Programmes

GRID-Arendal delivers its work under four programmatic areas, Polar & Climate, Transboundary Governance & Environmental Crime, Marine Environment, and Waste & Marine Litter. These areas are supported by Communications, Technology and Innovation teams.

Polar & Climate

Head of Programme:
Tina Schoolmeester



The Polar and Climate programme aims to better understand linkages between global climate trends and impacts on societies in polar and mountain regions, particularly for indigenous peoples and biodiversity, and to support healthy environments and communities. Specifically, this programme is:

- Working with governments to make informed and climate smart policy decisions about the environment based on the best available scientific, socio-economic and environmental information.
- Developing good pollution and waste management practices in mountain regions and polar areas.
- Supporting UNEP's engagement with the Arctic Council and its working groups as UNEP's Key Polar Centre.

Transboundary Governance & Environmental Crime

Head of Programme:
Valentin Emelin



The Transboundary Governance and Environmental Crime programme works to strengthen transboundary governance and cooperation, as well as the rule of law, reduce environmental crime and promote equitable outcomes that support sustained environmental, social and economic wellbeing. This programme works in:

- Strengthening transboundary cooperation and governance in selected environmental issues.
- Developing capacity in developing countries to combat environmental crime.
- Supporting the transition to a sustainable economy through concept development, capacity building and communication, in collaboration with partners around the world.

Marine Environment

Head of Programme:
Miles Macmillan-Lawler



The overall objective of the Marine Environment programme is to build capacity in developing countries to ensure a healthy marine environment. This programme focusses on:

- Supporting coastal developing states to practice ecosystem-based integrated ocean management within a strong regional policy framework.
- Incorporating nature-based solutions in marine and coastal environments into national actions and policy.
- Building a sustainable blue economy approach that is adopted by national governments and that leads to enhanced prosperity, increased social equity, and healthy natural ecosystems.

Waste & Marine Litter

Head of Programme:
Clever Mafuta



The Waste and Marine Litter programme seeks to prevent and reduce the extent of plastics, solid waste, wastewater and excess nutrients entering the marine environment, particularly in developing regions of the world. In particular, this programme is:

- Strengthening global commitments and selected national and regional instruments to prevent marine litter.
- Improving waste management in various countries.

Technology & Innovation

Head of Programme:
Rob Barnes



The Technology and Innovation Programme's mission is to collaboratively and actively contribute to GRID-Arendal programmes through utilising new technologies and delivering products in new and modern ways. The programme tests state-of-the-art methods and practices in film, visualisations, animations and mapping. This work supports GRID-Arendal to deliver environmental knowledge to, and engage with, decision-makers around the world in the most suitable formats to motivate action.

Project Highlights



Reducing state fragility with Earth Observation

The Earth Observation for Sustainable Development – Fragility, Conflict and Security (EO4SD-FCS) project has successfully demonstrated how data from Earth Observation (EO) technology can be transformed into useful analytical products that can be used to reduce environmental and human insecurity in fragile states. It provided international institutions such as the World Bank with the latest EO-based tools and services, supporting them in adapting these products as standard solutions in their projects addressing state fragility.

The remit of many international development institutions often includes crisis response or crisis management, especially in states affected by fragility, conflict and security issues resulting in widespread and cross-cutting challenges to the survival, livelihood, and dignity of people. Such challenges make the achievement of the Sustainable Development Goals more difficult.

The EO4SD-FCS project was an ambitious initiative funded by the European Space Agency (ESA). It provided international institutions such as the World Bank (WB), the Food and Agriculture Organization of the United Nations (FAO) and the World Customs Organization (WCO) with the latest Earth Observation-based tools and services to support them in their activities addressing state fragility. Staff were trained by consortium partners in how

to best use these highly technical services. Multiple service demonstrations and trainings were held, as well as regular contact with the stakeholders to present and explain the possibilities offered by the tools and facilitated introduction of the tools as standard solutions across their projects.

During 2021, the final year of the three and a half year-long initiative, the following activities were completed:

- An online capacity course was developed and attended by over 2000 participants.
- 15 articles were published on the project website.
- A capacity building session was delivered to 49 members of the GIS hub of the Planning and Development Department of the Khyber Pakhtunkhwa Province in Pakistan in July 2021.
- The results of the project were included in a study report published in January 2021 entitled “The Socio-Political Crisis in the Northwest and Southwest Regions of Cameroon: Assessing the Economic and Social Impacts and Implications for the World Bank Group.”
- UNOOSA/UN-SPIDER Regional Support Offices Virtual Meeting on Locust Monitoring was held March 2021.
- Video presenting feedback from the stakeholders on the support provided by the project was produced and received high praise from the WB and ESA (<https://vimeo.com/318467334>).



A Syrian refugee camp, one example of an extreme economy.

People

GRID-Arendal staff: Valentin Emelin, Siri Olsson, Alexander Mitrofanenko, Olivia Rempel, Syed Hasan Abbas, Guendalina De Luigi

Partners: Collecte Localisation Satellites (CLS and SIRS), GISBOX Maps and Beyond, Hatfield Consultants, Price Waterhouse and Cooper (PwC), SISTEMA GmbH, United Nations Institute for Training and Research (UNITAR)

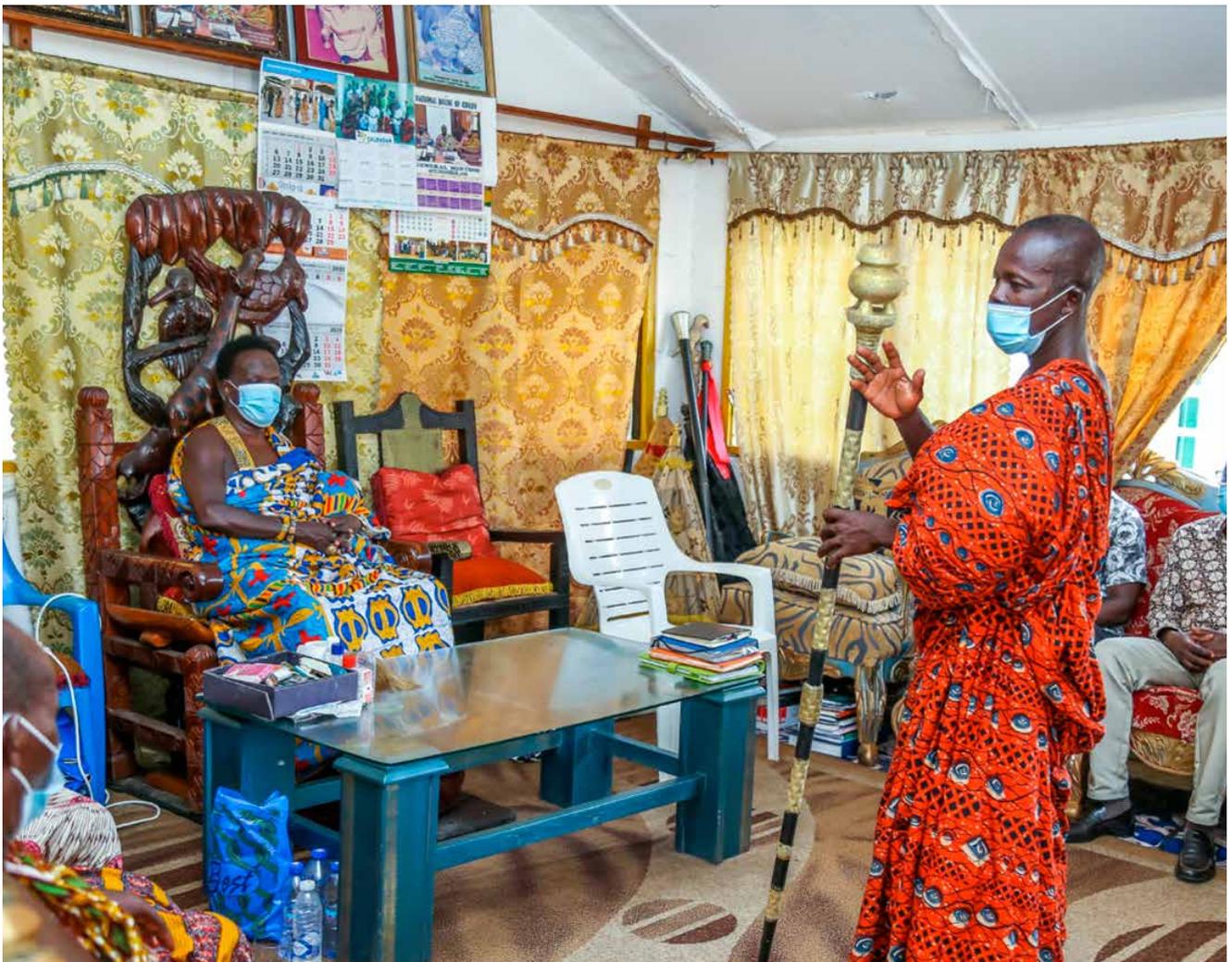


MAMI WATA – Enhancing marine management capacity in West Africa

By enabling a Protocol on Integrated Ocean Management that was adopted by the Abidjan Convention’s 13th Conference of Parties (COP 13), this project is furthering the management of crucial marine resources along the African coast of the Atlantic Ocean.

The Abidjan Convention covers the whole of the African Atlantic coast from Mauritania to South Africa, shared by 22 countries. The coast features beaches, lagoons, seagrass beds, mangroves and coral reefs, which border significant upwelling systems with strong biological productivity. Many coastal areas are hotspots of biodiversity and provide critical habitat for fish and endangered species, shoreline stabilization, or carbon storage in the environment. Plastic pollution, sea level rise, ocean acidification, the mining industry and other anthropogenic activities threaten the health of these essential habitats.

Since 2016, MAMI WATA has provided technical and institutional training-of-trainers and peer-learning based capacity building for national planners and decision-makers dealing with marine and coastal management, across relevant sector ministries and government agencies. MAMI WATA has enhanced the Abidjan Convention member countries’ abilities to manage their marine and coastal environments using an integrated, ecosystem-based approach. This has contributed to the conservation of biodiversity and the sustainable use of marine and coastal resources, for the long-term



Ghana Stakeholder engagement. Photo: EPA – Ghana, Shannon Hampton, December 2019



Benin pilot site. Photo: Rob Barnes, January 2019

provision of ecosystem services for human well-being. This project phase closed in 2021 with a well-attended showcase event held virtually at the Abidjan Convention COP in Abidjan on December 16, 2021. The event featured speakers from all three of the pilot countries as well as a lively debate with the Centre of Expertise as well as other regional experts. The event highlighted the many accomplishments from the past six years and shone a light on how this work could be carried forward into the rest of the region.

MAMI WATA works with national pilot projects in Benin, Côte D'Ivoire, and Ghana, and supports cooperation between Côte d'Ivoire and Ghana towards the creation of the first transboundary Marine Protected Area (MPA) in the region. In 2021, based on work via the MAMI WATA project, the Abidjan Convention

“

We had excellent cooperation with the stakeholders, who were 100% involved in the different activities. They did not hesitate to share information. Now the stakeholders would like to continue this great adventure and make MSP a reality so that this tool can contribute to the sustainable management of Grand Bassam marine and coastal areas and reduce conflicts of use.

—
Marguerite Kouadio, Research officer at the CIAPOL legal department, Coordinator of GIAMAA Project

Secretariat formally adopted an Integrated Ocean Management protocol. During COP 13 of the Abidjan Convention, decisions on Marine Spatial Planning and State of the Marine Environment reporting were adopted as a result of project activities. In addition, Côte d'Ivoire produced its first State of the Marine Environment Report.

People

GRID-Arendal staff: Tanya Bryan, Marco Vinaccia, Mario Cana, Richard Dacosta

Partners: Abidjan Convention Executive Secretariat, Environmental Protection Agency – Ghana, Centre Ivoirien AntiPollution, Ministère du Cadre de Vie et du Développement Durable, International Ocean Institute–South Africa, Environmental Protection Agency(Sierra Leone), Centre de Suivi Écologique.



Fishermen in Grand Bereby - Côte d'Ivoire. Photo: Alison Amoussou, November 2021



Blue Solutions through people-centred approaches

Blue Solutions' motto: Focusing on what works (solutions) rather than problems is an effective way to advance towards sustainable ocean development. It's not worthwhile to reinvent the wheel all the time, better to learn from others' success.

The Blue Solutions initiative supported ocean conservation and sustainable development from 2013 to 2021. Blue Solutions promoted global knowledge exchange, capacity development and policy dialogue to achieve the goals of the Convention on Biological Diversity and the Agenda 2030 for Sustainable Development. Taking a people-centred approach, this initiative worked closely with practitioners, governments, and regional organisations on their pathway of implementing positive solutions for healthy oceans.

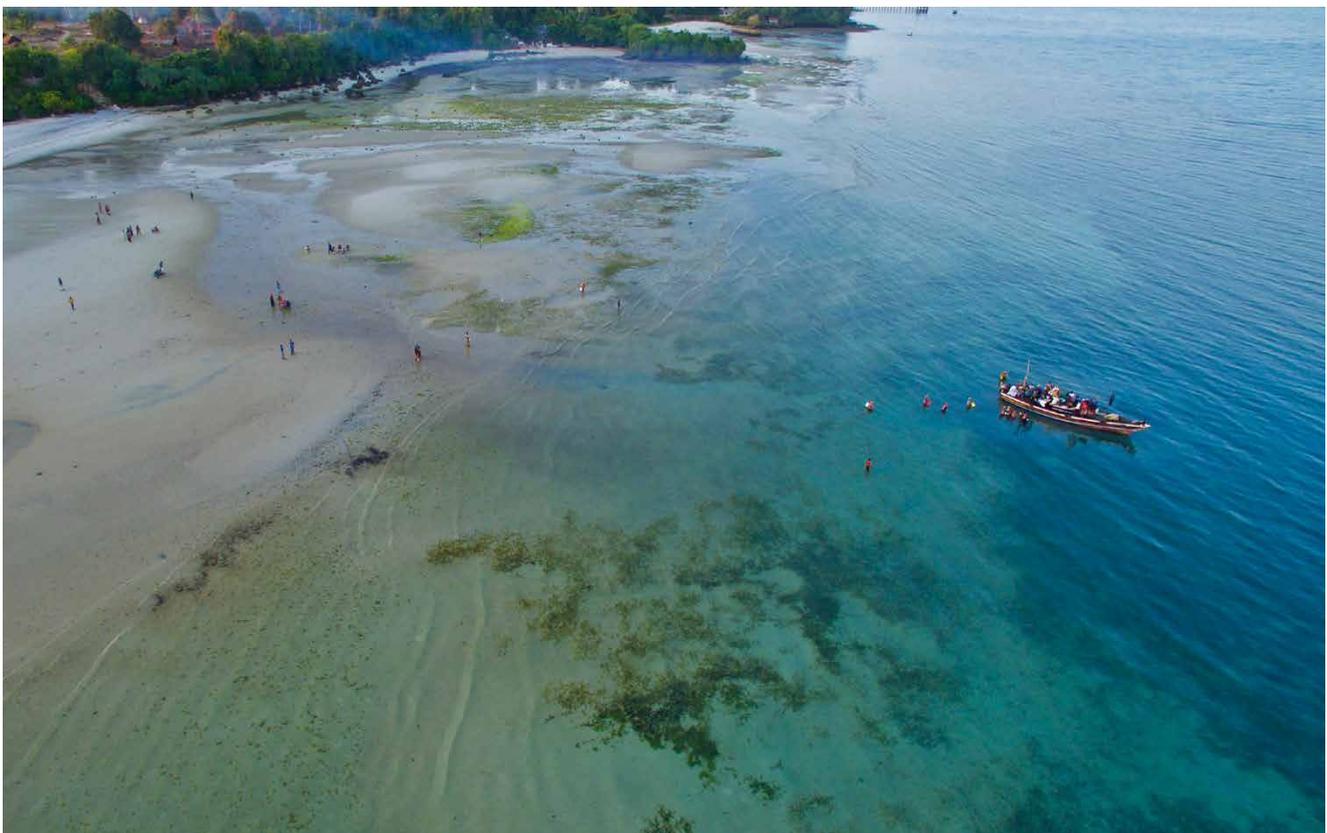
Blue Solutions developed new training courses in 2021 on Sustainable Blue Economy and Blue Leadership, complementing the existing Marine Spatial Planning course. These courses were well attended in Costa Rica, the countries of the Coordinating Body on the Seas of East Asia (COBSEA), and Africa (Mozambique, Namibia and Senegal). All materials of these courses are open-source and available in the recently launched Blue Capacity

Development Hub (<https://bluecapacityhub.info/>). Identifying and promoting blue solutions as well as enabling their wider application has been the role of PANORAMA blue (<https://panorama.solutions/en>), which currently hosts more than 325 best practices. The legacy of Blue Solutions remains alive through both platforms to benefit those working with ocean communities.

People

GRID-Arendal staff: Mario Caña Varona, Tanya Bryan, Rob Barnes, Louise Lieberknecht, Mona Edvardsen, Remco Lameijer, Syed Hasan Abbas, Edward Hinkle

Partners: Blue Solutions was implemented by the German Corporation for International Cooperation GmbH (GIZ), GRID-Arendal, the International Union for Conservation of Nature (IUCN) and UNEP, and funded by the International Climate Initiative of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) of Germany.



Local fishing community off the coast of Zanzibar. Photo: Rob Barnes, GRID-Arendal, 2016.



Blue Forests as nature-based solutions

The Blue Forests Project supported UNEP and partners in 2021 to deliver on the strategic goal of recognizing the conservation and restoration of coastal and marine ecosystems as a sustainable nature-based solution to the climate change. Project results include over 30 countries recognizing the adaptation and mitigation benefits that coastal and marine ecosystems support in their national pledges to fulfil the Paris Climate Agreement. The project also resulted in the significant increase of the area of mangrove forests in the voluntary carbon market (VCM), from just over 100 hectares (ha) of mangrove forest at project inception to over 3000 ha at project completion.

The Blue Forests Project (2015-2021) was a global initiative focused on improving the understanding of the values associated with coastal carbon and ecosystem services, and exploring how these values can be harnessed to achieve goals in ecosystem management, sustainable communities, and climate change. Blue forest ecosystems include mangrove forests, seagrass meadows and saltwater marshes, which are all noted for their ability to fix and store atmospheric carbon, thereby helping address the global climate challenge. These ecosystems are vitally important to coastal and island communities around the world through the many important ecosystem benefits they provide. The project's objective was to apply methodologies and approaches for carbon accounting and ecosystem service valuation in blue forests concepts by the international community and the Global Environment Facility (GEF). The project paved the way for coordinated on-the-ground payment for ecosystem services (PES), carbon market schemes, conservation agreements, or other mechanisms based on natural ecosystem values that deliver protection for coastal ecosystems. Accordingly, the project focused on: i) developing guidance for carbon accounting and ecosystem services valuation for blue forests ecosystems; ii) application of blue forests methodologies for carbon accounting and ecosystem services valuation (through a series of demonstrations at small-scale intervention sites); iii) improving the understanding of carbon storage and sequestration, and ecosystem services of blue forests; and iv) increasing options for the adoption of methodologies and approaches by the international community. Countries

“

I want to stress the importance of this project not only to the GEF but to the international marine and coastal conservation community.

Leah Bunce Karrer, Senior Environmental Officer, International Waters Team, Global Environment Facility



Blue forests methodologies and approaches are being replicated worldwide. Photo: Steven Lutz, GRID-Arendal, April 2017

of the small-scale intervention sites (with activities supported through GEF funds and partner co-finance) included Ecuador, Dominican Republic, Mozambique, Kenya, Madagascar, UAE, Indonesia, and USA.

People

GRID-Arendal staff: Steven Lutz, Olivia Polkinghorne, Tiina Kurvits, Mona Edvardsen

Partners: United Nations Environment Programme (UNEP), Global Environment Facility (GEF), UNEP Regional Office for Latin America and the Caribbean (UNEP-ROLAC), WWF-Mozambique, Blue Ventures, UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), International Union for Conservation of Nature (IUCN), US Forest Service, Conservation International, Duke University, Indonesia Marine and Fisheries Ministry, Charles Darwin University, Stockholm University, Environment Agency Abu Dhabi, Abu-Dhabi Global Environmental Data Initiative, US-NOAA, South African Institute of International Affairs, Kenya Maritime and Fisheries Research Institute, The Ocean Foundation, Blue Climate Solutions, Counterpart International, University of West Brittany, Silvestrum Climate Associates, Distant Imagery.



State of water resources around the world

The WorldWater - Surface Water Dynamics project provided both historical and current data on water volumes and on the extent of water bodies in pilot countries, which is being used as evidence of climate change through flooding and drought occurrences.

The WorldWater - Surface Water Dynamics project worked to address national capacity challenges in reporting their state of water resources under the United Nations Sustainable Development Goals. During 2021, a major milestone was reached; the development and cross referencing of the algorithm. The algorithm records and analyses earth observation data from satellites to measure water volumes and extent in the pilot countries - Zambia, Gabon, Colombia, Mexico and Greenland. Stakeholder engagements were held in each of the pilot countries to interpret the results. The website (<https://worldwater.earth>) gives users access to several updated products and software from the partners in the project, all of which support application of earth observation technologies in water management.

These products and software support better monitoring of the state of water resources in a changing climate, while also empowering countries to better report on some sustainable development goals for freshwater resources.



Satellite picture of a waterbody in Greenland. Time series data from these images are used to demonstrate melting of glaciers and/or expansion/shrinking of water bodies. Photo by DHI Group, shared from worldwater.earth. Source: Copernicus Sentinel.

People

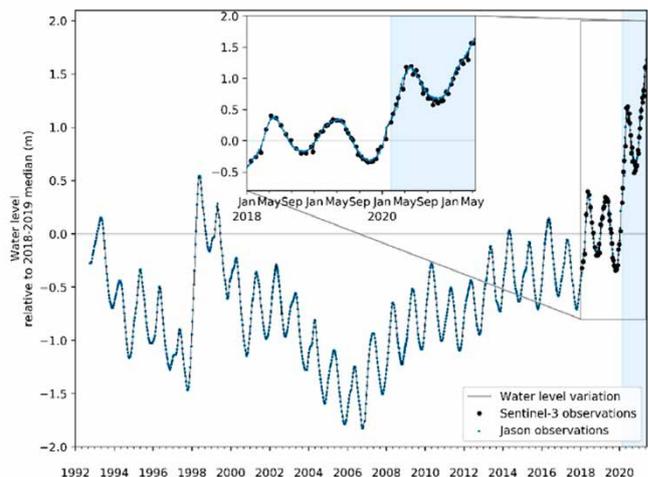
GRID-Arendal staff: Clever Mafuta, Louise Lieberknecht, Guendalina De Luigi, Edward Hinkle

Partners: European Space Agency (funder); DHI GRAS; GEO Imaging Satellite (GiSAT), GeoVille and Danmarks Tekniske Universitet



The Round Robin was a great opportunity to test our algorithm over various regions. The results have reaffirmed our belief that using SAR (Synthetic aperture radar) and optical imagery together holds many advantages. We thank ESA and the WorldWater consortium for organizing this challenge and we are looking forward to continue contributing to this important topic.

Arjen Haag, Researcher, Hydrology and Water Management at SERVIR-Mekong/Deltares



Time series data from satellite images showing variation in water level of a water body in Greenland. Figure by DHI Group, shared from worldwater.earth. Source: Copernicus Sentinel.



Building community and ecosystem resilience

Climate change disproportionately impacts vulnerable and remote mountain people and their environment. This work supports communities and decision makers in adaptation and building resilience to climate change impacts. The Vanishing Treasures and Resilient Mountain Solution communication and outreach guides decision makers at all levels to better protect biodiversity and mitigate the human-wildlife conflict in the mountain regions. Both projects support scaling efforts of the simple solutions that potentially have a significant impact when combined and implemented according to local needs.

GRID-Arendal has been working to build the resilience of communities and ecosystems in the mountainous regions of the Hindu Kush Himalaya, Central Asia and East Africa to climate change impacts. Effective adaptation requires an understanding of the current and projected climate impacts, as well a consideration of ongoing socio-economic trends.

During 2021 in the Vanishing Treasures project, we worked with local partners in Kyrgyzstan and Tajikistan to develop scenarios to understand and identify possible short term “futures” for mountainous communities, who are facing severe water shortages, lower grassland productivity, and competition with wildlife for scarce resources. The results of the study were used to guide

the selection of adaptation interventions that both help communities to adapt to climate change, reduce human-wildlife conflict and enable ecosystems to become more resilient.

The Resilient Mountain Solutions project aims to enhance the resilience of women and men in the mountain regions to socioeconomic and environmental change, including climate change, by efficient, low-cost solutions. The project built on the long-term work by the International Centre for Integrated Mountain Development (ICIMOD) and its partners. In 2021, GRID-Arendal collected interviews and audio-visual material from Bhutan, Nepal and Pakistan with the help of local partners. The material will be used for knowledge products to raise awareness and support scaling efforts of these nature-based solutions.



Ms. Kiba Lham taking care of her Mustard green in a polyhouse located in the model organic village in Haa district, Bhutan, one of the pilot sites of ICIMOD and their partners in Bhutan. Simple polyhouses increase the length of the growing season significantly in high altitudes benefitting the communities by contributing to more nutritious diets and additional income when the surplus is sold in the local markets.

People

GRID-Arendal staff: Björn Alftan, Laurent Fouinat, Torjus Solheim Eckhoff, Anna Sinasalo, Tina Schoolmeester, Olivia Rempel, Syed Hasan Abbas

Partners: UNEP, Associazione Nazionale Consulenti Tributari (ANCOT), Ilbirs Foundation, EURAC Research, Snow Leopard Trust, International Centre for Integrated Mountain Development (ICIMOD)



Actually pumpkins do not grow in Haa because of the climatic conditions, but thanks to the greenhouse, we can grow them. These tomatoes would never grow if we had to plant them outside whatever manure we applied. Since we got this greenhouse, tomatoes grow well, the flowers later will bear fruit, this greenhouse is of huge benefit for us. It is of great significance to us all.

Namgay, a resident of the model organic village Longpa/Nobgang, in Haa district, Bhutan, during a village tour and visiting a polyhouse, one of the simple and cost-efficient mountain solutions



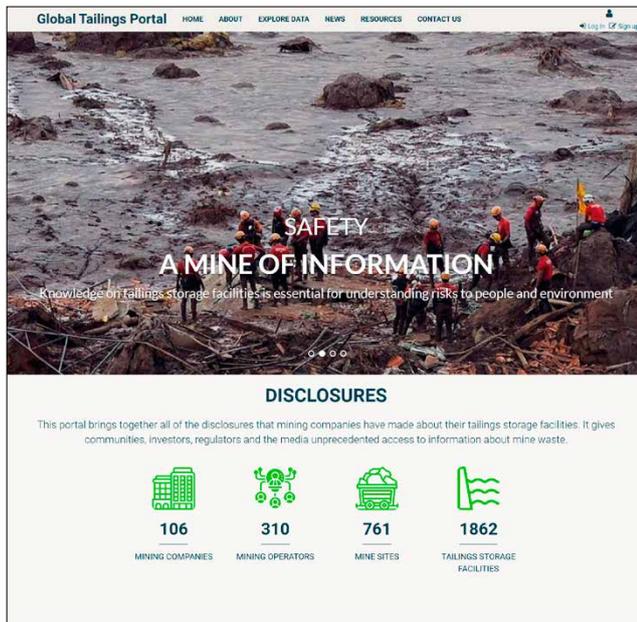
More on mining

After the release of the Rapid Response Assessment report Mine Tailings Storage: Safety is no Accident in 2017 and the launch of the Global Tailings portal (<https://tailing.grida.no/>) in 2020, we're moving ahead. The Global Tailings Portal has helped open an otherwise closed industry. Through working with powerful partners, the first Global Industry Standard on Tailings Management was shown on the portal, which will be a vital part on a new Global Tailings Management Institute being setup by UNEP.

GRID-Arendal has continued to work with partners at the Mine Tailings Safety Initiative (MTSI) to improve the practices of miners around the globe. As the industry gears up to implement the Global Industry Standard on Tailings Management (GISTM), in 2021 GRID-Arendal has been working with a multi-stakeholder group to revise the company disclosure questions to align with the Standard and update the Tailings Portal to accommodate these new disclosures. The draft questions have been released for public consultation with the final version expected in late 2022. GRID-Arendal is also working with the UN Environment Programme Regional Office for Asia and the Pacific in Bangkok to expand the portal coverage to include unlisted and state-owned enterprises in Southeast Asia.

During 2021 over 150 diverse users (mining companies, NGOs, investors, academics) requested data from the database and the site was visited over 35 000 times. The portal is recognised as the most comprehensive publicly available knowledge base on the global mining industry.

GRID-Arendal is also part of a high-level advisory group developing the terms of reference and governance structure for the UNEP and MTSI led independent Global Tailings Management Institute. It is envisaged that the institute's functions will include promoting awareness, overseeing the adoption of the GISTM and managing an assurance framework for independent audit of facilities. The institute will also provide a central location for the company disclosures (the GRID-Arendal tailings portal) and audit status.



Screen capture of the Global Tailings Portal, taken December 2021.

People

GRID-Arendal staff: Elaine Baker, Kristina Thygesen, Debhasish Bhakta

Partners: UNEP, Church of England Pension Fund, Swedish National Pension Funds Council of Ethics



The global data base developed by GRID-Arendal has provided an essential tool to bring together all the information disclosed by these mining companies. It has also given communities, investors, regulators, and the media access to a consolidated source of information about tailings storage facilities for the first time. This public disclosure, along with possible future enhancements to the portal, will help improve the overall transparency in tailings management.

David Cooling, Principal Coordinator for the Global Tailings Management Institute



Building agreements while learning more about plastics

GRID-Arendal has worked closely with multiple partners on strategies to raise awareness about the impacts of plastic and litter on the marine environment and ways to prevent it from entering the ocean.

We partnered with UNEP and the Secretariat of the Basel, Rotterdam and Stockholm Conventions to produce and launch the report *Drowning in Plastics: Marine Litter and Plastic Waste Vital Graphics* (<https://www.grida.no/publications/749>) which addresses the current knowledge on the global marine litter and plastic challenge and the solutions that can be implemented to avoid their potential impacts. A set of five factsheets were also published to complement the vital graphics (<https://www.grida.no/publications/768>).

Jointly with UNEP, GRID-Arendal prepared the report *Pollution to Solution: A global assessment of marine litter and plastic pollution* (<https://www.grida.no/publications/747>), a landmark assessment detailing and analysing the current state of scientific knowledge on marine litter and plastic pollution.

Both the vital graphics and the *Pollution to Solution* reports are key sources of information and knowledge on plastic pollution of the marine environment. The reports were launched at a UNEP event in October 2021, that brought together experts in science and policy to discuss the key findings of the assessment and its relevance in the lead up to the fifth session of the UN Environment Assembly, and beyond.

Marine litter and plastic pollution in the ocean is affecting ecosystems, economies and societies around the world. GRID-Arendal continues to play a part in documenting and providing information about the negative effects of plastic pollution and importance of global solutions through publishing new scientific evidence on waste and marine litter in scientific articles. During 2021, we published science articles, developed text for an African Marine Litter Outlook to be published in 2022, explored traditional



The products that GRID-Arendal has produced are well tailored to support the international policy-discussions on stronger global commitment to prevent and reduce plastic pollution, including better management of plastic waste.

Ingeborg Mork-Knutzen, Norwegian Ministry of Climate and Environment

nature positive solutions to waste through a survey (results to be published in 2022), published a desktop study on marine litter in western, central and southern Africa (<https://www.grida.no/publications/764>), and trained local citizens in Sierra Leone in monitoring beach litter.

We partnered with the Secretariat of the Basel Convention to prepare the *Story Map Plastic Waste and the Basel Convention* (<https://www.grida.no/publications/585>) to broaden the understanding of the governance and decisions for plastics and environmental protection.

GRID-Arendal, with the Secretariat of the Basel Convention, Norwegian Ministry of Climate and Environment and University of Wollongong, reviewed 60 global and 37 regional plastic waste initiatives, which found important thematical and geographical gaps in plastic waste management efforts. This review (<https://www.grida.no/publications/546>) recommended that a legally binding, international framework may be the best way to address plastic pollution on a global scale.

GRID-Arendal worked closely with the Norwegian Ministry of Climate and Environment to raise awareness about the UNEA resolutions on marine litter and microplastics and to facilitate international and Norwegian discussions on a new global agreement on plastic pollution. To help spread the message, GRID-Arendal conducted webinars and produced videos, booklets and websites to reach international audiences and policy-makers, and engaged with local networks through events such as *Arendalsuka* and events hosted by the Nordic Council of Ministers.

People

GRID-Arendal staff: Clever Mafuta, Thomas Maes, Kristina Thygesen, Maria Taskona, Ieva Rucevska, Lars Appelquist, Morten Sørensen, Dave Messing, Runa Sandnes Lindebjerg, Clever Mafuta, Torjus Solheim Eckhoff, Maria Tsakonaz, Thomas Maes, Miles Macmillan-Lawler, Romain Langeard, Runa Lindebjerg, Helene Svendsen

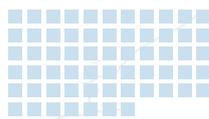
Partners: UNEP and Secretariat of the Basel, Rotterdam and Stockholm Conventions, Norwegian Ministry of Climate and Environment and University of Wollongong.

Plastic waste in numbers

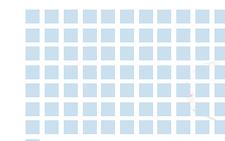
In 2018, of the **291 million tonnes (Mt)** of non-fibre plastic waste estimated to be generated globally →



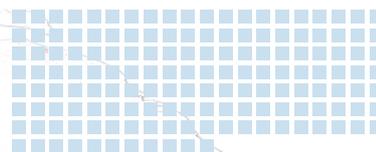
Recycled: **62 Mt**



Incinerated: **78 Mt**

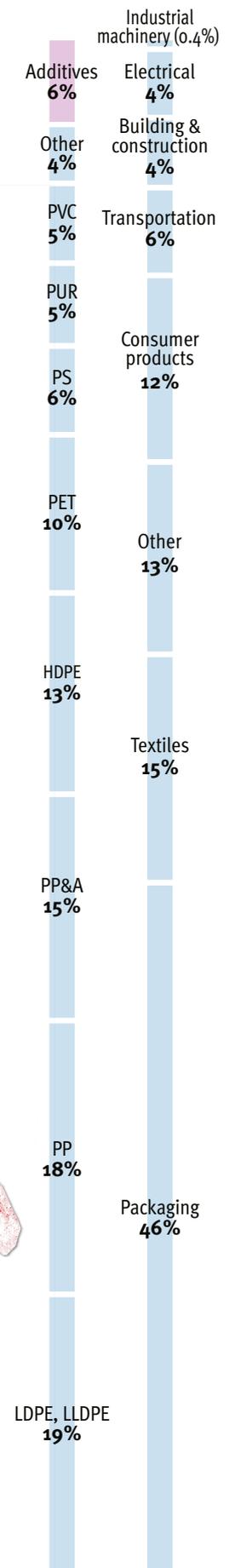


Discarded: **151 Mt**



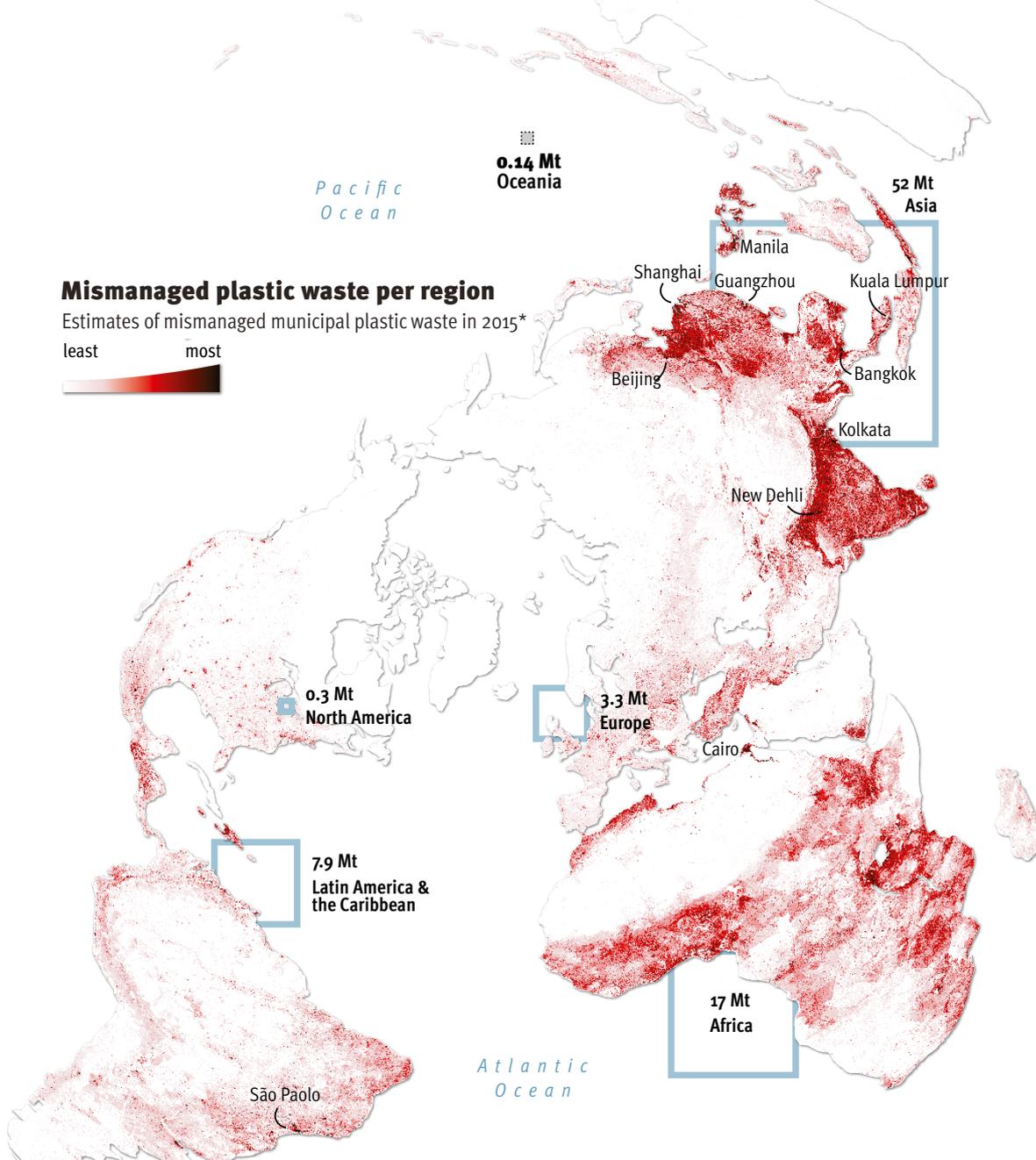
Total primary plastic waste generation (2018)

by polymer (+ additives) by sector



Mismanaged plastic waste per region

Estimates of mismanaged municipal plastic waste in 2015*



* Mismanaged waste is the sum of material which is either littered or inadequately disposed.

The boundaries and names shown, and the designations used on this map do not imply official endorsement or acceptance by the United Nations. Sources: Lebreton et al. (2017), Geyer (2020). Illustration by Levi Westerveld / GRID-Arendal (2020). Research by Maria Tsakona.



From Peaks to Poles – Pollution in the mountains and polar regions

Oftentimes environmental problems like pollution are compartmentalized – it is “their” problem and not “our problem”. During 2021, our work on litter and pollution in the Arctic and mountain regions brought different stakeholders together – NGOs, officials in municipalities, high level ministers and politicians, the private sector, researchers and concerned individuals. It brought all to a common understanding of the problem of litter in these regions – as well as a common understanding that action is required across all sectors of society. The Mountain Waste Survey has shone a light for the first time directly on the large and extensive waste problem in mountains. The Massive Online Open Course in Russian will bring all the knowledge gained to a completely new audience. We now have the information on which specific types of waste (plastics in particular) are most commonly littering these landscapes, so we know what to tackle. We also have a good understanding – based on the feedback from around the world - of the types of solutions that can realistically succeed.

Plastic pollution threatens the health and well-being of people, animals and ecosystems not only in the urbanized environments but also in the most remote parts of the world like upstream in mountainous areas, and at higher latitudes towards the poles. In 2021, GRID-Arendal launched the Global Mountain Waste Survey, the first global survey of its kind which sought the input of mountaineers about waste problems and solutions. The results from over 1700 responses from collaboration with several sporting associations gave a clear pathway forward for creating sustainable solutions. (see diagram below). GRID-Arendal conducted a deep dive into the opportunities, constraints and best practises for waste management in remote and mountainous regions with the Basel and Rotterdam Secretariat. The upcoming report includes 50 solutions which will provide a blueprint for others to use.

In the Arctic, GRID-Arendal raised awareness of plastic pollution and potential solutions in diverse stakeholder groups, supported Arctic Council’s Arctic Monitoring and Assessment Programme (AMAP) and Protection of the Arctic Marine Environment (PAME) working groups. We also led the University of the Arctic Thematic Network on Arctic Plastic Pollution. GRID-Arendal organized a ‘marine pollution in the Arctic’ event at the Norwegian Ambassador residence in Copenhagen, a circumpolar workshop on Arctic Plastic Pollution and a workshop on Strengthening Cooperation on Marine Litter in the Barents Sea region. The

very first UNEP Massive Open Online Course on Marine Litter in Russian with about 300 participants finished early in 2021, and ~130 people participated in our webinar series on marine litter in the Barents Sea (broadcast in Russian and English). Our online portal for Deep Dive beach litter analysis (<https://deepdive.grida.no/>) was tested successfully by our collaborators on Svalbard. The portal identifies marine litter sources in different locations in the Arctic and will be used to find local, practical solutions to mitigate the litter problem.

People

GRID-Arendal staff: Tina Schoolmeester, Björn Alfthan, Laurent Fouinat, Anna Sinasalo, Torjus Solheim Eckhoff, Guendalina De Luigi

Partners: United Nations Environment Programme (UNEP), the Secretariat of the Basel, Rotterdam and Stockholm Conventions (BRS Secretariat), the Mountain Research Initiative (MRI), the International Federation of Mountain Guides Associations (IFMGA), the International Climbing and Mountaineering Federation (UIAA), the Union of International Mountain Leader Associations (UIMLA), and the Kilian Jornet Foundation. United Nations Environment Programme (UNEP), Protection of Arctic Marine Environment (PAME), Arctic Monitoring and Assessment Programme (AMAP), UArctic Thematic Network on Arctic Plastic Pollution, Northern (Arctic) Federal University, Kola Science Centre, Open Universiteit, SALT



Source and fate of agricultural plastics

The development of sustainable agri-food systems requires healthy soil, so it is essential that we understand the impact of plastic pollution on soil. The working paper positions GRID-Arendal to support UNEP and FAO in accelerating the development and use of biodegradable nature-based alternatives to the non-biodegradable products currently widely used in agriculture.

GRID-Arendal authored a working paper in 2021 which gave an initial assessment of the potential impact of plastics used in agriculture.

The paper focused primarily on identifying sources of plastics in agriculture, and examined the fate of plastic residue in agricultural soil. The report aims to increase knowledge and awareness, and invite discussion and action among relevant stakeholders to reduce plastic



The trouble is we don't know how much long-term damage the breaking down of these products is doing to agricultural soils.

Mahesh Pradhan, coordinator of the UN Environment Programme's (UNEP) Global Partnership for Nutrient Management

contamination in soil and the movement of agricultural plastics into the broader environment. There is evidence that plastics, including microplastics, are accumulating in agricultural soil. This can impact soil properties, pollute waterways, and harm animal and human health.

The working paper was launched to mark World Soil Day at a joint UNEP/FAO event. GRID-Arendal participated in a public panel discussion that included members of the Global Soil Partnership and the Global Partnership on Nutrient Management.

People

GRID-Arendal staff: Kristina Thygesen, Elaine Baker
Partners: UN Environment Programme (UNEP), Food and Agriculture Organization of the United Nations (FAO)



Above: Early potatoes covered with transparent plastic which helps to heat the soil and keep it moist. When the potato plant gets too big to remain under this layer of plastic, it is replaced with a thin fibre cloth. South Norway. Photo: Kristina Thygesen. Right: Fibre cloth left at the side of the field after use.

Other Activity Highlights

Bringing environmental knowledge to Norwegian Public

During 2021, GRID-Arendal experts led and participated in assorted activities that brought the latest in environmental knowledge directly to different local groups in Norway. For example:

- The Introduction to Ocean and Coastal Management course that GRID-Arendal staff taught at the University of Agder. GRID-Arendal staff members lectured on a range of topics including integrated management, stakeholder engagement, marine spatial planning, science-policy communication, blue carbon and ecosystem services valuation. The course also included a virtual fieldwork session at the nearby Raet National Park.

- Sammen i verden - an annual event celebrated in Arendal each October to promote awareness of the Sustainable Development Goals (SDGs) and the UN's work. GRID-Arendal staff hosted a film screening of the documentary "My Octopus Teacher" for more than 500 students in the Arendal school district. The filmmaker Craig Foster provided GRID-Arendal with an audio recording introducing the film to the students and his hopes for its impact. Senior Expert in Waste and Marine Litter, Thomas Maes gave provided an overview of the SDGs and their importance in Norway. We received positive feedback from teachers, expressing interest in more educational film screenings in the future.



Making peace with nature – a panel discussion during Arendalsuka 2021

GRID-Arendal organised a panel discussion on nature and the solutions it provides to tackle climate, biodiversity and pollution crises to secure a sustainable future. Nature was a central theme at the fifth UN Environment Assembly (UNEA-5), where we witnessed a call for decisive action to protect and restore nature, and apply nature-based solutions in order to achieve the Sustainable Development Goals and build back better in a post-pandemic world. We must make peace with nature. The theme - Making peace with nature - encourages us to think broadly about the pathways we

can take forward, the partnerships that will make this change possible, and the tools we have for success. The panel discussion provided a platform to showcase a variety of perspectives including business, youth, science and indigenous voices.

People

GRID-Arendal staff: Björn Alfthan, Edward Hinkle, Guendalina De Luigi, Iliana Gkoutzou, Janet Fernandez Skaalvik, Olivia Rempel, Robert Barnes, Svein Rasmussen, Torjus Solheim Eckhoff



Panellists (left to right): Bård Vegar Solhjell, Director General, Norwegian Agency for Development Cooperation; Lasse Bjørn, Project Manager, Arctic and Environmental Unit, Saami Council; Fridtjof Fossum Unander, Executive Director, Oceans, Energy and Sustainability, The Research Council of Norway; Karen Landmark, Director of Strategic and Business Development, Greenstat AS; and Maren Hersleth Holsen, State Secretary, Norwegian Ministry of Climate and Environment. On the far right are GRID-Arendal staff Björn Alfthan and Torjus Solheim Eckhoff, who served as panel hosts. Photo: Olivia Rempel, August 2021



Kelp, seaweed, and blue forests: how to create sustainable value

Blue forests are a common name for vegetation in ocean and tidal zones such as kelp, seagrass, saltmarshes, and mangroves.

Interest in the cultivation of kelp and seaweed, otherwise known as macroalgae, is increasing. Indeed, it has been projected that Norway can produce as much as 20 million tonnes of macroalgae a year, with an annual projected revenue of 40 billion NOK by 2050. Cultivated kelp and seaweed can be transformed into edible products for humans, feed for animals, sustainable packaging, thickening agents for food and personal hygiene products, and more. However, outstanding questions remain about the sustainability of commercial macroalgae cultivation.

During Arendalsuka 2021, the Norwegian Blue Forests Network held a seminar to discuss the potential environmental consequences of commercial and sustainable use of natural blue forests. The event brought together the following speakers: Stig Traavik, Director of Climate, Energy and Environment at Norad; Ruth Grung, Member of the Labour Party and Parliamentary committee on energy and the environment; Sigrid Z. Heiberg, Foreign policy spokesperson for the Green Party; Helene Frihammer, Regional Director of NHO Vestlandet; Solrun Figenschau Skjellum, Research

Director at NIVA; Peter Haugan, Programme Director at IMR; Kasper Hancke, Senior Researcher at NIVA; and Tanya Bryan, Senior Program Officer at GRID-Arendal.

Over 80 people attended, raised the profile of blue forests but also the profile of the NBFN, provided a platform for a key politic discussion around blue forests that was very timely as the new government is setting its policies around ocean, and as blue forests are being discussed by local and national decision makers.

People

GRID-Arendal staff: Tanya Bryan, Steven Lutz, Olivia Polkinghorne, Rob Barnes, Kaya Asdal

Partners: Norwegian Institute for Water Research (NIVA), Institute of Marine Research (IMR)



Blue forests are an important solution to achieving many SDGs. While interest in these ecosystems is growing, their value is still insufficiently recognized. NBFN works to address this by gathering and sharing the growing wealth of blue forests knowledge and expertise.

Cecilie Wathne, Project Leader of the Norwegian Blue Forests Network



Panel discussion regarding the sustainable cultivation of kelp. Panellists from left to right: Helene Frihammer, NHO Vestlandet; Stig Traavik, Norad; Sigrid Z. Heiberg, Green Party; Ruth Grung, Labour Party; Solrun Figenschau-Skjellum, NIVA. Photo: Maritime Bergen, August 2021



Wave tank action while assessing kelp forests

The UNEP/Norwegian Blue Forest Network (NBFN) global kelp assessment report continues to be developed with an expected delivery date in 2022. A preview of the report was presented at a session of the NBFN's Blue Forest Week 2021. This event was held in November 2021

“
It is hoped that the forthcoming report on kelp ecosystems can provide sufficient scientific information so that all of us in the blue carbon and blue forests community can actively place kelp ecosystems appropriately in the UNFCCC and CBD discussions.

Takehiro Nakamura, Coordinator, Marine and Coastal Ecosystems Unit.
 Takehiro's Blue Forest Week 2021 presentation is available here:
<https://www.youtube.com/watch?v=h5678Sv71Ds>

and featured experts from Norway and around the world discussing coastal and marine nature-based solutions to the climate and environmental crisis. Also launched at the event was the blue forests wave tank, an interactive live-action display demonstrating how blue forest ecosystems, such as mangroves and seagrass, can help protect coastal communities against storm surge and coastal flooding by absorbing wave energy.

People

GRID-Arendal staff: Steven Lutz, Olivia Polkinghorne
Partners: United Nations Environment Programme (UNEP), Norwegian Blue Forests Network (NBFN), Institute of Marine Research (IMR), Norwegian Institute for Water Research (NIVA), Blue Green Future



Healthy seagrass ecosystems support a wide range of benefits, from commercial and recreational fisheries to carbon sequestration.



The blue forests wave tank demonstrates how blue forests ecosystems, such as mangroves and seagrass, can help protect coastal communities against storm surges and coastal flooding by absorbing wave energy. Photos: Olivia Rempel.

Sharing environmental knowledge with the world

The spotlight on environmental crime

The Investigative Journalism Grants address the lack of exposure and communication around environmental crimes and their connection to organised crime. By supporting investigations, this project has brought international attention to the crimes and motivates positive actions where previously illegal activities were benefiting from low exposure.

Environmental crimes are still considered “soft crimes”, while they are often directly connected to other types of “hard crime”. They contribute to further destruction of natural ecosystems on the planet, while at the same time threaten local livelihoods and annihilate local opportunities for future generations.

In 2021, GRID-Arendal awarded four grants of 25,000 NOK each in financial support towards already ongoing investigations on several broad themes in line with the topics we address in our programmes. In addition, to increase the publication qualities, we offered support through expert knowledge, graphic design and GIS data analysis.

- The world’s thirst for palm oil is about to destroy Asia’s largest remaining rainforest (Peter Yeung) published by VICE World News
- A hazy allocation (Tatenda Prosper Chitagu), published by The Standard and The Independent
- The women who stand against fracking in the middle Magdalena valley (María Claudia Dávila and Lia Valero), hosted by @MutanteOrg.
- Chinese-Run Company Aided By Govt Officials Exports Charcoal And Timber Despite Ban, Threatening Nigeria’s Forests (Chikezie Omeje), published by Sahara Reporters

People

GRID-Arendal staff: Valentin Yemelin, Romain Langeard, Guendalina De Luigi, Olivia Rempel

Partners: The grant opening is shared by several journalist networks: International journalist’s network, Global Investigative Journalism Network, Earth Journalism Network, Oxepeckers, Code for Africa)



Portrait of Yanuarius Kobi, an Ayu man in traditional dress in Meto village, in Papua, Indonesia on May 29th, 2017. Indigenous Ayu people in Papua are living under the shadow of an environmental disaster with palm oil industry destroying largest remaining rainforest. Photo: Nanang Sujana/EAR

Reinforcing Fisheries Governance in Guinea

The Guinea fisheries sector is highly important to its society and economy, yet like many countries around the globe it is known to have considerable problems with illegal, unreported and unregulated (IUU) fishing. In Guinea, more than 1.5 million people depend directly on fish products for their livelihoods, especially in relation to protein consumption. With the sector also playing a significant role in the export industry of the country, the economic impact of IUU fishing activities was estimated at circa 110 \$ million annually in 2017.

This project began in June 2021, and was funded by a grant from Rockefeller Philanthropy Advisors (“RPA”) on behalf of its Sponsored Project, Oceans 5. It aims to reinforce the fisheries’ governance in Guinea and reduce IUU fishing activities in its Exclusive Economic Zone. This will be done by increasing the transparency of the fisheries sector, strengthening the legal and regulatory framework policy reforms and measures, improving inter- and intra-cooperation of relevant agencies, strengthening information and monitoring systems and building technical capacities.

GRID-Arendal is responsible for the project and financial management, reporting, application of technological

solutions, capacity building and training, and is supporting all project activities. Concrete results have already been seen in important activities that are identified as priority areas by the new minister of fisheries, placing this project at the very heart of the policy reform’s process in the country. The finalisation and validation of legal texts that were initiated by a previous project “PRAO” lead by the World Bank was a major achievement in 2021. In addition, support to the review and licencing process has been provided in a timely manner, awareness raising at institutional level about IUU fishing impact has led to a request for the project to support design of a multi-year fisheries management plan that is in its final stage of validation. Lastly, trainings were designed for the use of new monitoring control and surveillances (MCSs) technologies.

People

GRID-Arendal staff: Valentin Yemelin, Romain Langeard, Rob Barnes, Guendalina De Luigi, Olivia Rempel, Edward Hinkle

Partners: Regional Partnership for Coastal and Marine Conservation in West Africa (PRCM), Trygg Mat Tracking (TMT), Ministry of fisheries, aquaculture and maritime economy in Guinea (MPAEM)



PRCM director visit at the Ministry of Fisheries, Aquaculture and Maritime economy with the new Minister Mme Charlotte Daffé (November 2021)



*Fishing vessel run by chinese company in Guinean waters
Photo: Trygg Mat Tracking, 2016*

Filming on location in Bhutan during a pandemic

GRID-Arendal has found new ways to adapt to the global pandemic, reduce travel and operate more sustainably, while producing high quality, creative content and involving local stakeholders more directly in the creation of our products.

One such example, GRID-Arendal is producing a visual narrative and a documentary highlighting the agricultural “solutions” used by a mountain community in Longpa/Nobgang village, the Haa district of Bhutan to improve resiliency. We had planned to start filming in early 2021, but due to the global pandemic, GRID-Arendal staff could not travel to carry out the filming. Instead, we worked with a local film crew to create a production plan that would provide the film material needed. The film crew spent time in the village over three seasons, filming with residents on three different occasions, to collect and send quality footage to GRID-Arendal for editing.

People

GRID-Arendal staff: Anna Sinisalo, Laurent Fouinat, Olivia Rempel



Videographer Sonam Phuntsho showing the footage to Ms. Tsunda Zam, a local resident of Longpa/Nobgang village in Bhutan after her interview. Photo: Kinley Wangchuk



The local film crew capturing residents of the village on a break in the field. Photo: Kinley Wangchuk.

Publications and products

Books, reports, and briefs

GRID-Arendal produced or made significant contributions to these publications released in 2021:

The Arctic: A Sink for Global Pollution

Authors: GRID-Arendal and Centre for the Ocean and the Arctic
Publisher: GRID-Arendal and Centre for the Ocean and the Arctic

Earth Observation for Sustainable Development: Fragility, Conflict, and Security

Authors:
Publisher:

Working paper: Plastics in agriculture: sources and impacts

Authors: Elaine Baker, Kristina Thygesen
Publisher: UNEP

ECOTIP Flyer

Author: ECOTIP Partners
Publisher: ECOTIP

From Pollution to Solution: A Global Assessment of Marine Litter and Plastic Pollution (Synthesis)

Author: UNEP
Publisher: UNEP

From Pollution to Solution: A Global Assessment of Marine Litter and Plastic Pollution

Author: UNEP
Publisher: UNEP

Drowning in Plastics: Marine Litter and Plastic Waste Vital Graphics

Authors: UNEP, Secretariats of the Basel, Rotterdam and Stockholm Secretariats and GRID-Arendal
Publisher: UNEP, Secretariats of the Basel, Rotterdam and Stockholm Secretariats and GRID-Arendal

Circular Economy on the African Continent: Perspectives and Potential

Author: GRID-Arendal
Publisher: GRID-Arendal

Assessment of Oceanic Blue Carbon in the UAE: Policy Options

Authors: Steven Lutz, Jane Glavan, Angela Rubilla
Publishers: AGEDI, GRID-Arendal, Blue Climate Solutions

Assessment of Oceanic Blue Carbon in the UAE: Biomass Carbon Mechanism with a Focus on Abu Dhabi Emirates

Author: Heidi Pearson
Publishers: AGEDI and GRID-Arendal

Building Resilience: GRID-Arendal Annual Report 2020

Author: GRID-Arendal
Publisher: GRID-Arendal

Inventory of Global and Regional Plastic Waste Initiatives

Author: GRID-Arendal
Publisher: GRID-Arendal

Limpopo River Basin - Changes, challenges and opportunities

Authors: LIMCOM, USAID RESILIM, GWP SA, GRID-Arendal and SARDC
Publishers: LIMCOM, USAID RESILIM, GWP SA, GRID-Arendal and SARDC

Exploring the Option of a New Global Agreement on Marine Plastic Pollution – A Guide to the Issues

Author: GRID-Arendal
Publisher: GRID-Arendal

Indicators for Elevating Mountains in the Convention on Biological Diversity's Post-2020 Global Biodiversity Framework

Authors: UNEP, GRID-Arendal, GMBA, MRI

Landscape Mapping Blue Forests Policy in Norway

Author: GRID-Arendal
Publisher: GRID-Arendal

Sanitation and Wastewater Atlas of Africa

Authors: AfDB, UNEP and GRID-Arendal
Publisher: AfDB, UNEP and GRID-Arendal

Research papers and articles

GRID-Arendal staff authored or co-authored these papers and articles published in peer-reviewed journals:

A Global Ecological Classification of Coastal Segment Units to Complement Marine Biodiversity Observation Network Assessments

Authors: Sayre, R., K. Butler, K. Van Graafeiland, S. Breyer, D. Wright, C. Frye, D. Karagulle, M. Martin, J. Cress, T. Allen, R. J. Allee, R. Parsons, B. Nyberg, M. J. Costello, Peter Harris and F. E. Muller-Karger
Publisher: Oceanography

How to Meet New Global Targets in the Offshore Realms: Biophysical Guidelines for Offshore Networks of No-Take Marine Protected Areas

Authors: Peter Harris, Daniela M. Ceccarelli, Kate Davey, Geoffrey P. Jones, Sione V. Matoto, Jason Raubani and Leanne Fernandes
Publisher: Frontiers in Marine Science

A Question of Standards: Adapting Carbon and Other PES Markets to Work for Community Seagrass Conservation

Authors: Robyn Shilland, Gabriel Grimsditch, Mohamed Ahmed, Salomão Bandeira, Hilary Kennedy, Maria Potouroglou, Mark Huxham
Publisher: Marine Policy

Taking a Mass-balance Approach to Marine Plastics in the South China Sea

Authors: Peter T. Harris, Jerker Tamelander, Youna Lyons, Mei Lin Neo, Thomas
Publisher: ScienceDirect

Microplastic pollution in Marine Protected Areas of Southern Sri Lanka

Authors: W.L.S. Sevewandi Dharmadasa, A.L. Andrady, P.B. Terney Pradeep Kumaraa, T. Maes
Publisher: Marine Pollution Bulletin

Meso- and Microplastics Monitoring in Harbour Environments: A case study for the Port of Durban, South Africa

Authors: Fiona Preston-Whyte, Briony Silburn, Bryony Meakins, Adil Bakir, Keshnee Pillay, Marco Worship, Siraj Paruk, Yandiswa Mdazuka, Gcobani Mooi, Rogan Harmer, Denise Doran, Freya Tooley, Thomas Maes
Publisher: Marine Pollution Bulletin

Tailings Facility Disclosures Reveal Stability Risks

Daniel M. Franks, Martin Stringer, Luis A. Torres-Cruz, Elaine Baker, Rick Valenta, Kristina Thygesen, Adam Matthews, John Howchin, Stephen Barrie
Publisher: Scientific Reports

Exposure of Coastal Environments to River-sourced Plastic Pollution

Authors: Peter T. Harris, Levi Westerveld, Bjorn Nyberg, Thomas Maes, Miles Macmillan-Lawler, Lars Appelquist
Publisher: Science of The Total Environment

Online communication products

GRID-Arendal produced these online communication products in 2021:

Websites

Arctic Passion: arcticpassion.eu
ECOTIP Arctic: ecotip-arctic.eu

Blue Capacity Hub: bluecapacityhub.info
Deep Dive Marine Litter: deepdive.grida.no
World Water Earth: worldwater.earth

StoryMaps

Sustainable Blue Economy in a Nutshell
Producers: Louise Lieberknecht, Alexander Mitrofanenko, Remco Lameijer, Levi Westerveld, Georgios Fylakis, Studio Atlantis
Publisher: GRID-Arendal

Plastic waste and the Basel Convention

Producers: GRID-Arendal and the Secretariat of the Basel Convention
Publisher: GRID-Arendal

Videos

Green Nudges at Universities

French <https://vimeo.com/641956872/ef956a606d>

Japanese <https://vimeo.com/654594823/f187ef1ea8>

Chinese <https://vimeo.com/654598808/30122aff2a>

Arabic <https://vimeo.com/655408625/11cb9734e3>

Playing for the Planet Alliance welcomes ten new members as 2021 Green Game Jam film premiered

<https://vimeo.com/640316274>

Pathfinder Award Finalists

<https://vimeo.com/639130667>

How the World Bank Team uses Earth Observation for Sustainable Development

<https://vimeo.com/622265762>

Presenting: The Atlas for Resilient Mountain Solutions

<https://vimeo.com/617895707>

PANORAMA: Uptake stories

<https://vimeo.com/603903497>

PANORAMA – Who we are

<https://vimeo.com/594478610>

Blue Champions Award Uptake Stories: CORAL Reef Alliance, Honduras

<https://vimeo.com/659333288>

Keeping plastic fishing nets out of our oceans

<https://www.youtube.com/watch?v=TbtSavW12lg>

Reinforcing fisheries' governance in Guinea

<https://vimeo.com/589772706>

Renforcement de la gouvernance des pêches en Guinée

<https://vimeo.com/589767645>

Animations

What are Blue Forests?

<https://nbf.no/animation1/>

Why are Blue Forests Useful?

<https://nbf.no/animation2/>

How are Blue Forests Threatened?

<https://nbf.no/animation3>

How the World Bank team uses earth observation for sustainable development

<https://vimeo.com/622252069>

Board report

Financial report

Board report

GRID-Arendal is a foundation established by the Norwegian Ministry of Environment in 1989 to support the work of United Nations Environment Programme (UN Environment, UNEP). The foundation produces environmental information, communication products and services to build capacity in environmental management and motivate decision-makers to take sustainable actions.

GRID-Arendal conducted its activities in 2021 in line with its bylaws, approved budgets and work plan approved by Norad. Its reports and websites describe the activities of the different programs and the results achieved.

2021 has been financially satisfactory with healthy operations, leading to a surplus of NOK 2,658,335 which will be added to last year's equity, creating a new equity balance of NOK 16,409,680.

In 2021, GRID-Arendal signed a 4-year agreement of NOK 94,000,000 with Norad to support the work programme for 2021 to 2024. This is the largest funding agreement GRID-Arendal has ever signed. The 2021 component of the Norad grant was NOK 20,000,000, which was 24% of the total GRID-Arendal funding for 2021.

GRID-Arendal is an organisation that depends on travelling and collaborating with people on the ground to implement its projects and work programme. The covid-19 pandemic has influenced the 2021 operations less than in 2020. The main operational challenges in 2021 were related to internal staff capacity and procurement of external project capacity. Thanks to close dialogue with our donors, flexible employees, agreements with local partners, and a high degree of digitalisation, the foundation have nevertheless delivered good results with high impact.

GRID-Arendal's environmental policy is based on the foundation's "green" values and commitment to operate in an environmentally responsible and resource efficient manner. Employee flights constitute the largest category for environmental impact. As compensation, GRID-Arendal is investing in emission credits to finance concrete climate action in developing countries. Due to the ongoing pandemic, the number of flights in 2021 was significantly reduced from pre-pandemic levels. GRID-Arendal is a certified Miljøfyrtårn (environmental) organisation and member of Climate

Partners (Klimapartnere). GRID Arendal have offices in an environmentally friendly building with good energy solutions.

Working conditions at GRID-Arendal are considered good. Long term sick leave in 2021 amounted to 1,2% total working days, while short-term sick leave was 1,8%. There were no injuries to staff in 2021, and there was no significant damage to the equipment of the organisation. We strive to reduce stress, improve teamwork and collaboration through efficient communication through staff representatives and the HSE Officer. GRID-Arendal offices have ergonomic furniture for all employees.

At the end of 2021, the Board consisted of 8 board members, 5 women and 3 men. The staff consisted of 43 employees, 20 women and 23 men. In addition, 1 woman in a part time in a temporary position. No permanent staff in part time position.

There is no salary gap between gender for the same positions in GRID-Arendal. At the organisation level, the average salary is 1.45 % higher for men than women. Senior Management consist of 5 members, 2 women and 3 men. Head of Program consist of 5 members, 1 woman and 3 men and 1 vacant position.

GRID-Arendal aims to be a workplace where there is full equality between women and men. It has incorporated provisions aimed at preventing gender discrimination in matters such as salary, promotion, and recruitment, and conducts regular employee surveys, which include attempts to capture the differences between the sexes.

Project funding for 2022 is satisfactory, adaptation to the pandemic situation is high and the project activity level remains high also for 2022. The Board is therefore optimistic about the outlook for 2022. The Board concludes that GRID-Arendal's activities are consistent with its mandate and that it has a competent

staff for continuing operations and for planning further strategy-relevant operational activities in the future.

The financial statements are based on the assumptions of continued operations, as the Board is aware of no factors

that indicate otherwise. The Board considers the financial statements to give a true and fair view of assets and liabilities, financial position and results. There were no events in the past year that had special impact on GRID-Arendal's development or position.

Arendal, 15.02.2022
The board of Stiftelsen Grid-Arendal



Jan-Gunnar Winther
Chair



Karoline Andaur



Guri Enodd Hope



Helga Flesche Kleiven



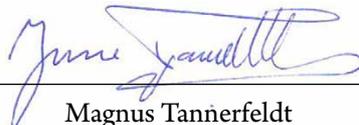
Colin Daniel Martin



Cecilie Mauritzen



Tina Schoolmeester



Magnus Tannerfeldt



Peter Townsend Harris
Managing Director

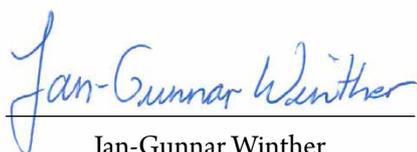
Financial report

Balance sheet (NOK)

Assets	Note	2021	2020
Fixed assets			
Buildings and land	3	282 416	0
Equipment and other movables	3	23 779	13 114
Investments in subsidiaries	4	17 012 000	17 012 000
Total fixed assets		17 318 195	17 025 114
Current assets			
Accounts receivable		5 183 724	1 652 562
Other short-term receivables		1 343 403	1 305 950
Total receivables		6 527 128	2 958 512
Cash and cash equivalents	5	29 257 223	25 844 515
Total current assets		35 784 351	28 803 027
Total assets		53 102 546	45 828 141
Equity and liabilities			
Equity			
Basic capital	6	500 000	500 000
Other equity	6	15 909 680	13 251 345
Total equity	6	16 409 680	13 751 345
Current liabilities			
Trade payables		1 673 188	993 442
Public duties payable		2 026 121	1 970 737
Other current liabilities	7	32 993 558	29 112 617
Total liabilities		36 692 867	32 076 796
Total equity and liabilities		53 102 546	45 828 141

Arendal, 15.02.2022

The board of Stiftelsen Grid-Arendal



Jan-Gunnar Winther
Chair



Karoline Andaur



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Helga Flesche Kleiven



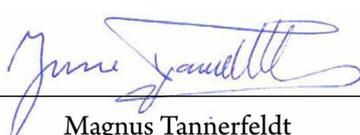
Colin Daniel Martin



Cecilie Mauritzen



Tina Schoolmeester



Magnus Tannerfeldt



Peter Townsend Harris
Managing Director

Revenue statement (NOK)

Operating income and operating expenses	Note	2021	2020
Operating income		72 223 685	63 246 655
Project costs		22 655 484	17 135 700
Employee benefits expense	2	37 725 247	34 251 385
Depreciation and amortisation expenses	3	33 581	31 474
Other expenses	2	10 423 263	10 084 697
Total expenses		70 837 575	61 503 256
Operating profit		1 386 110	1 743 399
Financial income and expenses			
Interest income		28 263	64 677
Other financial income		1 556 920	1 181 404
Interest expenses		301 796	452 416
Other financial expenses		11 162	1 263 348
Net financial items		1 272 225	-469 684
Ordinary result		2 658 335	1 273 715
Net profit or loss	6	2 658 335	1 273 715

Note 1. Accounting principles

The annual accounts have been prepared in conformity with the Accounting Act and NRS 8 - Good accounting practice for small companies.

Operating Revenues

Income from the sale of goods is recognised on the date of delivery. Services are posted to income as they are delivered.

Tax

The foundation is defined as an Ideal organization and is exempt from tax liabilities.

Classification and Valuation of Fixed Assets

Fixed assets include assets included for long-term ownership and use. Fixed assets are valued at acquisition cost. Property, plant and equipment are entered in the balance sheet and depreciated over the asset's economic lifetime..

Classification and Valuation of Current Assets

Current assets and short-term liabilities normally include items that fall due for payment within one year of the balance sheet date, as well as items that relate to the stock cycle. Current assets are valued at the lower of acquisition cost and fair value.

Shares in Subsidiaries

Subsidiaries are valued using the cost method in the company accounts. The investment is valued at acquisition cost for the shares unless a write-down has been necessary. A write-down to fair value is made when a fall in value is due to reasons that cannot be expected to be temporary and such write-down must be considered as necessary in accordance with good accounting practice. Write-downs are reversed when the basis for the write-down is no longer present..

Receivables

Receivables from customers and other receivables are entered at par value after deducting a provision for expected losses. The provision for losses is made on the basis of an individual assessment of the respective receivables.

Foreign Currency

Monetary foreign currency items are valued at the exchange rate on the balance sheet date.

Pension Liabilities

Pension schemes financed through insured schemes are not entered on the balance sheet. The pension premium is treated in these cases as a pension cost and classified together with wage costs.

Note 2. Note Salary costs and benefits, remuneration to the chief executive, board and auditor

Salary costs	2021	2020
Salaries	27 341 558	25 134 664
Employment tax	4 16x1 099	3 623 656
Pension costs	2 169 169	1 999 456
Other benefits	4 053 421	3 493 610
Total	37 725 247	34 251 385

Employed man-years	40	40
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Remuneration to leading personnel	Chief Executive	Board
Salaries	1 125 356	157 050
Other remuneration	13 388	0
Total	1 138 744	157 050

The company is liable to maintain an occupational pension scheme under the Mandatory Occupational Pensions Act. The company's pension schemes satisfy the requirements of this Act.

Auditor	2021	2020
Statutory audit (incl. technical support with annual report)	67 500	72 700
Other services & advisory	50 500	54 700
Total	118 000	127 400

Note 3. Fixed assets

	Fixed asset 1	Fixtures and fittings	Total
Acquisition cost 01.01.2021	0	121 174	121 174
Addition of plant and equipment purchased	299 911	0	299 911
Disposal of plant and equipment sold	0	0	0
Acquisition cost 31.12.2021	299 911	121 174	421 085
Accumulated depreciation 31.12.2021	17 495	97 394	114 889
Book value as at 31.12.2021	282 416	23 779	306 195

The year's depreciation	17 495	16 087	33 582
Expected economic life	10 Years	3 Years	
Depreciation plan	Linear	Linear	

Note 4. Subsidiaries, associates, joint ventures

Investments in subsidiaries are valued using the cost method.

Teaterplassen AS

Municipality	Arendal
Owner-interest	100%
Acquisition cost	17 012 000
Book value	24 379 929
Share of result	1 403 882
Carrying amount	17 012 000

Note 5. Bank deposits

	2021	2020
Of which tax withholdings (Restricted funds)	1 299 359	1 276 123

Note 6. Equity capital

	Basic capital	Other equity capital	Total equity capital
As at 01.01.2021	500 000	13 251 345	13 751 345
Result for the year		2 658 335	2 658 335
As at 31.12.2021	500 000	15 909 680	16 409 680

Note 7. Inter-company items between companies in the same group etc.

As of 31.12.2021 Stiftelsen GRID Arendal has a debt of NOK 8 500 000 to Teaterplassen AS. The interest rate is equal to the market rate.

Independent auditor's report



RSM Norge AS

To the Board of Directors of Stiftelsen Grid-Arendal

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Independent Auditor's Report

Report on the Audit of the Financial Statements

Opinion

We have audited the financial statements of Stiftelsen Grid-Arendal showing a profit of NOK 2 658 335. The financial statements comprise the balance sheet as at 31 December 2021, income statement for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion

- the financial statements comply with applicable statutory requirements, and
- the financial statements give a true and fair view of the financial position of the Foundation as at 31 December 2021, and its financial performance for the year then ended in accordance with the Norwegian Accounting Act and accounting standards and practices generally accepted in Norway.

Basis for Opinion

We conducted our audit in accordance with International Standards on Auditing (ISAs). Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of our report. We are independent of the Foundation as required by laws and regulations and the International Ethics Standards Board for Accountants' Code of International Ethics for Professional Accountants (including International Independence Standards) (IESBA Code), and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Other Information

The Board of Directors and the Managing Director (management) are responsible for the information in the Board of Director's report. Our opinion on the financial statements does not cover the information in the Board of Directors' report.

In connection with our audit of the financial statements, our responsibility is to read the Board of Directors' report. The purpose is to consider if there is material inconsistency between the Board of Directors' report and the financial statements or our knowledge obtained in the audit, or whether the Board of Directors' report otherwise appears to be materially misstated. We are required to report if there is a material misstatement in the Board of Directors' report or the other information accompanying the financial statements. We have nothing to report in this regard.

Based on our knowledge obtained in the audit, in our opinion the Board of Directors' report

- is consistent with the financial statements and
- contains the information required by applicable legal requirements

Responsibilities of the Management for the Financial Statements

The management is responsible for the preparation of financial statements that give a true and fair view in accordance with the Norwegian Accounting Act and accounting standards and practices generally accepted in Norway, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

THE POWER OF BEING UNDERSTOOD
AUDIT | TAX | CONSULTING

RSM Norge AS is a member of the RSM network and trades as RSM. RSM is the trading name used by the members of the RSM network. Each member of the RSM network is an independent accounting and consulting firm which practices in its own right. The RSM network is not itself a separate legal entity in any jurisdiction.

RSM Norge AS er medlem av/is a member of Den norske Revisorforening.

In preparing the financial statements, management is responsible for assessing the Foundation's ability to continue as a going concern, disclosing, as applicable, matters related to going concern. The financial statements use the going concern basis of accounting insofar as it is not likely that the enterprise will cease operations.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

For further description of Auditor's Responsibilities for the Audit of the Financial Statements reference is made to <https://revisorforeningen.no/revisjonsberetninger>.

Report on Other Legal and Regulatory Requirements

Opinion on Governance

Based on our audit of the financial statements as described above, and control procedures we have considered necessary in accordance with the International Standard on Assurance Engagements (ISAE) 3000, *Assurance Engagements Other than Audits or Reviews of Historical Financial Information*, it is our opinion that the Foundation is governed in accordance with the law, the Foundation's purpose and the articles of association.

Arendal, 15 February 2022
RSM Norge AS

Johan Thulin Bringsverd
State Authorised Public Accountant



A UNEP Partner

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