G·R·I·D ARENDAL

Connect

GRID-Arendal Annual Report 2017

> *GRID-Arendal's outputs are of significant relevance to Norwegian development cooperation.*
>
> KPMG Final Report

Established in 1989, GRID-Arendal's mission is to create environmental knowledge that encourages positive change. We do this by organizing and transforming available environmental data into credible, science-based information products, delivered through innovative communication tools and capacity building services targeting relevant stakeholders.

GRID-Arendal works closely with the United Nations Environment, other UN agencies and partners around the world to connect science to policy. Our goal is to shorten the distance between the emergence of new science and policy actions. We seek to influence thinking and action at the level of the global community on issues that require collective efforts because we cannot solve many problems at the national level alone..

Acknowledgements

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GRID-Arendal promotes environmentally sound practices globally and in its own activities. This report is printed on paper from sustainable forest including recycled fibre. The paper is chlorine-free. Our distribution policy aims to reduce GRID-Arendal's carbon footprint.

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Foreword

UN Environment is proud to partner with GRID-Arendal in generating the scientific knowledge we need to influence change on our planet.

As illustrated in the GRID-Arendal Annual Report, the past year has been an exciting albeit challenging one. UN Environment and GRID-Arendal partnered to develop a new and ground-breaking strategy for the Arctic, focused on drawing attention to the absolutely critical role the Arctic plays in ensuring the health of the planet and in helping those most impacted by the change on our icecaps. Our aim has been to lay the groundwork for collaboration and partnerships to give the Arctic a strong voice in global environmental dialogues.

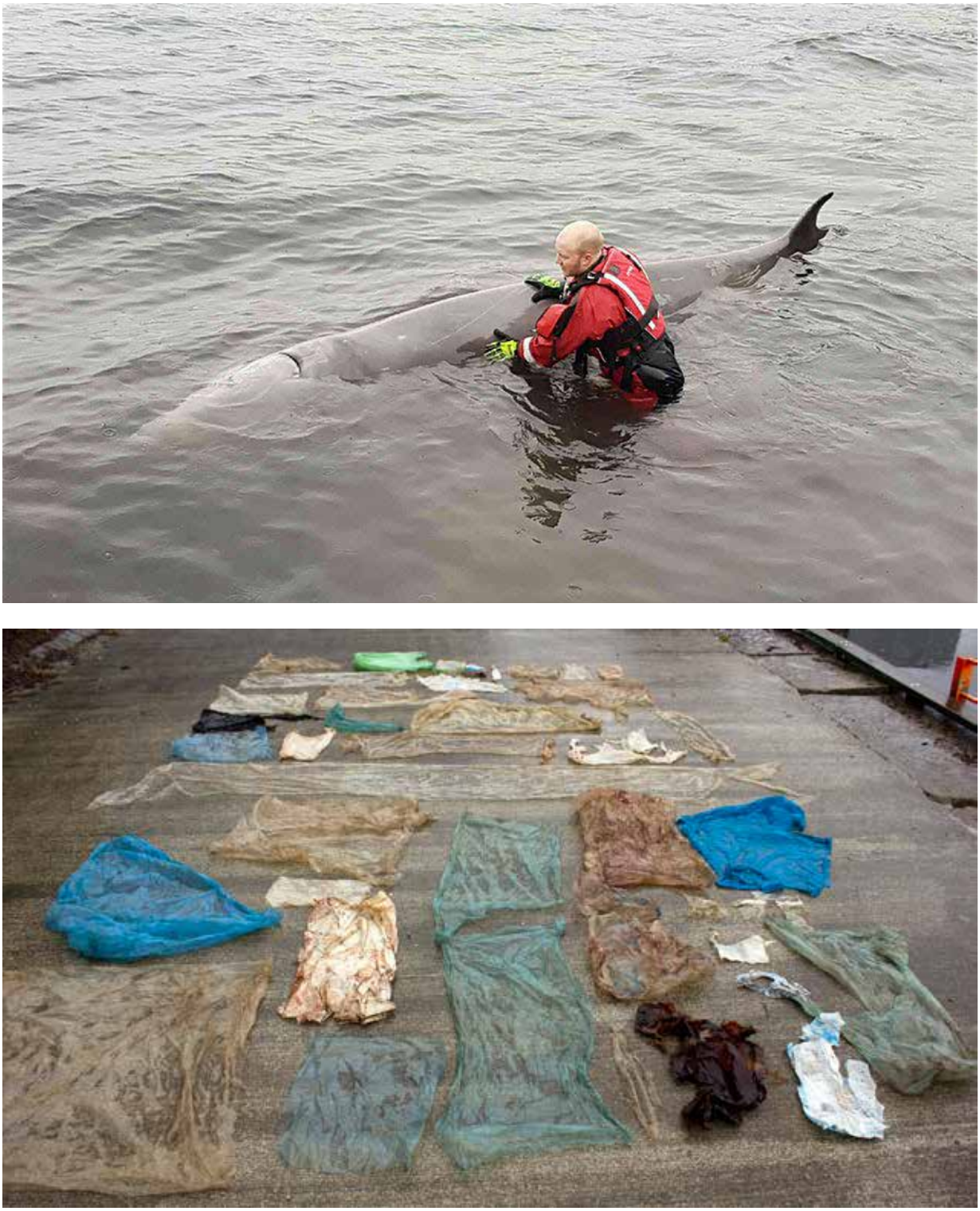
Our joint efforts to protect the health of people and planet have resulted in several rapid assessments on critical environmental issues such as preserving tropical peatlands and the impacts of unsafe storage of mining waste. Both are challenges that rarely make headlines but are vital to ensuring the health and well-being of millions of people around the world.

In addition to supporting the science we need to make the planet a better place, we have partnered on turning this science into concrete policy. GRID-Arendal's research on fighting pollution was instrumental in the passing of resolutions on marine litter and microplastics, and pollution in the mining sector, at the UN Environment Assembly last year.

UN Environment's long-standing partnership with GRID-Arendal is based on three principles. One, that we can innovate our way out of any environmental challenge if we really put our mind to it. Two, that collaborative efforts will be key to success. And finally, that we need to communicate science in a way that inspires people to action and heal our relationship with nature.

I look forward to working closely with GRID-Arendal in the coming year, on our shared vision of a thriving people and planet.

Erik Solheim
Executive Director
UN Environment



The Vindenes whale (top) and the 30 plastic bags that were found in its stomach.

From the desk of the Managing Director

One cold morning in early February, Norwegians awoke to stories about a sick whale that had made its way into the harbour at Vindenes, a small town on the island of Sotra. Rescuers tried to encourage it to swim out to sea but failed. Eventually, the whale was shot to put it out of its misery.

When it was examined, the dead whale was found to have 30 plastic bags in its stomach. News services ran photos of the bags laid out side by side forming a slimy, undigested carpet on the dock. The story made headlines around the world.

But what was this whale doing with a stomach full of plastic? Did the plastic cause the whale's death? How bad is the problem of plastic in our oceans?

GRID-Arendal has been one of the organizations leading the global campaign to raise awareness about the problem of plastic in the environment, and particularly its effect on the oceans that sustain life on this planet. We have produced reports on marine litter and microplastics, organized events to bring attention to the problem and are involved in a number of projects dealing with this issue which is now moving to the top of the environmental agenda.

How the plastic got into the whale's stomach is perhaps an easier question to answer than how to get plastic out of the ocean. Beaked whales have been known to dive to 1000 metres below the surface to feed on deep-sea squid. And plastic bags undulating in the submarine currents look a lot like swimming squid.

In a year filled with environmental stories – the continued die off of coral reefs and retreat of Arctic sea ice, unprecedented wildfires in Australia and the southern United States and a series of massive hurricanes to name just three – there was something about this whale that struck a chord.

Perhaps it is a metaphor for what we are doing to the planet and how concerted action is needed to tackle the immense environmental challenges before us. The whale story embodies two important themes for GRID-Arendal: waste and water. In the story of marine plastics, they are intrinsically linked. But the themes of waste and water connect a lot of issues we work on at GRID-Arendal, all of which are linked to the effects that humans are having on our planet.

GRID-Arendal doesn't just produce information on environmental problems, we work with many partners around the world to find solutions. That approach contributed to two resolutions agreed to by all the countries of the world at last year's UN Environment Assembly in Nairobi. At that global event, GRID-Arendal helped focus attention on plastics in the ocean and the effects of mining waste.

This year our annual report is called Connect for one simple reason: all of the environmental challenges we face are connected in some way. And the solutions are connected as well, whether it be paying communities in Kenya to preserve coastal mangroves, to promoting the Indonesian government's efforts to rewet drained peatlands, to supporting the countries that border the Caspian Sea. All of our work is connected. And nearly everything is somehow linked to water and waste.

I hope you will explore some of the connections in this report and that the stories here – based on a sample of our work with hundreds of partners from around the world – will inspire you to think about how you are connected to the environment you live in.

Peter Harris
Managing Director

Connections/leadership

This GRID-Arendal Annual Report is taking a different approach. Rather than a list of our programmes and everything they've accomplished this year (and with over 80 projects between seven programmes, there are a lot of results), we are looking at two themes that connected a lot of our work last year – **water** and **waste**.

All of GRID-Arendal's work is premised on the pressing need for new thinking and global solutions, related to more regional circumstances. New thinking requires transformation – in the way we make individual choices, the way governments make decisions and how we live on this planet.

As you'll see later in this report, GRID-Arendal helped organize a "transformational leadership" project in Central Asia last year. Aimed at younger decision makers the idea was to develop an understanding that transformational leadership is about personal and collective initiative aiming for a greater good. It means being able to think and act creatively. And it means being empowered to make change happen.

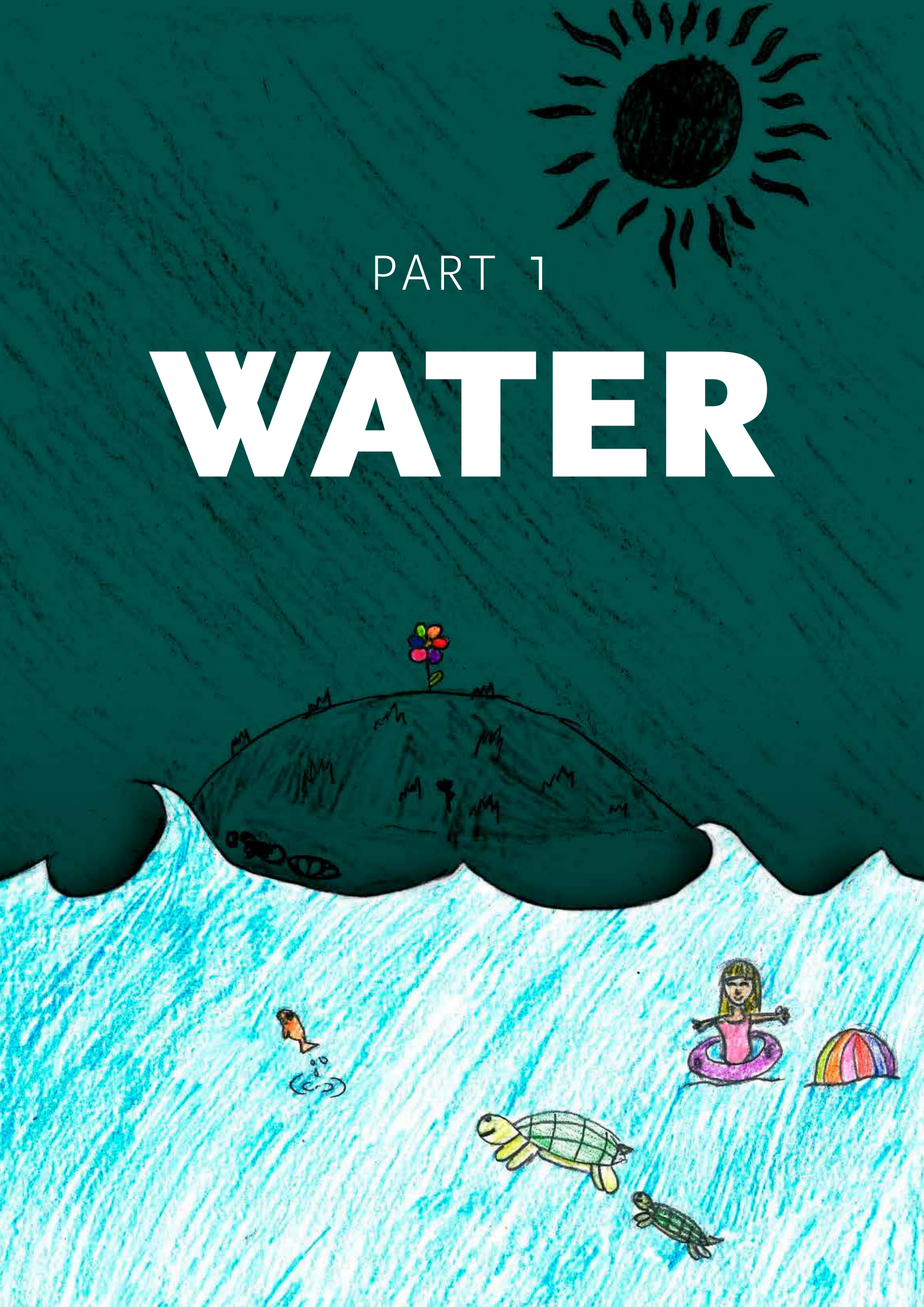
That's GRID-Arendal's goal: to help make change happen. It requires commitment and passion. In the words of the English essayist E.M. Forster,

Only connect! ...
Only connect the prose and the passion,
and both will be exalted...

GRID-Arendal's staff comes from 18 countries.

PART 1

WATER



Planning the right 10%

In the past few years there has been a rapid increase in the declaration of new marine protected areas around the globe. This increase is driven by countries rushing to fulfil their commitment under the Convention of Biological Diversity Aichi Targets and the Sustainable Development Goals to protect 10 percent of coastal and marine areas by 2020.

But are these protected areas truly fulfilling this commitment? Aichi Target 11, for instance, states that these protected areas should include areas of particular importance for biodiversity and ecosystem services. They should also be ecologically representative.

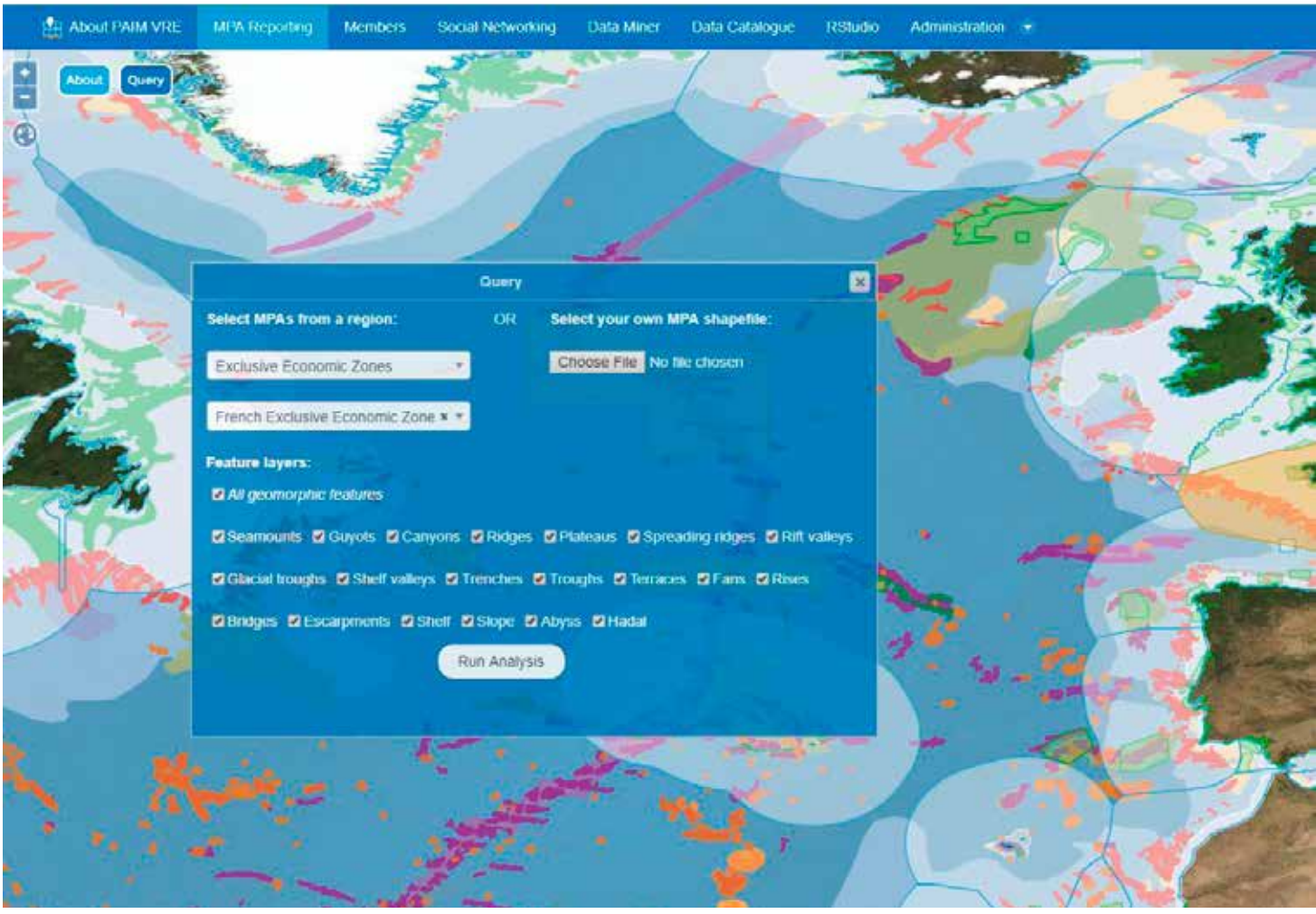
So, is just having 10 percent of a country's marine jurisdiction in protected areas sufficient? How do we know which is the right 10 per cent?

With two years to go until 2020, now is a good time to begin asking (and answering) these questions.

It is often said that we know more about the surface of the moon than we do about the seafloor. If this is true, how can we know what is within the boundaries of our marine protected areas?

Over the last few years, GRID-Arendal's Marine Spatial Planning programme has been tackling this issue. In 2014 we released a global map of seafloor geomorphology – that is a map of all the large physical features on the seafloor including seamounts, canyons, ridges, the continental shelf and the abyssal plains. In all 29 different features were mapped and the results can be found on the Blue Habitats website (www.bluehabitats.org). We are using this map in conjunction with global data on seagrasses, mangroves and marine protected areas to analyse what is in marine protected areas.

By using these data sets, we get a better understanding of where the different areas of particular importance for biodiversity and ecosystem services are located. Only then can we check whether these areas are adequately represented in marine protected areas, such as those in



Protected Area Impact Map Virtual Research Environment developed through the Horizon 2020 BlueBRIDGE project.

the Arctic Ocean, the subject of one of our publications in 2017.

To make this type of analysis accessible to a wide range of people, especially those without data analysis skills, we have created a dedicated web based application. We teamed up with computer scientists from the Italian National Research Institute and programmers from the UN Food and Agricultural Organisation in Rome and created a cloud computing application that will enable any user to run this complex analysis for any county.

The application is driven by a user friendly and visual interface. It is highly efficient and, in less than a minute, can analyze and report on all the features within a country's marine jurisdiction. This is the kind of analysis that might take many hours for a trained professional to run using a powerful desktop computer.

This work is having a real effect. It helps people all over the world to better understand which features are represented within their marine protected areas. It will allow them to meet the 2020 target not just of protecting 10 percent of the oceans, but the right 10 percent.

CBD Aichi Target 11

By 2020, at least 17 percent of terrestrial and inland water areas and 10 per cent of coastal and marine areas ... are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascape.

Traditional Knowledge and Arctic MPAs

In the Canadian Arctic, the Inuvialuit have always hunted on the land. But it is the sea which provides the richest storehouse of food. And that's why the creation of the Anguniaqvia Niqiqyuam Marine Protected Area in Darnley Bay is so important. Its boundaries were established based on the knowledge of the local people who have occupied this land for countless generations.

The role of Indigenous Peoples in determining the boundaries is guaranteed in the Inuvialuit Final Agreement, a regional land claim settlement or modern treaty, finalized in the 1980s. Anguniaqvia Niqiqyuam is home to important species on which the 300 people of the nearby community of Paulatuk rely for food. Conserving them is the primary purpose of the protected area, which is closed to development such as mineral or oil and gas exploration.

From "Traditional Knowledge protecting Canadian Arctic marine environment," GRID-Arendal News

Working in the blue world

Healthy coastal and marine ecosystems – such as seagrass meadows and mangrove and kelp forests – provide many important benefits including food security, shoreline protection against storms and flooding as well as recreational opportunities. Worldwide, they regulate atmospheric concentrations of carbon dioxide and help moderate climate. The challenge of recognizing these values and harnessing them to support improved ecosystem management and sustainable communities is the focus of GRID-Arendal's Blue Carbon Programme.

Our efforts include a wide range of actions – from education and raising awareness, to regional capacity development, on the ground demonstrations, international climate policy, and social justice for communities related to carbon finance. In 2017, these activities mainly took place under the UN Environment/Global Environment Facility Blue Forests project and the Norwegian Blue Forests Network.

> ***"Through the Blue Forests project, we have created awareness to the community and showed them how the resources that surround them can be harnessed to solve their poverty and other social challenges.***
>
> James Kairo, Kenyan Marine Fisheries Research Institute

A regional training workshop was held in Panama to share experiences from the sites of the Blue Forests project with local and regional partners. It explored the development of similar initiatives within the Latin America and Caribbean Region.

Local fishermen on the coast of Zanzibar return their boats for the evening.

Local outreach about litter in Gazi Bay, Kenya.

GRID-Arendal highlighted blue carbon at the UN Oceans Conference held in New York City in June. We submitted four voluntary commitments during that event which were signed by hundreds of partners across the globe. One of these commitments was the Blue Carbon Code of Conduct which aims to advance socially just and equitable blue carbon projects. The others focused on the Blue Forests, Oceanic Blue Carbon, and on Blue Guardians projects. Blue Guardians is a partnership with a number of Small Island Developing States to protect oceans and support climate-resilient communities. The code of conduct was highlighted in materials distributed to delegates at the opening session of the Oceans Action Day at the November UN climate change conference in Bonn.

One Blue Forests project is called Mikoko Pamoja (Swahili for "mangroves together") and operates in Gazi Bay and Vanga Bay, Kenya. This is a community-based mangrove conservation project which won the 2017 United Nations Equator Initiative Prize for an "outstanding community and indigenous initiatives that [is] advancing nature-based solutions for local sustainable development." Through this project, funds raised by the selling of carbon credits have been used to support the sustainable management of local mangroves forests, build fresh water wells and buy schoolbooks. Blue Forests supports the replication and up-scaling of Mikoko Pamoja globally and in nearby Vanga Bay, where this site received additional financial support from the Leonardo DiCaprio Foundation.

GRID-Arendal developed a joint strategy on blue forests with UN Environment to facilitate coordination and ensure that our programme supports the goals of the UN.

Finally, drawing on the experiences of the Blue Forests project and the Norwegian network, GRID-Arendal supported international discussions on the importance of coastal and oceanic blue carbon at the UN climate change conference in Bonn in November.

A mangrove covered in garbage from the sea near Panama City.

Seagrasses – prairies of our seas

"It's our green seas, not the blue, that bring life to our oceans," said Sir David Attenborough in the "Green Seas" episode of the BBC's popular series, Blue Planet II. Seagrasses are the protagonists of our seas across the planet. They form underwater meadows and are critical to the functioning of healthy and productive coasts. Unfortunately, they are often overlooked and unappreciated.

Seagrasses provide many benefits, like water filtration, acting as a nursery and home for many organisms, including commercially important fish and shellfish species. Besides protecting coastlines against erosion, seagrasses retain large amounts of carbon in their soils and are thus important in the fight against climate change.

At GRID-Arendal, 2017 saw many activities focussed on seagrasses that helped raise the profile of these important ecosystems both in our "backyard" as well as internationally.

With the Institute of Marine Research, University of Oslo and the Norwegian Institute for Water Research, we led the first carbon stocks assessment of seagrasses in Norway. A project called "Blue Carbon stocks in seagrass meadows – SEAME" is a core activity of the Norwegian Blue Forests Network, a consortium of Norwegian organizations supporting the blue forests policy and research agenda.

GRID-Arendal produced an entertaining video called "Exploring Seagrasses in Norway" to explain the main field and lab activities of the project and provide information about the status of seagrasses in Norway.

We were also invited to the First International Workshop on the Assessment of Seagrass Distribution held in Japan to lead discussions on the ways to assess the role of seagrasses in storing carbon in the Northwest Pacific region. The meeting included researchers from Japan, Russia, China and Korea.

Last but not least, the British Broadcasting Corporation asked our in-house experts to provide scientific information on seagrasses and their role as one of the major global carbon sinks globally for its Blue Planet II production, a documentary series on marine life, released in autumn 2017.

GRID-Arendal's Maria Potouroglou and University of Oslo's Stein Fredriksen studying seagrasses near Arendal.

Zostera meadows

The coasts of Scandinavia and the Baltic Sea are key distribution areas for Zostera meadows, the most widely distributed seagrass in the Northern hemisphere. This region is estimated to support more than 6000 individual meadows covering at least 1500–2000 km². That's four times bigger than the combined seagrass area of western Europe.

From "How Big, How Blue, How Beautiful: seagrasses help fight climate change in Norway," GRID-Arendal News

Connected ecosystems, connected goals

Restoring and maintaining marine ecosystems will help the global community achieve sustainable development at local, national and global scales. Achieving the Sustainable Development Goal 14 – to "conserve and sustainably use the oceans" – will help us achieve at least another 10 SDGs, from ending poverty and hunger to promoting economic growth and combating climate change.

These goals are connected to these ecosystems and the human activities that take place there. That's why GRID-Arendal is bringing the full range of ocean actors together – conservationists and fishers, coastal planners and tourism operators – to find common goals for protecting and using our oceans. We help people to care about protecting marine life through a range of projects.

We enable people to take action in their own communities not only by strengthening their expertise and skills on marine conservation, planning and growing prosperity and equity, but also by inspiring others and passing on knowledge. We do this through technical training workshops, sharing specific expertise on tools for better management, and by training people to lead capacity development activities. As a member of the Panorama – Solutions for a healthy planet partnership, we ensure positive lessons learned are available to a global community of conservation practitioners.

Our activities take place in Norway with the Norwegian Blue Forests Network, in Europe with the ResponSEAble project, in Atlantic Africa with Mami Wata and globally with Blue Solutions and the GEF Blue Forests project.

Participant comments on training sessions

"It is rare when a training course generates such a fantastic outcome, new friends, new opportunities, amazing skills and a great network."

"Right now I feel like I'm, sort of, born again so to speak, to where I have new ideas and new thoughts."

Fishermen at Lumley Beach, Freetown, Sierra Leone.

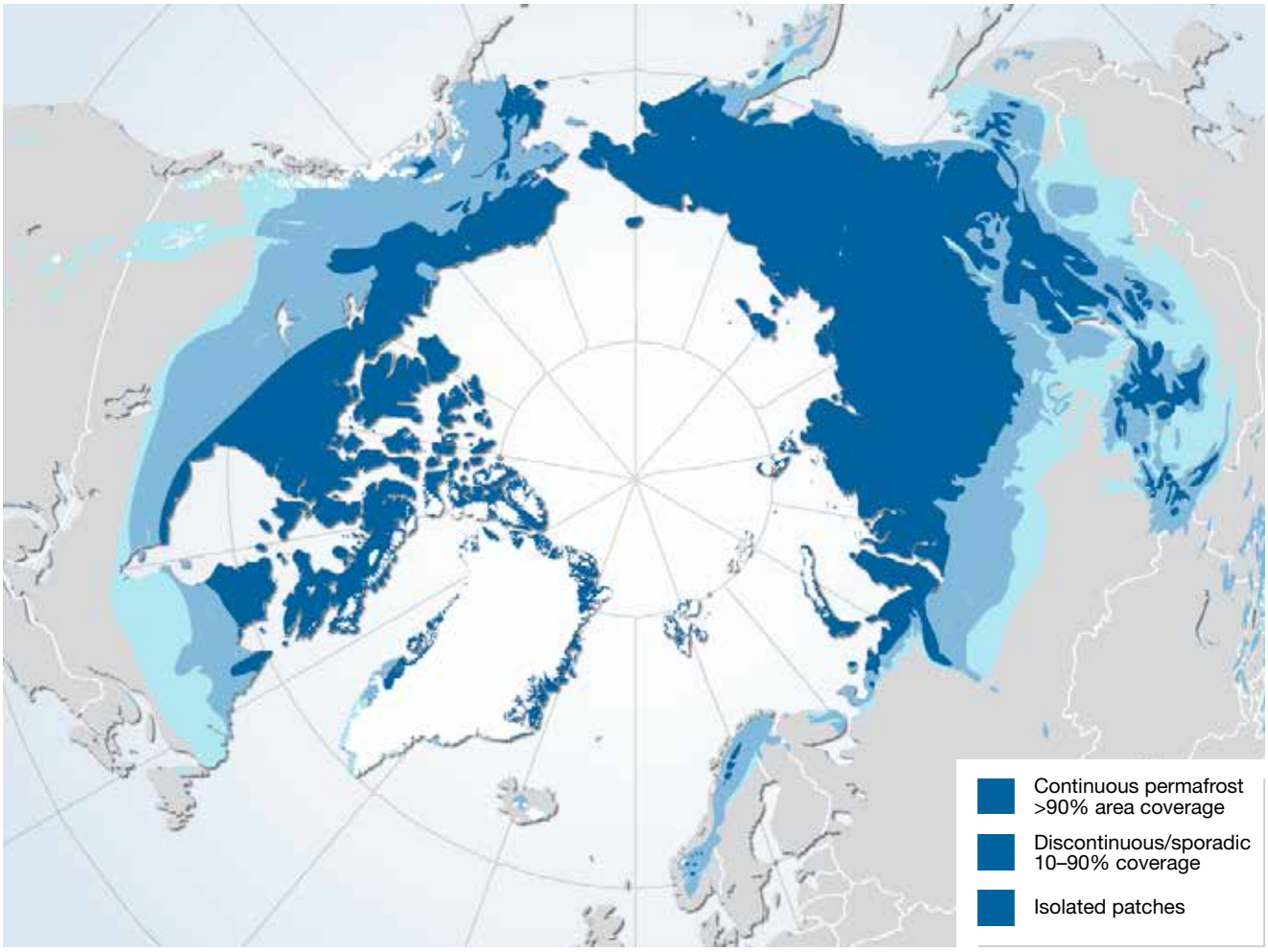
Keeping carbon in the ground

Tropical peatlands and permafrost regions, while formed through very different processes, are both waterlogged environments. The main difference between them, of course, is that permafrost is frozen and peatlands are saturated with liquid water. In order to maintain their ecological functions, they both need to stay as they are.

Permafrost is a permanently frozen layer of the Earth's surface that occurs mostly in high latitudes. It consists of soil, gravel, sand, and is usually bound together by ice. Peatlands are composed of partly decomposed plant remains in a water-saturated environment. Both peatlands and permafrost also store massive amounts of carbon. In many places rising surface temperatures due to human-induced climate change are thawing permafrost. Human activity is degrading and destroying peatlands. Both result in the release of greenhouse gasses like carbon dioxide and methane.

GRID-Arendal is involved in efforts to protect peatlands and raise awareness about the effects of thawing permafrost. Nunataryuk is a five-year project that kicked off last year. In the language of the Inuvialuit, who live in the western Canadian Arctic, "Nunataryuk" means "land-to-sea." It will study the impacts of thawing coastal and subsea arctic permafrost on the global climate and what this means for Arctic societies and economies in three locations. Besides releasing carbon, permafrost thaw also causes erosion, disappearance of lakes, landslides, and ground subsidence and will cause changes in the composition of plant species at high latitudes.

Nunataryuk will focus on three Arctic coastal regions in the Beaufort Sea, Nordic and east Siberian areas. Most human activity in the Arctic takes place along permafrost coasts and these areas are among the most rapidly changing on Earth. Thawing permafrost is exposing coasts to rapid change, change that threatens the rich biodiversity, puts pressure on communities and contributes to the vulnerability of the global climate system. Working with communities and researchers, Nunataryuk will focus on designing adaptation and mitigation strategies for Arctic coastal populations.

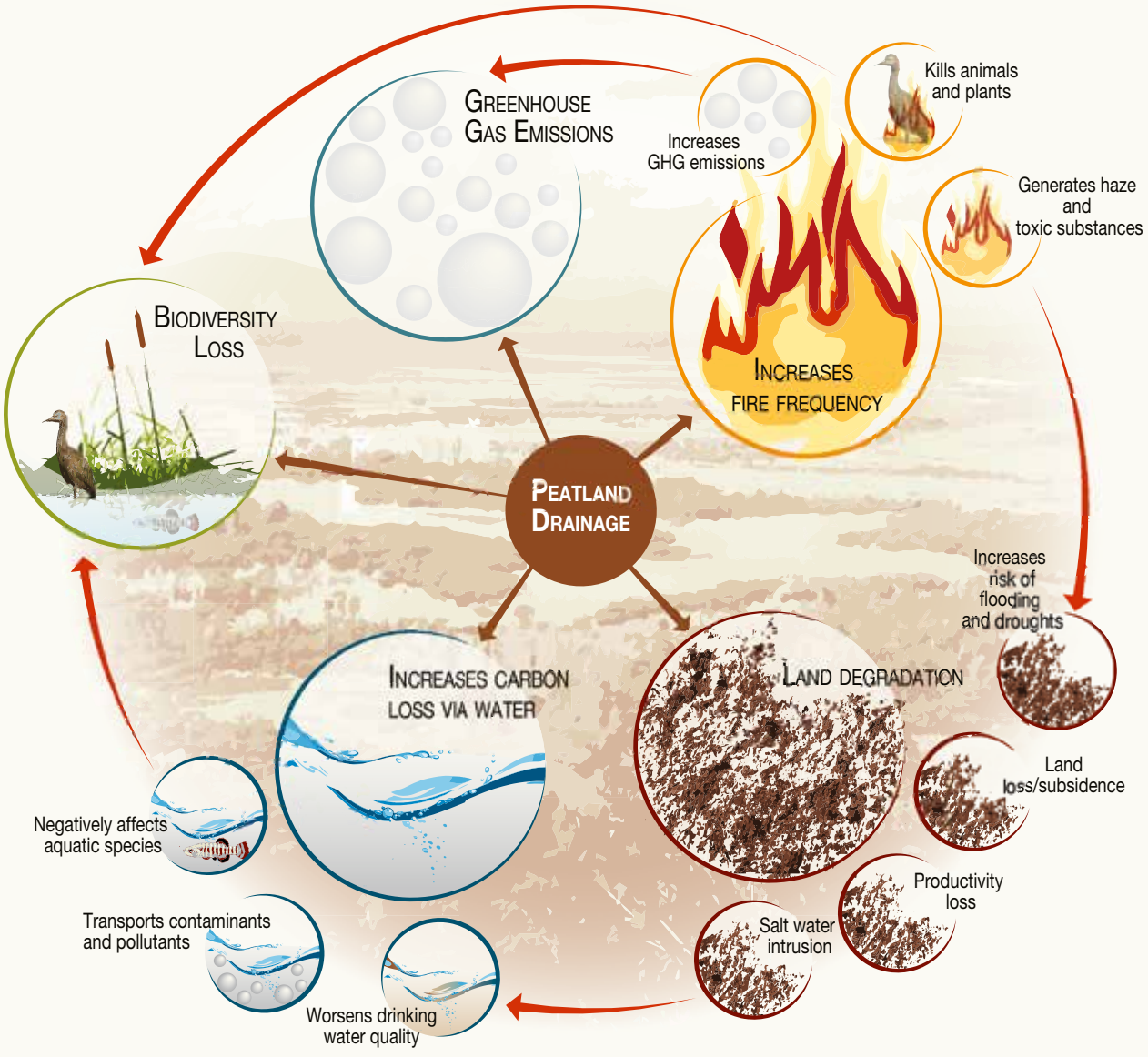


The rapid changes now underway in permafrost regions and peatlands are ringing alarms. GRID-Arendal worked on two Rapid Response Assessments last year on these topics.

Smoke on Water – Countering global threats from peatland loss and degradation was released at the November United Nations Framework Convention on Climate Change negotiations in Bonn. Smoke on Water looks at peatland location, extent, threats and the policies to manage and protect them. The goal of this rapid response assessment, carried out on behalf of UN Environment and based on the efforts of more than 30 contributors, is to raise awareness about the importance of the world's peatlands and to encourage immediate action to preserve them. The assessment the first part of a Global Peatlands Initiative, in which GRID-Arendal is a partner.

Another rapid response assessment is being carried out with UN Environment under the working title Emerging Issues Related to Coastal Permafrost in a Changing Arctic. Natural Resources Canada and the Korea Polar Research Institute are also partners in this project that focuses on critical emerging issues related to the impacts of thawing coastal permafrost in the Arctic. The assessment will consider the critical and emerging issues and knowledge gaps related to warming permafrost, as well as associated policy issues.

Environmental and social impacts of peatland drainage



López, 2017

Based on FAO-Mitigation of Climate Change in Agriculture (MICCA) Programme, 2014, Peatlands and Climate Change.

GRID-Arendal

Patrolling the oceans from space

GRID-Arendal's work on environmental crime continued in 2017 with an international collaboration aimed at promoting an innovative use of satellites to gather intelligence to support law enforcement agencies fighting environmental crime.

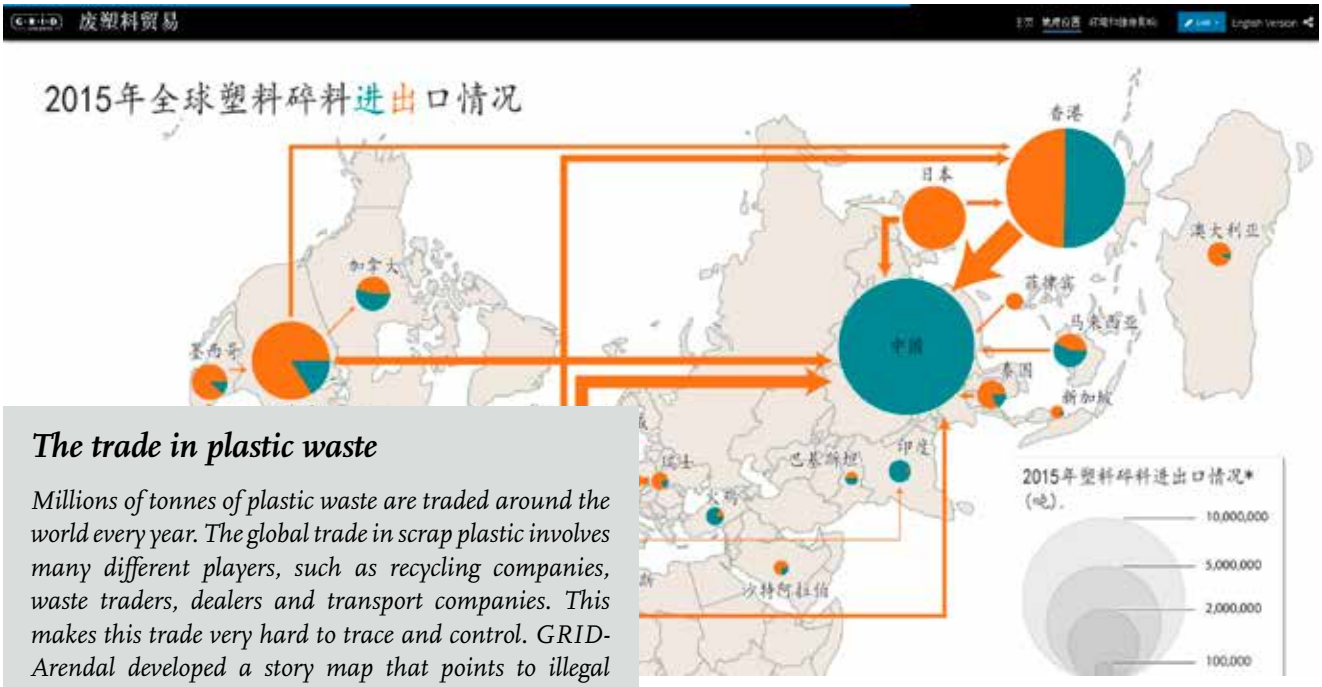
Called "MArine and coastal satellite Services to TRack Environmental Crime activities" or MASTREC, the project combines automatic information systems, satellite optical images and synthetic aperture radar (or SAR, which creates two and three dimensional images) to detect and report criminal activities in the environmental sphere. The project ended in 2017.

MASTREC focused on detection of illegal rosewood trafficking from Madagascar and illegal charcoal from Somalia/Kenya and carried out two trials on each region. The results were that a list of 20 detected suspicious vessels from 11 countries, two of them of unknown origin or flag, was reported to the authorities and INTERPOL.

Satellite radar imagery and the use of Automatic Identification Systems (AIS) installed on the vessels, transmitting their position, speed, and destination help track vessels and monitor illegal activities. The satellite radar data shows all ships present in a certain area and isn't weather or time dependent. It can be monitored in real time, allowing investigators to detect uncooperative vessels. In the course of the project ships with a switched-off AIS transmitter or with a deceptive AIS were traced. High resolution images were used for the detection of loading and unloading of illegal cargo. When suspicious vessels were spotted, the ship's information and travelling pattern was passed to INTERPOL and to authorities for inspection.

> ***"We see the maritime dimension of the service useful regarding rosewood and charcoal trafficking in East Africa and Madagascar ... The service provided fills in the current lack of capacity we have on performing analysis of data on these issues. This information is useful for our law enforcement contacts on the ground to advance their investigations. We see the terrestrial dimension of the service useful to help our law enforcement contacts on the ground to monitor areas of interest where it is suspected that illegal logging/ mining activities are taking place.***
>
> Davyth Stewart, INTERPOL

The project's lead partner was the Collecte Localisation Satellites, a French company providing operational services for environmental monitoring, sustainable management of marine resources and maritime security, and INTERPOL. The project was funded by the European Space Agency.



The trade in plastic waste

Millions of tonnes of plastic waste are traded around the world every year. The global trade in scrap plastic involves many different players, such as recycling companies, waste traders, dealers and transport companies. This makes this trade very hard to trace and control. GRID-Arendal developed a story map that points to illegal behaviour occurring during the entire value chain, including the consequences of informal plastic treatment which often takes place far away from where the waste is generated. The story map was translated into Chinese.

Convention support – the Caspian Sea

GRID-Arendal is engaged in several parts of the world providing support for agreements and conventions designed to protect the environment. The Framework Convention for the Protection of the Marine Environment of the Caspian Sea – called the Tehran Convention after the city in which it was signed – is one of them.

The Convention includes the five states that border the Caspian Sea: Azerbaijan, Iran, Kazakhstan, Russian Federation and Turkmenistan. GRID-Arendal and the European office of UN Environment have supported the development of the Convention Secretariat since 2006.

In 2017, this involved the further development of the Caspian Environmental Information Centre – a virtual information and communication tool of the Secretariat. The project was supported by a grant from British Petroleum Azerbaijan and the Norwegian Ministry of Foreign Affairs. Funding from UN Environment contributed to staffing the Secretariat for 2018, also managed by GRID-Arendal.

The five Caspian countries continue to discuss the establishment of a permanent secretariat with an agreement expected to be announced at the 6th Ministerial of the Conference of Parties to the Convention to be held in Baku this year. At the same time, implementation of the Convention and work on its protocols continues.

The Parties are working on important environmental monitoring, assessment and reporting requirements and finalizing an implementation plan for a protocol on combating oil pollution incidents. The countries have also agreed on a methodology for preparing a second State of the Caspian Sea Environment Report. Progress was made in aligning the environmental assessment and monitoring activities by the countries' national coastal institutions to provide data for the report. And the set-up of a website and thesaurus for information pertaining to the state and management of the Caspian Sea environment was improved.

The Parties agreed that support to the Tehran Convention process needs to be increased, and that a well-equipped and fully staffed Secretariat is needed to secure future implementation and success. All agree that the framework created by the Convention and a strong operational Secretariat in Baku have a great potential to secure cooperation which will actually help to protect and sustain the marine environment of the Caspian Sea.

Caspian Sea Basin

Topography, metres

Below sea level
0
200
500
1,000
2,000
3,000
4,000

Map by Ieva Rucevska and Philippe Rekacewicz. From *Vital Caspian Graphics 2 – Opportunities, Aspirations and Challenges*, 2012.


PART 2
WASTE

Mobilizing against marine litter

Last year saw a lot of news coverage about the problem of waste in the world's marine environment. It's an issue that GRID-Arendal has been working on with the Government of Norway, UN Environment and other partners. The story of a beaked whale washed up on the west coast of Norway with its stomach full of plastic is mentioned in Managing Director Peter Harris's introduction to this report. It was perhaps the most dramatic and obvious example of a growing global problem.

GRID-Arendal is working with many partners on strategies to raise awareness about the effects of marine litter in the marine environment, predict where plastics will accumulate on coastlines and find ways to prevent it from entering the waste stream. It's a global problem with obvious local effects which we discovered in areas as distinct as the Lofoten Islands in Norway, to mangroves in Bali choked with plastic bottles, bags and other discarded, single use products.

Last year GRID-Arendal was at the forefront of facilitating international and Norwegian discussions aimed at shaping future policy on dealing with plastic waste. We organized an event on marine plastics at the Third UN Environment Assembly in December in Kenya that contributed to the third consecutive assembly resolution on marine litter and microplastics.

As a further awareness raising effort, GRID-Arendal's Blue Forests Project also took part in the December assembly in Kenya. We used the opportunity to preview a story map called "Plastic forests? Assessing the impact of pollution on the world's mangrove forests." This story map highlights the threat that pollution presents to coastal and marine environments and the urgent need for action.

Developing policies to tackle environmental problems requires assessment of available information and marine plastics is no different. On this subject, GRID-Arendal contributed to an initial assessment of land-based plastic waste in Africa which hopefully will attract the attention of the relevant stakeholders and focus on a region where the problem of plastic waste could become as great as the one faced in South-East Asia.

Closer to home, the development of a predictive mapping method based on data gathered in the Arctic is aimed at identifying accumulation hotspots. The method was tested in the Lofoten Islands last year and could be used in Norway and elsewhere to increase the cost efficiency of coastal cleanup efforts. To date coastal cleanups are one of the few ways to remove marine plastic so predicting where it ends up is an important step in increasing the amount collected. It is also a good way of raising awareness about the problem.

Plastic pollution in our oceans is the fastest growing environmental problem today. It is complex, has many drivers and sources with many dispersion pathways and unknown effects. It might be tempting to simply dive head first and tackle its most obvious manifestation by cleaning beaches and trying to reduce the closest local sources. However, the bigger picture and the need to prioritize and coordinate efforts should not be overlooked. Once plastic pollution gets in the open ocean it breaks down in smaller and smaller pieces and becomes very difficult to trace to its original source. That means we need local and international solutions to deal with this threat to communities – and future generations.

Story map on trade in plastic waste

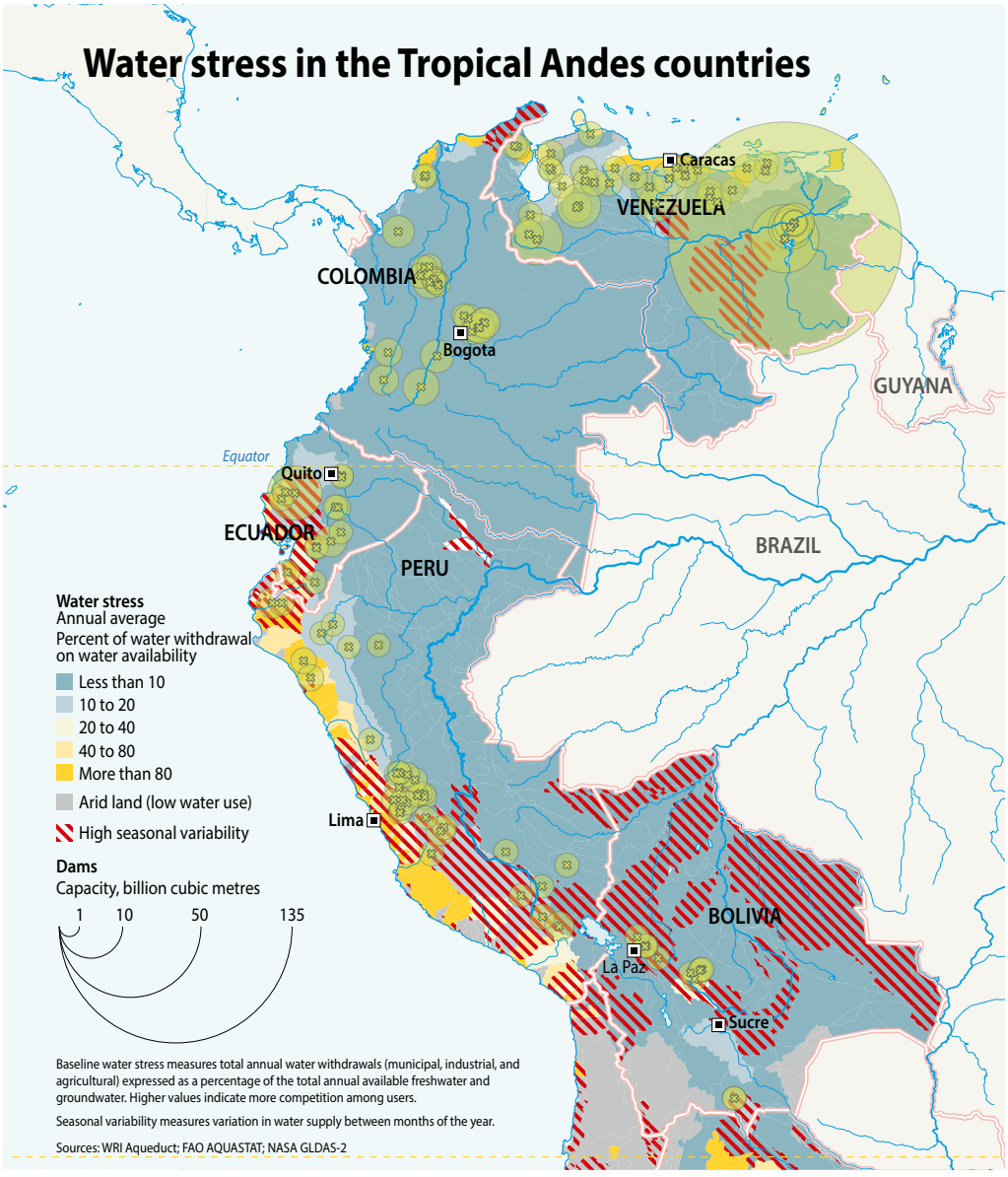
Water, waste and mountains

Mountain regions cover one quarter of the world´s land surface and are found on every continent. As the "water towers" of the world, they are the source of water for billions of people in downstream areas. Because of their geology and topography, they are often unstable, prone to landslides, flash floods and other natural disasters that can affect large populations, especially in Asia. The isolation of many mountain regions has led to their unique bio-cultural diversity.

But climate change ensures that mountain environments are connected to other regions of the world in the rate of change some of them are experiencing. Temperatures are rising faster than the global averages and glaciers are melting threatening the water supplies of millions of people. What typically were "lowland" problems – water shortages, undisposed waste and heavy pollution – are now increasingly mountain problems too.

Over the past few years, GRID-Arendal and its partners, which include UN Environment, a number of regional mountain centres including the International Centre for Integrated Mountain Development (ICIMOD), Consorcio para el Desarollo Sostenible de la region Andinam (CONDESAN) and the Albertine Rift Conservation Society (ARCOS), have been working to increase awareness of governments about critical issues facing mountains regions around the world. Two of the most important are water and a growing waste problem.

The Outlooks on Climate Change Adaptation in Mountain Regions series highlights the policy gaps and



A map from the Andes report in the Outlook on Climate Change Adaptation in Mountain Regions series

opportunities for climate change adaptation in several mountain regions. The recommendations from these reports, such as the one focused on the Andes released in 2017, provide recommendations that are finding their way into government decisions. For example, the Andes report was instrumental in establishing the Strategic Agenda for Adaptation in the Andes which sets a common agenda to work on adaptation in the area. GRID-Arendal will continue to work in this region. Following the success of the 2016 Himalayan Climate and Water Atlas, which was also produced with ICIMOD and the Centre for International Climate Research (CICERO), GRID-Arendal has begun working with UNESCO to produce a similar Atlas of Glaciers for the Andes.

GRID-Arendal continues to work with ICIMOD and on the Himalayan Climate Change Adaptation Programme (HICAP). Many of the tools and approaches for climate adaptation developed through this programme are now being reproduced elsewhere in the region, including approaches to engaging with the media on flood early warning and on "mountain resilient villages." The approach, originally piloted by the Food and Agricultural Organization (FAO) as means to increase the resilience of villages, has been successfully adapted to mountain regions and takes into account specific mountain realities including steep terrain and inaccessibility.

By the end of 2017, six national or state-level development policies and plans have made use of HICAP work and just under 30,000 people have benefited directly from on-the-ground measures implemented in the HICAP program.

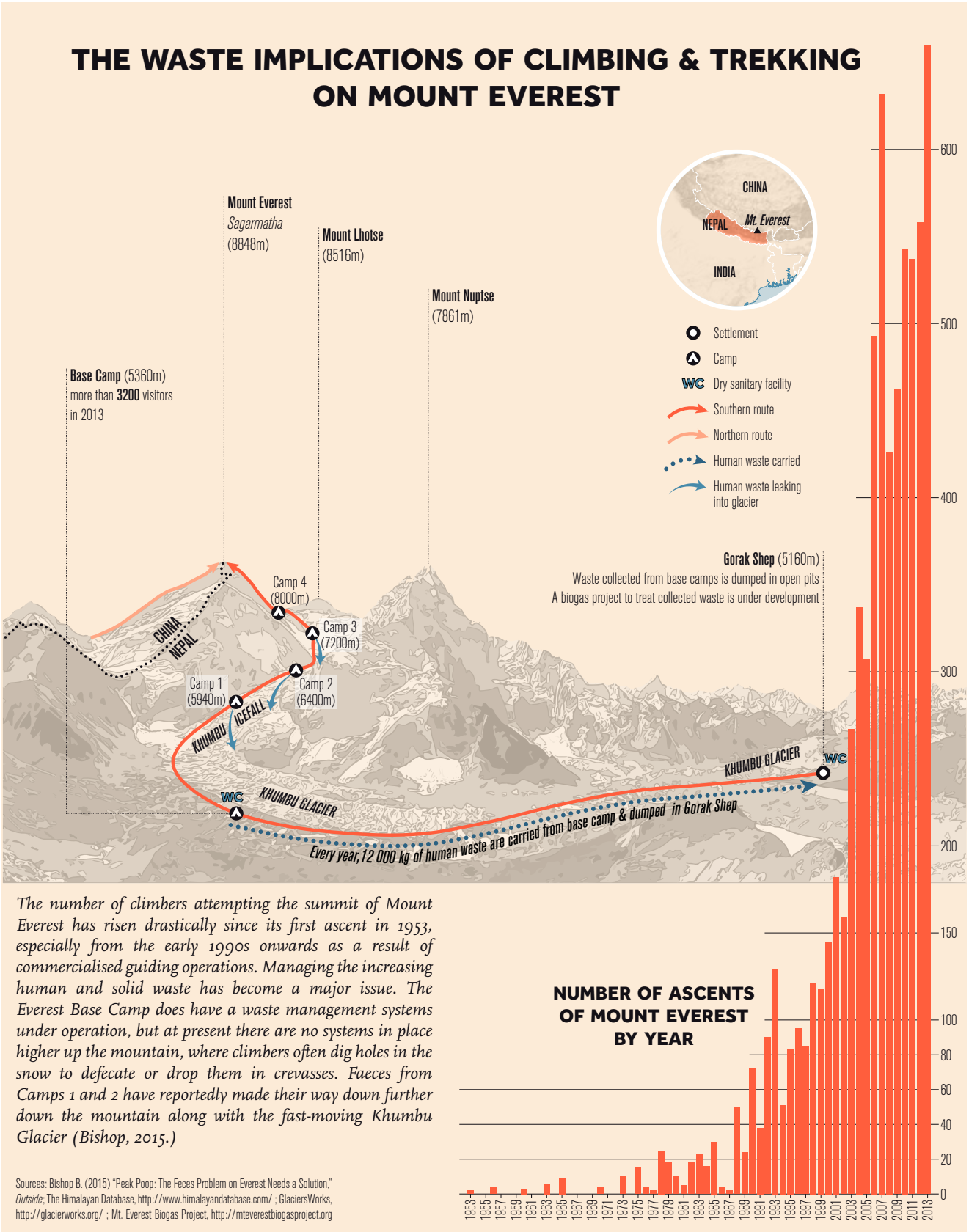
The reason garbage finds its way into pristine mountain environments is simple: people take things there and throw them away. No one wants to carry garbage down again.

But it's not just a question of aesthetics. Mountain waste has a deleterious effect on fragile mountain environments and water supplies because the transport of plastic debris, together with the harmful chemicals that leach out of it, can find their way into sensitive mountain environments and river courses that flow downstream. To raise awareness about this growing problem, GRID-Arendal released the "Waste Outlook for Mountain Regions – An assessment of the global issue of waste in mountains and possible solutions" produced in collaboration with UN Environment, the International Solid Waste Association and UN Environment´s International Environment Technology Centre.

The recommendations in this report are also being turned into action. At the end of November, two leading global bodies of the mountaineering world – the

Tents at Mountain Everest base camp.

International Climbing and Mountaineering Federation and the International Federation of Mountain Guides Association – signed a memorandum of understanding and committed to work together on environmental issues. These include the development and review of environmental and sustainability guidelines and holding events to address waste and pollution management in mountaineering. This new collaboration was a direct response to the Waste Outlook report which recommended that these two bodies join forces to help address the issues of waste from tourism and recreation activities. These organisations will organize a series of workshops in 2018 to develop new joint projects and identify funding opportunities.



The number of climbers attempting the summit of Mount Everest has risen drastically since its first ascent in 1953, especially from the early 1990s onwards as a result of commercialised guiding operations. Managing the increasing human and solid waste has become a major issue. The Everest Base Camp does have a waste management systems under operation, but at present there are no systems in place higher up the mountain, where climbers often dig holes in the snow to defecate or drop them in crevasses. Faeces from Camps 1 and 2 have reportedly made their way down further down the mountain along with the fast-moving Khumbu Glacier (Bishop, 2015.)

Sources: Bishop B. (2015) "Peak Poop: The Feces Problem on Everest Needs a Solution," *Outside*; The Himalayan Database, http://www.himalayandatabase.com/ ; GlaciersWorks, http://glacierworks.org/ ; Mt. Everest Biogas Project, http://mteverestbiogasproject.org

Graphic from Waste Management Outlook for Mountains – Sources and Solutions.

Mining Tailings Storage – Safety is no accident

GRID-Arendal was commissioned by UN Environment to undertake a rapid response assessment of tailings dams – the facilities commonly used to store large amounts of mine waste. The assessment was prompted by recent catastrophic tailings dam disasters and global concern around the safety, management and impacts of storing and managing large volumes of mine tailings.

The rapid response assessment details the consequences of dam failure, the disproportionate impact on Indigenous and poor communities and importantly, the opportunities to reduce risk and improve safety. It examines the progress on cleaner processes, new technologies, material reuse, and investigates the role of increased regulation and management oversight in ensuring safer mining.

The report garnered considerable interest when released at the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development annual general meeting in Geneva in October. It was also the focus of a discussion at the Third UN Environmental Assembly in Kenya in December. This event – Taking action to reduce pollution in the extractive sector – helped inspire a

Cleaning up for years

The people of Brazil are still cleaning up, and will be for many years, following one of the biggest environmental disasters in mining history. The failure of the BHP and Vale owned Samarco tailings dam at the end of 2015 killed 19 people (many of them employees of the company), devastated downstream villages and contaminated 650 kilometres of the Rio Doce River system. The scale of this disaster and its effect on the lives of thousands of people is something that can be avoided in the future. But chances are it will happen again, the report says, unless mining companies are made accountable – with universally adopted enforceable agreements.

(Quote from Safety is no accident media release)

Finally, an agreement on mercury

After nearly 17 years of negotiation, the world finally has a way of dealing with the increasing amount of mercury that threatens the health of people and the planet. We have been aware since the 1950s that mercury exposure damages the health of people, especially children. The Minamata Convention came into force last August aims to reduce mercury emissions through measures to ban new mercury mines and phase out existing ones, reduce the use and emissions of mercury from artisanal and small-scale gold mining (the No. 1 source of anthropogenic mercury) and cut use and emissions from industrial activities such as coal burning and metal smelting, among other things.

GRID-Arendal is supporting the elimination of mercury from gold mining through a project that focuses on women as change makers in their communities. The project will engage with women in small mining communities in Papua New Guinea and Indonesia to develop their influence – as miners, and community and family members. It will also support the introduction of mercury free mining methods and tell the story of mercury and maternal and child health.

See our story: Finally, a global agreement on mercury, 26 September 2017

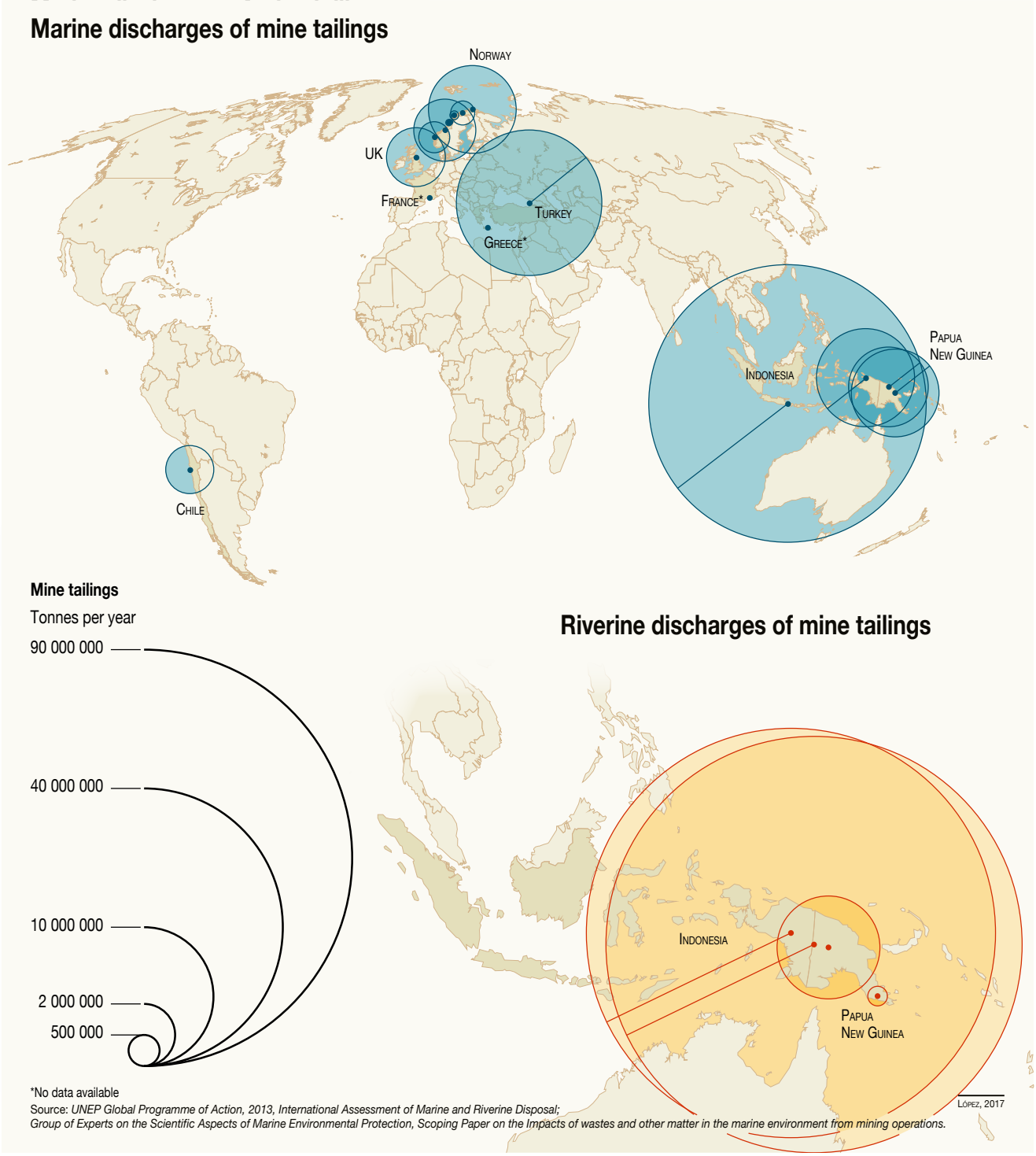
commitment by industry, government and civil society to work together to make zero tailings dam failures a reality.

The report had two main recommendations:

1. Safety should be evaluated separately from economic considerations, and
2. Governments should improve tailings dam regulation.

> ***We believe the recommendations from this UNEP report pose a serious challenge to both mining companies and their regulators to improve the rigour of the management of mining waste facilities.***
>
> Richard Harkinson, London Mining Network
>
> *Quoted in Mining Weekly, 15 Nov. 2017*

Besides these recommendations, the report called for knowledge and awareness raising, mechanisms for ensuring financial accountability and enforcement initiatives. Most important, however, is an effort to find better solutions than building enormous dams and filling them with potentially toxic sludge.



Graphic from Mine Tailings Storage – Safety is no Accident.

Sanitation and safe drinking water in Africa

Providing sanitation services and safe drinking water, as well as properly managing large amounts of wastewater, are at the core of Africa's development. Against the background of failure to meet its Millennium Development Goals for sanitation, Africa is keen to improve its reporting and tracking of targets under the Sustainable Development Goals (SDGs), adopted at the United Nations in 2015.

GRID-Arendal is working with the African Development Bank, Norwegian Ministry of Foreign Affairs and United Nations Environment Programme to support African governments trying to meet 2030 SDG targets for wastewater management and sanitation services.

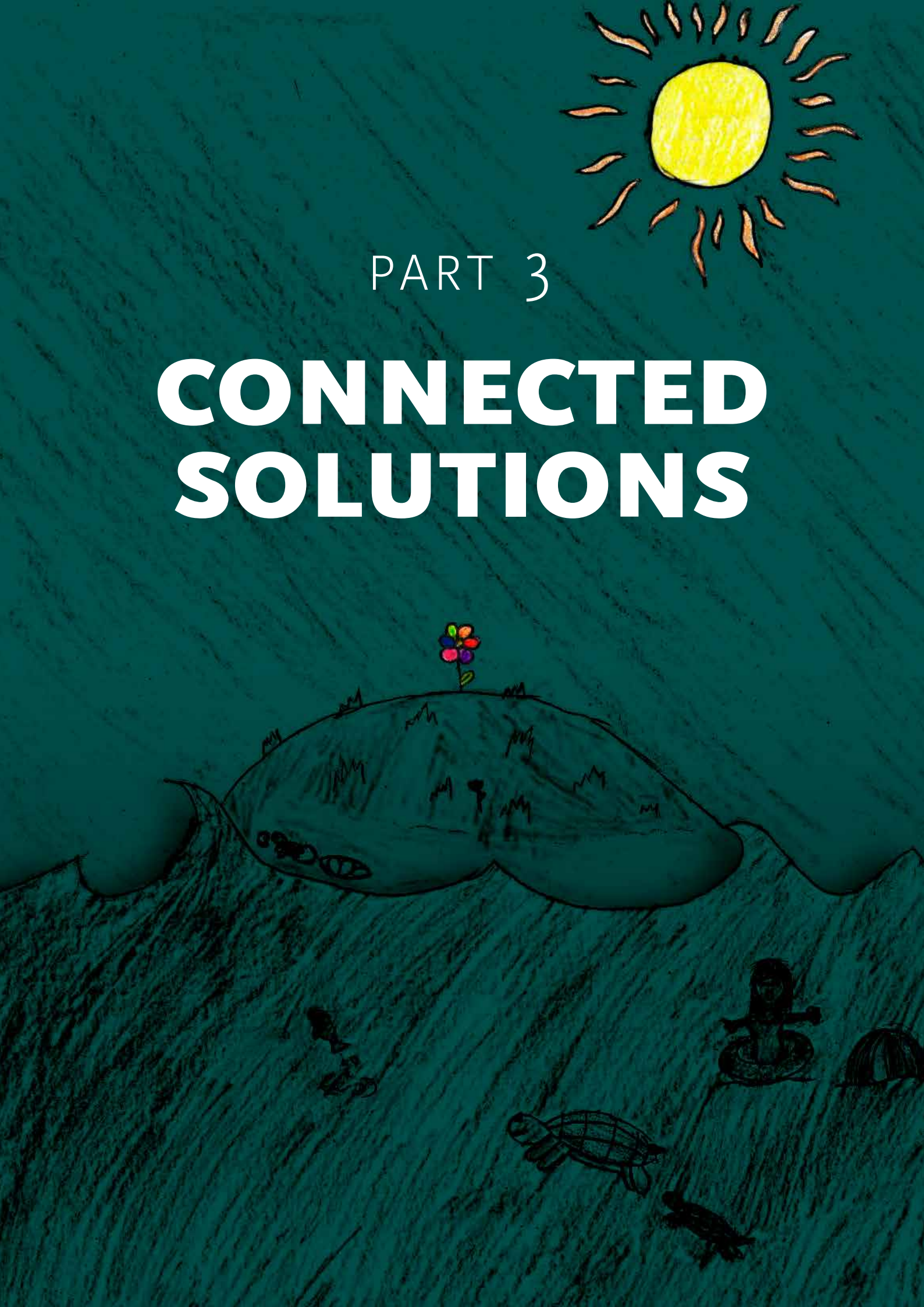
There are differences in how countries perceive sanitation and wastewater, with some ascribing sanitation only to the provision of toilet facilities. In the case of wastewater often only domestic sources are considered. For that reason GRID-Arendal produced a simple animated online show that not only explains terms, but also points out the economic and health benefits of investing in sanitation and proper wastewater management.

Through the Wastewater Management and Sanitation Provision in Africa project, GRID-Arendal is not only providing new knowledge on sanitation and wastewater, but also highlighting opportunities for public and private sector investment. A number of stories by African journalists were published on GRID-Arendal's website over the course of the year on issues ranging from the social and environmental ills of inadequate sanitation services to many technological innovations by the private and public sectors. A set of four policy briefs also profile Africa's policy landscape, institutional arrangements and financing mechanisms for sanitation provision and wastewater management.

GRID-Arendal also developed a story map that identifies wastewater sources in Africa, including domestic, industrial, agricultural and institutional sources. Using drone footage, interviews, maps and graphics, the story map draws on the Nairobi catchment area as a case study to identify the kinds of challenges and opportunities that Africa faces.

Early project findings, including challenges and opportunities for wastewater regulations in Africa, have been brought up at international events such as the 2017 World Water Week in Stockholm in Sweden, and the World Water Day events held in Durban, South Africa. These outreach efforts have created interest in GRID-Arendal's work, including a request to publish a paper on the reuse of wastewater in agriculture in Sub-Saharan Africa in the Journal of Contemporary Water Research and Education.

Satellite imagery (December 2016) over Muzoma, Tanzania and Lake Victoria showing algal bloom.



PART 3

CONNECTED SOLUTIONS

Connected solutions

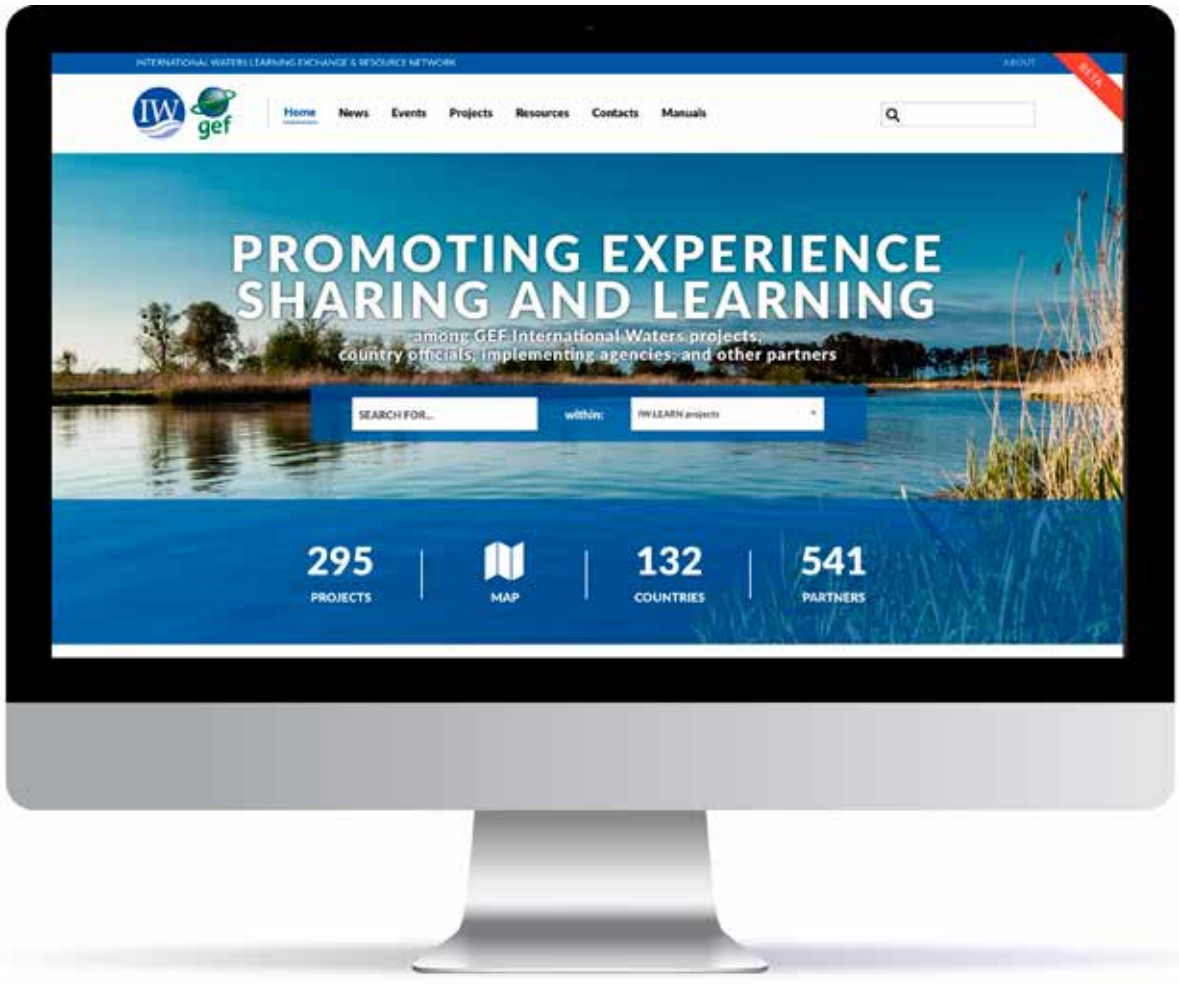
All of GRID-Arendal's projects are designed to find solutions to the environmental problems we are facing. Solutions, of course, come from people. At GRID-Arendal, we work with people from all walks of life who are dedicated to finding solutions.

As we have seen from the previous sections on water and waste, how we manage our collective water resources is key to the long-term health of the planet. But how do we know what's been tried and what has worked? GRID-Arendal is working with UN Environment on just this issue through the GEF IW:Learn project. The acronym stands for the Global Environment Facility International Waters: Learning Exchange and Resource Network.

IW:LEARN was established to strengthen transboundary water management around the globe by collecting and sharing best practices, lessons learned and innovative solutions to common problems. It promotes learning among project managers, country officials, implementing agencies and other partners. GRID-Arendal leads a part of this complex, multi-year project that focuses on providing access to an integrated suite of dynamic tools and reliable knowledge networks, project and partner platforms and portals to support decision making processes at the national, regional and global levels.

One such tool is the IW:LEARN Spatial Lab, a unique visualization tool that allows users to discover GEF International Waters activities around the world. A training session on the spatial lab was held in Cape Town, South Africa, in November. Training materials, including a series of tutorial videos, are now available on the website which GRID-Arendal redesigned in 2017.

In addition to the new website, GRID-Arendal has also developed a web toolkit to assist other IW projects to easily create their own project websites.



IW:LEARN website.

Promoting climate leadership in Central Asia

We live in an uncertain age with issues as ranging from unpredictable politics, to unprecedented population migrations and resource insecurities. Our societies are increasingly having to adapt to ever changing social and ecological conditions. We need transformative leadership at all levels.

In 2017, GRID-Arendal was engaged by the German Development Corporation (GIZ) to collaborate on the design and facilitation of a three-part Climate Leadership training programme. The Leadership for Sustainability Learning Journey gathered 26 individuals from government, business and civil society in Kyrgyzstan, Kazakhstan and Tajikistan. These Central Asian countries face their own specific realities with respect to climate and environmental challenges. The idea behind the programme was to work with people to help them think through complex problems in new ways.

The programme included group work on leadership issues related to natural resources affected by climate change, strengthening leadership and management abilities and changing ways problems are approached. Participants inquired into different modes, methods and tools connected to transformational leadership. They worked on innovative approaches that could best serve countries looking to ensure resilience in the face of uncertain climate and environmental futures.

At the end of the programme, participants said their skills had developed, their knowledge grown and they had gained valuable experience that will help their efforts to increase local, national and regional resilience in a changing climate. Some of the project results include developing a regional network of change makers who now have strong interpersonal relationships and trust each other.

A leadership network was formed to promote cooperation on sustainability and climate adaptation across the three countries. Participants said they gained a deeper understanding of how to contribute to adaptation strategies and how to 'lead the change'.

This kind of programme doesn't teach new skills as much as helps people to recognize connections and draw out their abilities. It's called "transformative leadership" and it's needed at all levels, whether in Central Asia, or managing our oceans, or making decisions about how to deal with the mountains of waste our society continues to produce. In the end, it's all connected.

Our problems require global solutions. GRID-Arendal will continue to work with UN Environment and other partners to find those solutions.

Participants at the Climate Leadership training programme.

Reaching out

Raet National Marine Park in southern Norway

The rugged, pink granite islands of Sørlandet, or southern Norway, attracts tens of thousands of summer visitors. People come for the sea and the sun but most have little notion of what lies below the blue waters. Raet National Marine Park was established on the island of Tromøy last year, the newest addition to Norway's network of marine protected areas, and the first on the southern coast. Besides being an area of great natural beauty, Raet boasts a wide variety of plant and animal life. It is also an area with a rich cultural history and historical significance.

GRID-Arendal led a team that produced a report on the State of the Environment in the Raet National Marine Park. This report on Raet Park included an assessment of knowledge gaps and potential future environmental risks to be considered by regional management authorities.

GRID-Arendal Managing Director Peter Harris (l) presents the Raet report to former Norwegian Environment Minister Vidar Helgesen.

Raet National Marine Park opens on a sunny Norwegian summer day on the island of Tromøy.

GRID-Arendal staff during Arendalsuka 2017.

Arendalsuka

Arendalsuka is Norway's national political festival and it takes place in Arendal every August. During this week politicians from all parties, the media, non-government organizations, business leaders and political aficionados from across the country converge on this small city. Hotel space is at a premium and the debates, discussions and music last long into the late summer night. GRID-Arendal holds a number of Arendalsuka events each year, always with a theme relevant to a national audience. Last year our events covered a wide range of topics including marine litter, the Arctic as an energy source, blue forests, gender equality and green politics.

UN related activities in Norway

Although GRID-Arendal works on every continent on Earth, we have roots in southern Norway. We take part in a number of activities that demonstrate local involvement and bring attention to our work in particular, and that of the United Nations in general.

Internasjonale Dager 2017

Since 2006, GRID-Arendal has taken part in the annual celebration of Internasjonale Dager, a week-long event

> ***"There is much more to do to prevent and solve conflicts, deal with root causes, and lay foundations for sustainable peace. The UN needs to be better at integrating sustainable development, peace and human rights. Norway is a good partner to help this to happen.***
>
> Tone Skogen, State Secretary, Norwegian Ministry of Foreign Affairs
>
> *Quoted in GRID-Arendal news, 17 August 2017*

> ***"Arendal is the proud host city of GRID-Arendal. GRID-Arendal is world-leading within their field of expertise. In 2018, it is 10 years since Arendal became Norway's first climate neutral municipality, and GRID-Arendal played a critical role in the decision by the city council. GRID-Arendal continues to make an important contribution to Arendal's climate and environmental work, and it is a pleasure to collaborate with GRID-Arendal on arranging meetings and events for Arendal's population, as well as national and international guests.***
>
> Robert Cornels Nordli, Mayor, Arendal

in late October that features seminars, exhibitions, panel discussions, movie screenings and other activities targeting students and other audiences. The purpose is to create awareness on the chosen theme of the celebration, to facilitate dialogue and to promote action.

Last year's Internasjonale Dager featured 15 events focusing on issues related to the UN Sustainable Development Goals. GRID-Arendal was joined by a large group of students and Arendal's mayor on a rainy afternoon march to promote awareness about the importance of these goals.

FN-byvanding

FN-byvandring is an educational programme for sixth grade students designed to teach about the UN and how it works to build peace, fight poverty and protect human rights. Organized by the UN Association of Norway in collaboration with the Arendal Municipality and GRID-Arendal, the programme provides resources and activities covering global issues such as human rights, press freedom, science, child labour, racism, health, refugees, water, conflict and the environment. In 2017, more than 500 students from 16 schools participated in the programme.

UN Day 2017

UN organizations in Norway (UNESCO, UNICEF, UNDP, FN-Sambandet, Forum for Women and Development, International Organization for Migration and GRID-Arendal) organized a seminar and panel discussion on the role of businesses and industry in achieving the Sustainable Development Goals on 24 October at Litteraturhuset in Oslo. More than 200 representatives from the private sector, government and civil society participated in the event.

> ***"The UN Association of Norway is very happy with the cooperation we have with GRID-Arendal and with Arendal municipality/UN City. In close cooperation with GRID we offered all the Grade Six students in Arendal a 'UN city tour' and gave them some idea about the importance of the work GRID is doing is for UN Environment and others. The content of the tour was closely connected to the school curriculum. Before it happened, we gave a short lecture in GRID's office to give both teachers and pupils a little glimpse of what happens in an office Arendal is very proud of.***
>
> Gunvor Andresen, Avdelingsleder, FN-sambandet

Arendal UN-City (FN-Byen)

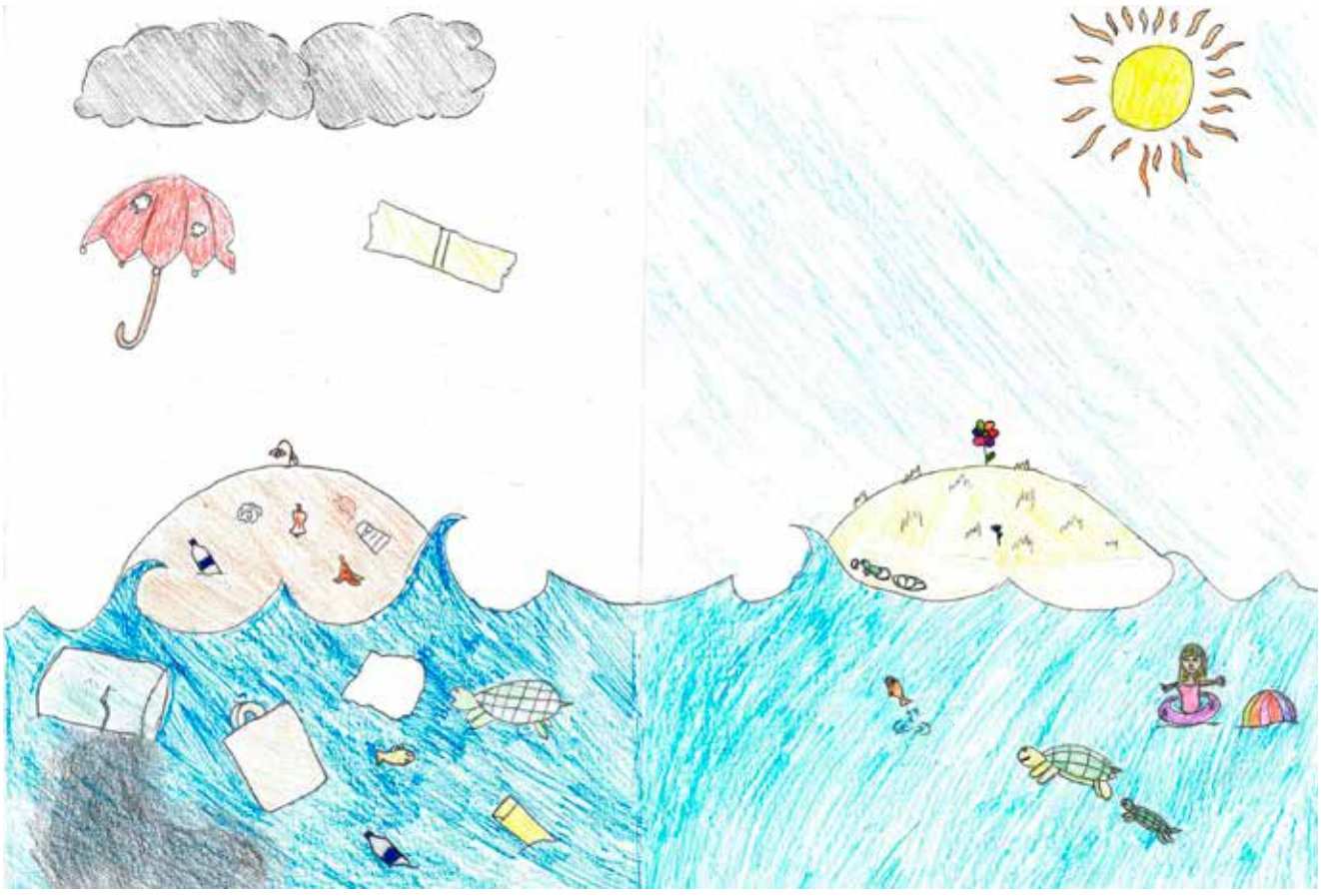
GRID-Arendal supports Arendal's efforts to focus attention on the role of the United Nations and its importance to the local population. Managing Director Peter Harris is a member of the FN-Byen steering committee and GRID-Arendal manages its social media accounts. Part of our support was the development of a social media campaign focusing the UN Sustainable Development Goals that was launched in January 2017.

Internasjonale Dager 2017.

My Daddy´s saving the world, what does yours do?

"When my son was at Kindergarden he was asked what his daddy did for a job. 'He drinks coffee and sometimes hits the buttons on his desk,' he replied."

That's is the opening of a story written by GRID-Arendal's Rob Barnes about the day a class of six year olds visited from Arendal International School to learn about the environment. The story illustrates GRID-Arendal's long-standing connection to the local community and schools. Read about explaining environmental change to a Grade 1 class (with puppets and crayons).



This drawing is one of the entries to the children's art competition organized by GRID-Arendal in May 2017.

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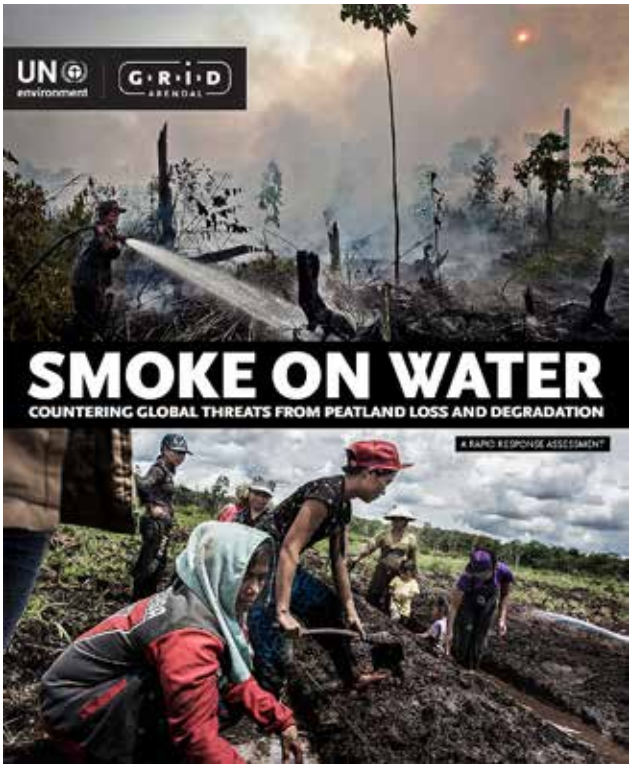

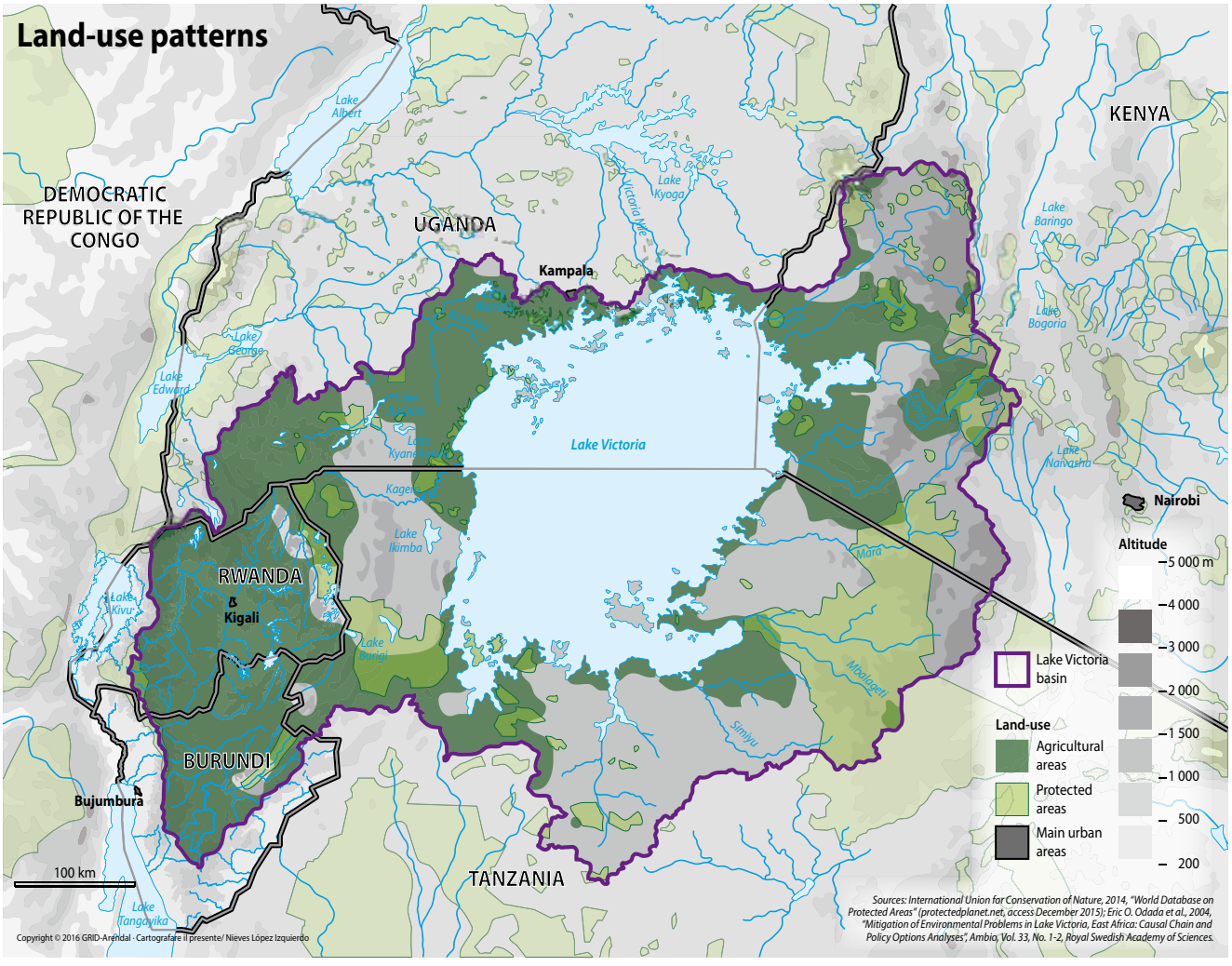

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Our partners

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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 (now called UN Environment). The foundation produces environmental information, communications and services to build capacity in environmental management and motivate decision-makers to take sustainable actions.

The Foundation conducted its activities in 2017 in line with its bylaws, approved budgets and work plan approved by the Ministry of Foreign Affairs. Its reports and websites describe the activities of the different programs and the results achieved.

2017 has been financially satisfactory with healthy operations, leading to a surplus of NOK 441,491 which will be added to last year's equity, creating a new equity balance of NOK 10,823,142.

In 2017 the Ministry of Foreign Affairs handed the responsibility for managing GRID-Arendal's NOK 15,000,000 grant to Norad. The transfer of responsibility from the Ministry of Foreign Affairs to Norad is considered positive for the organization.

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 greatest environmental impact. As a compensation, GRID-Arendal is investing in emission credits to finance concrete climate action in developing countries. GRID-Arendal is a certified Miljøfyrtårn (environmental) organization and member of Climate Partners (Klimapartnere). We have our offices in an environmentally friendly building with good energy solutions.

Working conditions at GRID-Arendal are considered good. Long term sick leave in 2017 amounted to 3.8% of total working days, while short-term sick leave was 1.9%. There were no injuries to staff in 2017, and there was no significant damage to the equipment of the organization. We strive to reduce stress, improve teamwork and collaboration through efficient communication through the organization's Work Environment Committee.

At the end of 2017, the Board consisted of 4 women and 5 men. The staff consisted of 14 women and 19 men including staff on temporary leave. 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 annual employee surveys, which include attempts to capture the differences between the sexes.

Project funding is satisfactory, activity levels are high and the Board is therefore optimistic about the outlook for 2018. 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 assumption 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, 20.03.2018

Jan-Gunnar Winther
Chair

Randi Eidsmo Reinertsen
Deputy Chair

Peter Townsend Harris
Managing Director

Karoline Andaur

Nils Audun Karbø

Colin Daniel Martin

Beate Nossum

Magnus Tannerfeldt

Kathrine Ivsett Johnsen
Staff Representative

Financial report

Balance sheet (NoK)

Assets	Note	2017	2016
Financial fixed assets			
Investments in subsidiaries	4,6	13 012 000	11 012 000
Total financial fixed assets		13 012 000	11 012 000
Total fixed assets		**13 012 000**	**11 012 000**
Current assets			
Debtors			
Accounts receivables		1 386 607	4 287 883
Other receivables		687 962	698 888
Total debtors		2 074 569	4 986 771
Cash and bank deposits	5	21 774 406	17 605 230
Total current assets		**23 848 974**	**22 592 001**
Total assets		**36 860 974**	**33 604 001**
Equity and liabilities			
Restricted equity		500 000	500 000
Total restricted equity	7	500 000	500 000
Retained earnings			
Other equity	7	10 323 142	9 881 651
Total retained earnings		10 323 142	9 881 651
Total equity	7	**10 823 142**	**10 381 651**
Current liabilities			
Trade creditors		2 301 751	2 723 115
Public duties payable		1 209 194	1 147 012
Other short term liabilities	6	22 526 888	19 352 224
Total short term liabilities		26 037 832	23 222 351
Total liabilities		**26 037 832**	**23 222 351**
Total equity and liabilities		**36 860 974**	**33 604 001**

Arendal, 20.03.2018

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Chair

Randi Eidsmo Reinertsen
Deputy Chair

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Magnus Tannerfeldt

Kathrine Ivsett Johnsen
Staff Representative

Income statement (NoK)

Operating income and operating expenses	Note	2017	2016
Operating income		**44 933 262**	**52 945 455**
Project costs		**7 126 913**	**16 334 695**
Personnel costs	2,3	**24 569 170**	**23 331 284**
Depreciation		**0**	**20 207**
Other operating expenses	2	**12 536 757**	**12 248**
Operating expenses		**44 232 840**	**51 934 875**
Operating result		**700 422**	**1 010 580**
Financial income and expenses			
Other financial income		**1 280 141**	**334 451**
Other financial expenses		**1 539 071**	**969 733**
Net financial income and expenses		**–258 930**	**–635 283**
Annual net profit	7	**441 491**	**375 298**
Brought forward			
Net brought forward		**441 491**	**375 298**

Note 1
Accounting principles

Basic principles – assessment and classification – Other issues

The financial statements, which have been presented in compliance with the Norwegian Companies Act, the Norwegian Accounting Act and Norwegian generally accepted accounting principles in effect as of 31 December 2016 for small companies, consist of the profit and loss account, balance sheet and notes to the accounts. The financial statements give a true and fair view of assets, debt, financial status and result. In order to simplify the understanding of the balance sheet and the profit & loss account, they have been compressed. The necessary specification has been provided in notes to the accounts, thus making the notes an integrated part of the financial statements.

The financial statements have been prepared based on the fundamental principles governing historical cost accounting, comparability, continued operations, congruence and caution. Transactions are recorded at their value at the time of the transaction. Income is recognised at the time of delivery of goods or services sold. Costs are expensed in the same period as the income to which they relate is recognised. Costs that cannot be directly related to income are expensed as incurred.

When applying the basic accounting principles and presentation of transactions and other issues, a "substance over form" view is taken. Contingent losses, which are probable and quantifiable, are taken to cost.

Accounting principles for material items

Revenue recognition

Revenue is normally recognised at the time of delivery of goods or services sold.

Cost recognition/matching

Costs are expensed in the same period as the income to which they relate is recognised. Costs that cannot be directly related to income are expensed as incurred.

Fixed assets

Fixed assets are entered in the accounts at original cost, with deductions for accumulated depreciation and write-down. Assets are capitalised when the economic useful life is more than 3 years, and the cost is greater than NoK 15.000. Operating lease costs are expensed as a regular leasing cost, and are classified as an operating cost.

Depreciation

Based on the acquisition cost, straight line depreciation is applied over the economic lifespan of the fixed assets, 3 years.

Accounts Receivables

Trade receivables are accounted for at face value with deductions for expected loss.

Note 2
Salary costs and benefits, remuneration to the chief executive, board and auditor (NoK)

Salary costs	2017	2015
Salaries	14 324 560	14 368 513
Employment tax	3 057 984	2 824 822
Pension costs	317 028	326 826
Other benefits	6 869 598	5 811 124
Total	**24 569 170**	**23 331 284**

In 2017 the average number of employees was 28.

Pension liabilities
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.

Remuneration to leading personnel (NoK)

Chief Executive	926 844
Board	110 250

Audit fees
Audit fees expensed for 2017 amount to NoK 46 700. In addition there is a fee for other services of NoK 94 980.

Note 3
Pension obligations
The pension premium to the contribution plan for the employees is NoK 2 118 157,– and the premium is charged to the personnel costs.

Note 4
Long term investments (NoK)

Shares subsidiaries	Teaterplassen AS
Owners share	82.9%
Purchase cost	13 012 000
Share of equity 31.12.2017	19 475 190

Note 5
Bank accounts
NOK 766 199,– of the total bank accounts are withheld due to payroll taxes.

Note 6
Balances with subsidaries
As of 31.12.2017 GRID-Arendal has a debt of NoK –9 500 000 to Teaterplassen AS.

Note 8
Equity capital (NOK)

Equity capital	Share	Other	Total
as at 01.01.2017	10 381 651	0	10 381 651
Result for the year	0	441 491	441 491
As at 31.12.2017	**10 381 651**	**441 491**	**10 823 142**

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To the The Board of Directors in Stiftelsen Grid-Arendal

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 441 491. The financial statements comprise the balance sheet as at 31 December 2017, the income statement for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying financial statements are prepared in accordance with law and regulations and give a true and fair view of the financial position of the Foundation as at 31 December 2017, 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 laws, regulations, and auditing standards and practices generally accepted in Norway, included 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 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

Management is responsible for the other information. The other information comprises the Board of Directors' report, but does not include the financial statements and our auditor's report thereon.

Our opinion on the financial statements does not cover the other information and we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated.

If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of The Board of Directors and the Managing Director for the Financial Statements

The Board of Directors and the Managing Director (management) are responsible for the preparation and fair presentation of the financial statements 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.

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 laws, regulations, and auditing standards and practices generally accepted in Norway, including 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.

As part of an audit in accordance with laws, regulations, and auditing standards and practices generally accepted in Norway, included International Standards on Auditing (ISAs), we exercise professional judgment and maintain professional scepticism throughout the audit. We also:

- identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error. We design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Foundation's internal control.

- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

- conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Foundation's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Foundation to cease to continue as a going concern.

- evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with the Board of Directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit

Report on Other Legal and Regulatory Requirements

Opinion on the Board of Directors' report

Based on our audit of the financial statements as described above, it is our opinion that the information presented in the Board of Directors' report concerning the financial statements, the going concern assumption, and the proposal for the allocation of the profit is consistent with the financial statements and complies with the law and regulations.

Opinion on Registration and Documentation

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 management has fulfilled its duty to produce a proper and clearly set out registration and documentation of the foundation's accounting information in accordance with the law and bookkeeping standards and practices generally accepted in Norway.

Opinion on distributions and administration

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 foundations administration and distributions are in accordance with laws and regulations, the foundations objectives and articles of association.

Arendal, 20 March 2018
KPMG AS

Terje H. Holst
State Authorised Public Accountant

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