EARTHWATCH EUROPE ANNUAL REVIEW 2016

EARTHWATCH® INSTITUTE

WELCOME

In 2016 Earthwatch continued to deliver projects that empower people to save our planet. By creating knowledge and inspiring action through hands-on science and environmental engagement we address the key environmental challenges that the planet faces.

We believe that these issues can only be tackled by working together with individuals, communities and organisations. The need for collective action has been emphasised by the United Nations, as countries seek to implement the Sustainable Development Goals (SDGs). This confirms that Earthwatch's multi-stakeholder approach is the right course to take if we want to achieve these goals. We are proud of the work we have undertaken in the past year, which can be broadly split into four themes.

The *State of Nature* report, of which we are a partner, has demonstrated that the need for **engaging the public** has never been greater. In the past 12 months, Earthwatch has continued to increase the range of events and projects through which the public can get involved and make a difference. Citizen science projects have helped provide vital scientific knowledge, whether it be through digging for earthworms in our back gardens or exploring for crabs along our coastline.

As part of of the HSBC Water Programme we have now involved over 8,000 citizen scientists in gathering over 17,000 water quality records.

This programme has been a clear demonstration of Earthwatch's role in **enabling scientists**. Working with research organisations in over 30 locations globally, we are assisting researchers to harness the power of working with the public.

We have also continued with our goal of **embedding sustainability in business**, both through ongoing work with our established partners Shell, Mitsubishi Corporation and HSBC, as well as the development of new partnerships with PwC and Tate & Lyle. These partnerships help businesses tackle sustainability from a number of angles including through employee engagement programmes, enhanced sustainability leadership and the evaluation of supply chains.

Earthwatch has expanded its work on **educating the next generation**. In addition to offering teacher fellowships through our Teach Earth programme, we have been busy piloting a new educational programme, Discover Earth, that will connect students with nature and introduce them to the SDGs.

I would like to thank everyone who has partnered with us in 2016 – through being an Earthwatcher you are part of a global community that truly values and nurtures a sustainable planet.

Image: Tim Ireland

STEVE GRAY
CHIEF EXECUTIVE, EARTHWATCH EUROPE

WHY EARTHWATCH...

Earthwatch seeks to create knowledge and inspire action to protect the planet's key ecosystems and habitats. Our ground-breaking projects are helping us to understand and tackle key environmental issues.

MARINE

34 **invasive species** have established themselves on UK coasts, impacting on our native wildlife and plants. As a partner of **Capturing our Coast**, we train the public to explore how invasive species, climate change and other human impacts are affecting our coastal habitats[i].

URBAN

3/4s of UK children spend less time outdoors than prisoners, revealing a **dramatic disconnection with the environment**. Earthwatch has launched a new education programme, **Discover Earth**, which will encourage children to use the outdoors as a classroom.[iii]

SOIL & AGRICULTURE

The world's soils are being **over exploited** with 1/3 of soil already classified as degraded. **Earthworm Watch** is helping us better understand soil health and demonstrates how people can improve the soil in their own back garden.[iv]

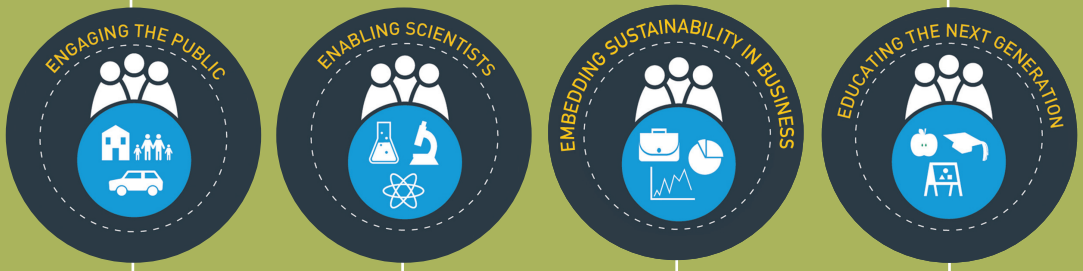
FRESHWATER

Since 1960, agricultural fertilisers have increased phosphorous inputs by 300%, creating a major source of **pollution** in our waterbodies. Our global citizen science project, **FreshWater Watch** has gathered over 17,000 datasets across the planet to help understand and combat this issue.[ii]

Earthwatch believes that collective action is key to tackling the challenges we face. We are empowering the public, scientists, businesses and educators to help them be responsible stewards of our planet.

FORESTS

The combined impact of **habitat loss, fragmentation and climate change** influences how well our forests grow and store carbon. Our project **Climate Change and Carbon Dynamics in Wytham Woods** is conducting long-term research on tree growth.



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[i] http://bit.ly/2eknekp; [ii] http://bit.ly/2fDjgj6; [iii] http://bit.ly/29oMOhs; [iv] http://bit.ly/2eLb56M

ENGAGING THE PUBLIC

We engage the public in much needed scientific research on environmental challenges and inspire behaviour change to reduce environmental impact

COLLABORATING FOR CLEAN WATER

As part of our FreshWater Watch programme, Earthwatch and WaterAid teams are investigating water quality in Nigeria. The teams are supporting 10 communities in the Benue province to monitor and understand the condition of their freshwater resources.

Benue is known as the 'food basket of Nigeria', but the quality of the water remains a concern to those drinking it, and to farmers feeding their crops with it. Children and pregnant women are particularly vulnerable to unsafe water which causes diarrhoea, one of the leading causes of death.

FreshWater Watch empowers communities to test and monitor their water sources, providing experience in training people in citizen science while **WaterAid** provides expertise to reach some of the country's poorest people.

Wandoo Akosu, from WaterAid Nigeria said, "This is the first partnership of its kind for WaterAid. We are collecting information on the safety of water, promoting awareness and improving water quality."

Results of the water sample data gathered by communities over the first six months have shown infiltration of contaminants from agricultural activities whilst domestic wastewater has compromised the security of two water supplies.

This enabled quick action by WaterAid and local agencies who have restricted access to these supplies, and are working to correct these problems to provide a safe freshwater source.

> **Through our projects, communities become more knowledgeable on local and global environmental challenges, and can change things for themselves and other communities in the area.**
>
> **Professor Steven Loiselle, Earthwatch Europe**

THE STATE OF NATURE 2016

Image: RSPB Images

It's not too late to save UK nature but we must act now – that was the conclusion of the 2016 State of Nature report, launched by Sir David Attenborough in September.

First launched in 2013, the annual ***State of Nature report*** is written by a coalition of over 50 leading wildlife charities and research organisations, **of which Earthwatch is one**.

Despite the gloomy picture, there are many inspiring examples of positive change and conservation actions that are helping to turn the tide. These include the reintroduction of the pine marten and large blue butterfly, and the restoration of areas of our uplands, meadows and coastal habitats. We are also increasingly hearing booming bitterns in our wetlands and seeing red kites soar above us. But more is still needed to put nature back where it belongs.

> **The natural world is in serious trouble and it needs our help as never before. The future of nature is under threat and we must work together; Governments, conservationists, businesses and individuals, to help it.**
>
> **Sir David Attenborough**

KEY FACTS FROM THE REPORT

Over 7.5 million hours of volunteering go into monitoring the UK's nature every year. Many dedicated volunteers helped shape the *State of Nature* report and knowledge is the most essential tool that a conservationist can have.

Over half (56%) of UK species have declined since 1970.

More than one in ten of the nearly 8,000 species assessed in the UK are under threat of disappearing from our shores.

GROUND TRUTH 2.0

As citizens are increasingly becoming active participants in scientific data collection there is an ongoing challenge to ensure that this information is used for effective action.

As part of this quest for 'actionable knowledge', Earthwatch is proud to be one of 14 partners in Ground Truth 2.0, a three year project which will launch six citizen science observatories in Europe and Africa. Each observatory will recruit members of the public, government, schools and policymakers to collect data on local environmental issues.

Earthwatch will primarily focus on the Swedish observatory, addressing nutrient pollution from agriculture, industry and waste facilities. It will build on Earthwatch's FreshWater Watch data and app, with the gathered knowledge being shared with decision makers as part of a co-operative planning approach.

The programme is led by UNESCO-IHE and is funded by the European Union's Horizon 2020 research and innovation programme.

TAKING PART

UNCOVERING THE SECRETS OF SOIL HEALTH

Since its launch in April 2016, Earthworm Watch has been inspiring citizen scientists to unearth the diversity and abundance of earthworms, as well as map how they help improve soil health.

The benefits of earthworm activity such as carbon storage, converting organic material into nutrients and flood mitigation are often taken for granted, yet plants and wildlife ultimately depend on the soil. Managing the soil to promote earthworm populations could improve biodiversity in our gardens, parks and other green spaces.

Earthworm Watch, developed in partnership with the Natural History Museum and the Earthworm Society of Britain, is helping us to learn about earthworm populations in the UK. Citizen scientists of all ages, from school children to gardeners, scouts to families, have been digging for earthworms and studying our soils.

SPRING INTO AUTUMN

In the first six months of the project citizen scientists have collected more than 200 Earthworm Watch data points, from Jersey to Elgin in Scotland. Victoria Burton, the scientific lead on the project for the Natural History Museum explained: "Earthworm Watch was inspired by my own enjoyment of citizen science projects as a child - and by involving the public more data can be gathered from the important urban green spaces which scientists can rarely access."

RESULTS TO DATE

Earthworm Watchers' results to date have indicated that earthworms prefer clay soils rather than sandy ones. Flower and vegetable beds are also excellent nurseries for developing earthworm populations due to the availability of rotting leaf litter, vegetation and organic matter.

EMPOWERING CONSERVATION OF THE MARINE ENVIRONMENT

Capturing our Coast, the biggest UK marine citizen science project of its kind, is well on the way to achieving its aim to train 3,000 volunteers. The project is a collaboration of many partners including Earthwatch, and is led by Newcastle University's Dove Marine Laboratory.

Nowhere in the UK is more than 113 km (70 miles) from the coast, yet there is much we don't know about our diverse coastal ecosystems. **Capturing our Coast** volunteers have contributed more than 1,000 hours of research to date, building a picture of where our native species can be found, their movements and their responses to climate change and invasive species. This information aims to inform future conservation strategies.

"I've learnt so much about the environmental and human challenges the rocky shore faces, species identification and survey techniques. I can now see the important role of citizen science projects in providing large amounts of data ...to aid understanding of the health of our rocky shores and how they can be protected. I've enjoyed every minute.

Jo Ainsworth, Volunteer

ENABLING SCIENTISTS

We enable scientists by assisting those who are early in their careers and by closing the gap between objective scientific discovery and action

FRESHWATER WATCH RESEARCH: OUR IMPACT TO DATE

Five years ago HSBC invested in Earthwatch to develop FreshWater Watch. In 2016 we conducted a major review of its work and achievements to date.

Since the programme began, citizen scientists have collected **more than 17,000 water quality datasets** from more than 2,200 waterbodies around the world (see page 19). FreshWater Watchers are also taking action to reduce their personal and community impact on water quality as well as supporting new solutions to local management.

In the River Thames basin, FreshWater Watchers provided more than 3,000 new measurements of nutrient and sediment pollution, filling gaps in Environmental Agency monitoring and providing complementary information on small waterbodies[1].

Elsewhere around the globe, Earthwatch scientists and partner institutions have shown how the conditions of streams in Buenos Aires, Curitiba, Sao Paolo, Rio de Janeiro, Mexico City and Vancouver are strongly influenced by local and catchment scale conditions, where more than 80% of the streams showed signs of eutrophication[2].

Measurements taken by participants in two of the Brazil projects detected unhealthy conditions (elevated nutrients and harmful algal blooms) in streams used by local populations, resulting in changes to local land management. In Guangdong (China), FreshWater Watchers in Foshan and Guangzhou are gathering information to inform regional agricultural policy aimed at reducing the impacts of agricultural fertiliser and pesticide application.

A further finding reveals that in Buenos Aires, a main source of pollution in the city is being washed in from urban surroundings and roads.

Investing in training citizen scientists can lead to more than nine hours of FreshWater Watch sampling time for each hour of training.

1. BioScience, The Citizen Science Opportunity for Researchers and Agencies, Ian Thornhill, Steven Loiselle, Katerina Lind and Daniel Ophof, Volume 66, Issue 9, pp 720-721 2. PloS one, Micro and Macroscale Drivers of Nutrient Concentrations in Urban Streams in South, Central and North America, Steven Loiselle, Volume 11, Issue 9 p.e0162684

COMMUNITY WORK REDUCES HUMAN-WILDLIFE CONFLICT

Earthwatch is supporting research in South Africa to understand and manage human-wildlife conflict resulting from primate crop raiding and the perceived threat of large predators to livestock.

The Lajuma Research Centre, set within the Soutpansberg Mountains in South Africa, is a natural heritage site, which forms part of the Luvhondo Nature Reserve within the UNESCO Vhembe Biosphere Reserve.

The mountains are rich in biodiversity, supporting one of the highest densities of leopards in Africa, as well as hyenas and numerous primates. These animals frequently venture into the surrounding farmland, which is the mainstay of the local economy.

Community engagement officer **Philip Faure**, whose role is funded through Earthwatch's environmental partnership with Shell, is building relationships and trust with local communities, to support effective conservation and livestock management.

This includes practical support and demonstrations on ways to improve animal husbandry, particularly in building predator-proof enclosures known as 'bomas'.

> **Our ability to place livestock guarding dogs with farmers who were previously hostile towards predator conservation is a great result.**
>
> **Professor Russell Hill, Earthwatch Europe**

AWARD-WINNING EARTHWATCH SCIENTIST

In 2016 Juliette Velosoa won the prestigious *Whitley Award for Nature Conservation in honour of her commitment to conserve the critically endangered side-necked turtle in Madagascar. Back in 2005, Juliette Velosoa was one of 12 scientists from Africa to receive early career funding from Earthwatch's Capacity Development Fund.**

During her Earthwatch training Juliette joined a research project led by Dr David Harper from the University of Leicester at Lake Elementeita in Kenya. This research helped to secure Ramsar status for the lake, identifying it as a wetland of international importance.

The ancient Madagascan 'rere' turtles Juliette is now studying were once found throughout western Madagascar. Now only eight stable populations remain, due to over-exploitation and severe loss of wetland habitats.

Juliette encourages community-led resource management and restoration of wetlands using techniques that favour conservation and improve fish stocks for local people. Thanks to techniques such as nest protection and head-starting (where turtles are raised until big enough for release), rere populations are starting to show signs of recovery.

Her *Whitley Award* will fund the development of locally-led management plans to enable sustainable use of wetlands in two key sites. The project is also helping to deliver vital ecosystem services for local people and developing guidance for further replication at a time when Madagascar has declared 83 new protected areas.

*The Whitley Fund for Nature is a UK registered charity offering Whitley Awards and ongoing support to outstanding nature conservationists around the developing world.

PLAYING OUR PART IN THE GLOBAL SCIENTIFIC DEBATE

Earthwatch research continues to contribute to global understanding of sustainability and engagement, as our growing number of scientific publications show.

For instance, our FreshWater Watch scientists, working closely with research teams in our 20 partner organisations, have illustrated how citizen scientists can support environmental research and reinforce agency monitoring in projects around the world. This has resulted in a number of publications in international peer-reviewed journals, as well as the development of a special issue of the leading scientific journal, *Science of the Total Environment*, which will be published in 2017.

Earthwatch scientists also published an article in *Conservation Biology*. The piece examines key factors that improve outcomes of citizen science projects in terms of implementation of results in management planning.

Ongoing work at Wytham Woods has led to several publications, including one co-authored by Dr Martha Crockatt on how soil-feeding organisms are affected by the impact of habitat fragmentation in UK woodland. The study was published in the journal *Ecosystems*.

Key publications from Earthwatch scientists over this last year include:

• Chandler, M., Rullman, A., Cousins, J., Esmail, N., Begin, E., Venicx, G., Eisenberg, C. and Studer, M. In Press. **Contributions to publications and management plans from 7 years of citizen science: Use of a novel evaluation tool on Earthwatch-supported projects.** Conservation Biology; doi:10.1016/j.biocon.2016.09.024

• Loiselle, S.A., Cunha, D.G.F., Shupe, S., Valiente, E., Rocha, L., Heasley, E., Belmont, P.P. and Baruch, A., 2016. **Micro and Macroscale Drivers of Nutrient Concentrations in Urban Streams in South, Central and North America**. PloS one, 11(9), p.e0162684

• Riutta, T., Clack, H., Crockatt, M. and Slade, E.M. 2016. **Landscape-Scale Implications of the Edge Effect on Soil Fauna Activity in a Temperate Forest. Ecosystems (2016)** 19: 534. doi:10.1007/s10021-015-9939-9

• Thornhill, I., Loiselle, S.A., Lind, K., Ophof, D. 2016. **The Citizen Science Opportunity for Researchers and Agencies BioScience 2016**; doi:10.1093/biosci/

• Loiselle, S.A.; Thornhill, I.; Bailey, N. 2016. **Citizen science: advantages of shallow versus deep participation. Frontiers in Environmental Science** doi:10.3389/conf.FENVS.2016.01.00001.

• Castilla, E.P., Cunha, D.G.F., Lee, F.W.F., Loiselle, S., Ho, K.C. and Hall, C., 2015. **Quantification of phytoplankton bloom dynamics by citizen scientists in urban and peri-urban environments. Environmental monitoring and assessment**, 187(11), pp.1-11.

For full references and details of all publications by Earthwatch scientists please visit our website.

HOW WE ARE CREATING KNOWLEDGE AND INSPIRING ACTION...

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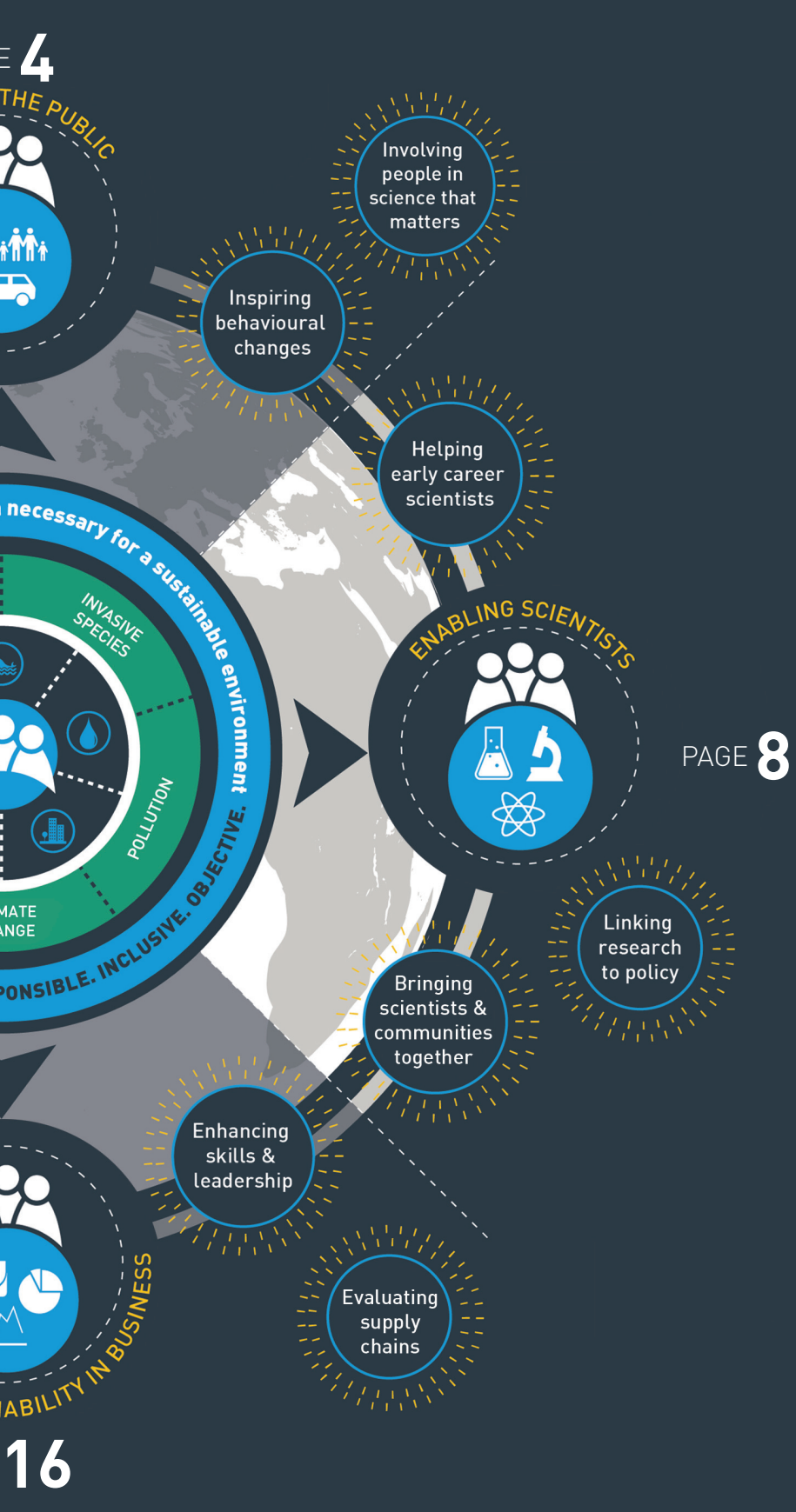
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THE PUBLIC
Involving people in science that matters
Inspiring behavioural changes
Helping early career scientists
necessary for a sustainable environment
INVASIVE SPECIES
POLLUTION
MATE
ANGE
PONSIBLE. INCLUSIVE. OBJECTIVE.
ENABLING SCIENTISTS
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Linking research to policy
Bringing scientists & communities together
Enhancing skills & leadership
Evaluating supply chains
ABILITY IN BUSINESS
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EMBEDDING SUSTAINABILITY IN BUSINESS

We support businesses to embed sustainability into the heart of their organisation, developing the internal leadership and awareness needed to embrace opportunities that arise from a changing environment

SUPPORTING THE BUSINESS RESPONSE TO SUSTAINABLE DEVELOPMENT GOALS

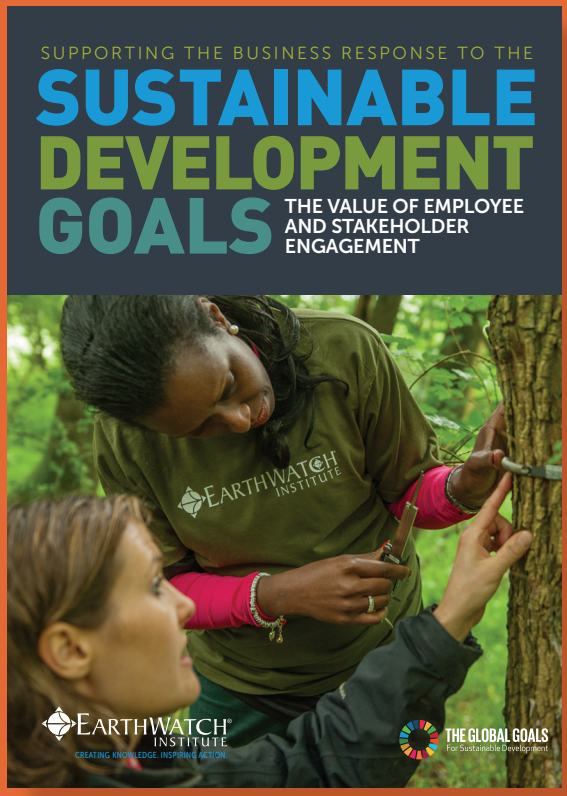
The United Nations' Sustainable Development Goals (SDGs) present an ambitious, integrated framework aiming to end poverty, protect our planet and ensure prosperity by 2030.

Six months ago Earthwatch launched our report *'Supporting the Business Response to the Sustainable Development Goals – the Value of Employee and Stakeholder Engagement'*. Our work with businesses to embed their sustainability strategies and monitor progress against SDG's continues to gather pace.

Our programmes help businesses respond to the needs and expectations of customers and investors to show leadership in sustainable action. They are tailored to support sustainability goals and engage participants in discussions on how to develop leading practices for their organisation.

Embedding sustainable practices helps businesses reduce climate change risks to their investments. It also helps attract and motivate forward-thinking employees with their environmental credentials, and supply customers with sustainably-sourced products and services.

Our programmes allow staff, stakeholders and communities to experience a direct connection between relevant environmental issues and be inspired to act and change their professional and personal behaviour. In addition, they are providing the critical scientific data needed to provide solutions to some of the planet's most challenging environmental issues.



OUR CO-CREATED APPROACH ENHANCES BUSINESS IMPACT
EARTHWATCH TALKS TO SHELL'S VICE PRESIDENT OF ENVIRONMENT

Earthwatch's partnership with Shell began in 1998 through Shell's employee volunteering programme, Project Better World.

Rupert Thomas, *Shell's VP of Environment, shares how this partnership has been enhanced and stood the test of time, impacting on the business and individuals.*

"We've been on this journey with Earthwatch a long time now, and it will continue. Earthwatch's valuable knowledge and observations along the way have helped us make improvements, and it's grown in a very co-created way.

"We've been open to new ideas, and Earthwatch have been very proactive and progressive in their thinking. We feel good about developing the programme by building on what we've got – it's always been an open discussion about which ideas are practical for now and what will make a notable difference.

"Volunteering expeditions formed the start of the partnership. These were enhanced by introducing a sustainability leadership curriculum for the Shell participants, focused on learning outcomes directly relevant to Shell's business. Shell employees work with peers from different businesses and diverse roles, from engineering to finance to new business development, and create action plans relating back into their roles. The programme takes employees out of their comfort zone, creating a space to discuss environmental sustainability issues and develop key leadership competencies.

> **My advice to other companies considering a sustainability programme is to be confident that it will work as there's a big appetite amongst employees including senior staff.**

"I've been impressed with the energy and level of enquiry and interest generated in employees participating in the programme. I've heard first hand from many people who feel personally impacted by the journey it's taken them on.

"This positive feedback translates back into the workplace - helping us develop into a more challenging and curious workforce. Employees are motivated to keep up their new peer network and share contributions to sustainability in both their work roles and personal lives.

"My advice to other companies considering a sustainability programme is to be confident that it will work as there's a big appetite amongst employees, including senior staff. Try a pilot or two, see what you learn and go from there.

"As the external landscape moves and changes, we need to adapt and continue to invest in our people.

"It's difficult for industries under cost pressure, but we have to be responsive and look on the longer term horizon. Our sustainability programmes are an investment for the future, ensuring we have engaged, knowledgeable people.

"In 2017, our focus is to continue building on the programme's solid foundations, enhancing its quality and engaging more senior leaders in the work of the partnership to increase effectiveness and influence."

MITSUBISHI CORPORATION EMPLOYEES ENGAGE WITH ENVIRONMENTAL ISSUES

Mitsubishi Corporation (MC) has partnered with Earthwatch since 1993, as part of its long term employee engagement programme. Three strands of work have enabled MC employees to engage with environmental issues.

The first strand involves MC sending employees to be trained as citizen scientists in coral reef surveys in the Seychelles.

The ten-year coral research programme has revealed unexpected tolerance in corals growing in lagoons and mangroves to extreme events, such as this year's "Godzilla" El Niño. Scientists on the 'Coral and Coastal Ecology of the Seychelles' project believe this research could have significant implications for direct active conservation management to help build the resilience of coral reefs both in the Seychelles and around the world.

The research reveals that corals in these environments, as found in the Seychelles, have adapted to naturally higher temperatures and more acidic conditions. They therefore are an ideal natural laboratory for studying future conditions under climate change, and the biological traits that install resilience to extreme events in corals.

Mitsubishi Corporation employees have contributed towards the gathering of the project data, thereby creating a unique long-term study of corals in lagoons and mangroves. Early career scientists from the region have also been supported to undertake research into the social impacts of coral degradation.

The research programme is a partnership between Earthwatch and an international collaboration led by the University of Essex.

Data gathered on the Island of Curieuse has tracked the recovery of the coral reefs from an extreme El Niño in 1998, that killed 70-95% of corals in the region, and the impacts of a second extreme El Niño event this year, which bleached 78% of corals. Understanding why some, albeit the minority, were not bleached, may allow for selective breeding to increase the proportion of corals that are tolerant to extreme events.

Lead scientist on the project, Professor David Smith, from the University of Essex, said: "Management needs to be based on sound, rigorous and well-tested research. The time has come to use our collective knowledge to implement active management immediately, test management options and disseminate the information as widely as possible to provide the very best chance we can to protect these globally significant ecosystems."

He added: "Perhaps as much as 10% of the world's population is dependent in some way on reefs for food or income. However, corals are under increasing threat with the frequency and intensity of extreme events likely to increase in the future. Also, as sea surface temperatures rise, corals reefs are increasingly likely to experience bleaching events, as they are pushed closer and closer to their maximum temperature thresholds above which bleaching can occur."

Two other strands of work are:

- the Mitsubishi Fellowship Programme which enables staff to attend Earthwatch global research expeditions
- the Mitsubishi Corporation Fund for Europe and Africa, funding of an exciting programme of public events. (see page 24).

Image Emma Camp

FIFTEEN YEARS OF LEARNING AND ENGAGEMENT WITH HSBC

Through a long term partnership lasting over 15 years, Earthwatch has inspired HSBC staff to embed sustainability at the heart of their business. This year we also celebrate the success of the global HSBC Water Programme (HWP).

Over the past five years, **more than 8,000 HSBC employees** have participated in FreshWater Watch, a global water quality monitoring citizen science project (see page 8). As Citizen Science Leaders (CSLs) they have they have contributed towards the collection of **over 17,000 scientific datasets across 35 countries**. Behind the numbers and scientific outcomes are positive impacts for individual employees, the bank, and ultimately a more sustainable planet.

Employees say that the citizen science programme impacts on them personally - inspiring them to make lifestyle changes whilst providing them with tools for professional development. Well over 90% of participants have reported increased sustainability awareness and personal motivation as a result of taking part.

The CSL role, with its ambassadorial, educational and scientific remit, presents personal and professional development opportunities in leadership, influencing skills, communications and teamwork. More than 90% of participants report improvement in each of these areas after participation. The majority of participants are at the start of their careers - future leaders whose influence will increase over time and 79% of respondents also report themselves as more likely to continue their association with HSBC as a result of the programme.

The HSBC Water Programme received the *'Inspiring Practice Award'* at the International Association of Volunteer Effort (IAVE) Global Corporate Volunteering Awards 2016.

SUSTAINABILITY LEADERSHIP PROGRAMME

The Earthwatch HSBC Sustainability Leadership Programme, now in its seventh year, continues to embed sustainability into the organisation's culture, with more than 1,300 senior executives participating to date and 325 in 2016.

It takes key stakeholders and senior managers from all areas of the bank out of the office and into the field to learn first-hand about the implications of climate change and the importance of creating a sustainable business.

In particular, delegates are encouraged to understand HSBC's operational efficiency goals, and incorporate sustainability into everyday business decision-making.

Hosted in five international locations, the programme's results are now delivering significant sustainability savings and new business opportunities.

EDUCATING THE NEXT GENERATION

We educate the next generation through a range of immersive educational programmes, expeditions and fellowships

LET THE EARTH BE YOUR CLASSROOM

Discover Earth, launched in 2016, is finding new ways to connect young people with science and nature to engage them in the UN's Sustainable Development Goals. The project is supported by Aramco as part of their knowledge-society citizenship activities.

Discover Earth supports teachers in using citizen science to teach key parts of the national curriculum. Students have the opportunity to collect scientific data and increase their understanding of the importance of achieving the UN's Sustainable Development Goals (SDGs) and what is needed to reach them.

The 15 year ambition of the UN means that young people today will live in a world shaped by their legacy. It is vital that they learn about the goals and feel empowered to act. The SDGs are unique in that they call for action by all countries, whether they are poor, rich or middle income, to end poverty, fight inequality and protect the planet.

Discover Earth supports teachers to empower their students, but also directly engages with students and helps them reconnect to their planet, understand their impact on it, and take action to protect it. The programme uses Earthworm Watch, FreshWater Watch and the Teabag Index*, giving school children the chance to contribute directly to scientific endeavours.

Image: John Hunt

*The Tea Bag Index is a new method of measuring decay of organic matter (plants) by making use of commercially available tea bags. The project aims to collect data on decay rates from all over the world to create a global soil map to in turn inform climate models

Throughout 2017 Earthwatch is launching a series of Teach Earth training weekends for teachers and Discover Earth activity days to bring citizen science to the schools and enable nature to be their classroom.

For more information email education@earthwatch.org.uk

TAKING TEACH EARTH FROM THE WOODS TO THE CLASSROOM
MEETING TRACY GUILD

In August 2015 Tracy Guild embarked on her journey with Earthwatch on the Teach Earth programme. Tracy has been teaching in primary education for 16 years and is committed to embedding environmental awareness into young people's education.

Teach Earth begins with an intensive period of exploring environmental challenges, hands-on citizen science and networking with other teachers in Wytham Woods, Oxfordshire. This is followed by a programme of on-going support and reunions.

Earthwatch recognises the value and importance of teachers like Tracy in enabling young people to connect with nature.

Over her 16 year teaching career Tracy has run environmental clubs for students in three schools and succeeded in helping two of those schools achieve the prestigious Eco-Schools Green Flag status.

Since her involvement with Teach Earth, Tracy has won a £300 Earthwatch Community Action grant to bring practical science to her school through Earthwatch's FreshWater Watch citizen science research. This has included a school trip to a local outdoor centre where students explored the global water challenges and conducted water quality research.

SINCE TEACH EARTH, TRACY HAS...

...created a new school council and pushed environmental agendas and topics...

...integrated FreshWater Watch into the curriculum for Years 4/5...

...held a water festival day to promote understanding of water quality and scarcity issues.

"The children have really taken the key water saving message to heart. It has been lovely to see how enthusiastically they thought of exciting new ways to reduce their own water use and spread the message throughout the community.

Tracy Guild

EARTHWATCH EXPEDITIONS EXPLORING CLIMATE AND LANDSCAPE CHANGE

Student expeditions, supported by Earthwatch bursaries, provide a unique opportunity for young UK students to assist leading scientists in their field research projects.

This year, two teams of students travelled to India and Borneo to take part in Earthwatch student expeditions.

INDIA

At the Indian Himalayas project, students monitored bee interactions with a range of flora across a large woodland area at the top of a valley. In addition, they investigated how prevalent natural beehives were in the local villages around the research sites. Their research will contribute to understanding the impact of climate change on floral diversity and pollination.

Bursaries, funded by Earthwatch supporters, were used to enable underprivileged students to go on an inspirational expedition with access to cutting edge environmental research. "It is such an enriching experience, you learn so much." said Andrea Wong, a student who took part in the expedition.

BORNEO

The Borneo expedition researched the impact of logging and forest clearance for palm oil plantations on sediment deposits into rivers which in turn, can negatively impact coastal ecosystems such as mangroves and coral reefs.

One student said of their experience: "I want to study Geography at university so this was very relevant. I think in a future career it will benefit me because of the skills I have gained and the knowledge that I now have."

Since completing the expeditions the students are staying in touch online, delivering presentations and taking action on water conservation, as well as recycling and reducing waste on campus.

SPREADING THE WORD

Earthwatch continues to raise awareness of the need to save the planet with the help of inspirational people who have joined us along the way.

IN PERSON

In 2016 we worked with influential environmental experts to engage people on contemporary environmental issues. Vibrant events, supported by the Mitsubishi Corporation Fund for Europe and Africa, were held at the Royal Geographical Society, including:

Natural Capital – does nature come with a price tag?

A panel of expert speakers, including *Countryfile* presenter, **Tom Heap**, debated whether we should put a price tag on nature in order to conserve it.

Lost Connection – how can we re-engage people with nature?

A 'dragons den' - style event was chaired by British television presenter, and leader for the National Geographic Pristine Seas expeditions, **Paul Rose**. Ecological entrepreneurs pitched their ideas for projects that reconnect people with nature, for the chance to work with Earthwatch and a £5,000 grant. The judging panel included representatives form the world of academia and conservation, as well as *Countryfile* presenter, **Ellie Harrison.**

The winning project, *Catch me if you Cam*, is now working with Earthwatch to develop a camera trap project for schools.

Image: Chris Deeney

IN THE NEWS

Earthwatch provided expert opinion on environmental issues for both BBC News online and broadcast journalists, as well as being featured, as partners of the Capturing our Coast and Earthworm Watch projects, on BBC Radio 4 and *Farming Today*.

FreshWater Watch received nationwide coverage during the UN's World Water Week in September, reaching over three million listeners through 18 radio stations, talking about water pollution and the need to educate the public.

IN ACADEMIA

In addition to our publications (see page 12), Earthwatch experts spoke at over 32 international events this year, showcasing our citizen science research, educational models and achievements.

IN PICTURES

Photographer Mustafah Abdulaziz worked with Earthwatch, HSBC, WWF and WaterAid to capture powerful images of the effects of water and sanitation issues on people and the environment. The resulting photographic exhibition, *Water Stories*, debuted in Stockholm, moved on to London to mark the UN World Water Day, and then New York as part of Photoville 2016. A collection of stories from the five years of the HSBC Water Programme was published in a limited edition book, available at thewaterhub.org.

Join us at the next RGS event – *The future of our planet – in whose hands?* – on 6 April 2017 in London. Book your place at earthwatchevents.org.uk

FUNDRAISING

GOING THE EXTRA MILE FOR A MORE SUSTAINABLE PLANET

In 2016 Earthwatch fundraisers have raised almost £3,000 between them through a variety of physical challenges. Earthwatchers have been swimming the freezing Serpentine, cycling a gruelling 100km and pounding the pavements with half and full marathons.

Their fundraising enables us to support and nurture citizen scientists who want to be part of the solution to our environmental challenges.

Our citizen scientists bring great knowledge and passion, and the money raised ensures our projects are open to people from all walks of life.

London Marathon fundraiser Malcolm said, "Running the London Marathon was an experience I'll never forget. The roar from the spectators just carries you along.

"As soon as I finished I said 'never again' but then put my entry in a week later. I hope there will be lots of other people in Earthwatch vests joining me in 2017."

We have a team of five runners at the Virgin Money London Marathon

We have places at Ride100 and Swim Serpentine

Go to www.eu.earthwatch.org/get-involved/fundraising

Frank and Richard who swam in the inaugural Swim Serpentine

"Thank you Earthwatch, what a great experience, We really enjoyed not just the day but the training beforehand.

MAKING EVERY CONTRIBUTION COUNT

Earthwatch Europe is fortunate to have the support of many partners, donors and individuals who make our vital work possible.

With their help we are enabling communities around the world to be responsible stewards of our planet.

While we continue to work with loyal and highly valued partners on respected, established programmes, we are also expanding in to new areas. We are seeking to grow our engagement work with the wider community in the UK, and EU, as well as expand the range of audiences and funders with whom we work and collaborate.

To this end, this year we established a number of new public engagement programmes and partnerships including Capturing our Coast, Earthworm Watch and Ground Truth 2.0 (see pages 5-7).

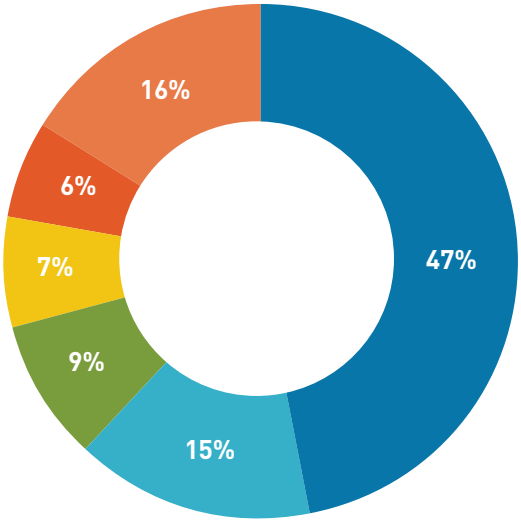
In 2017, as we embark on more public engagement and develop our new programmes, we expect a higher percentage of expenditure in this area.

Earthwatch support come from many quarters including:

- **donors** who generously give funds
- **fundraisers** who raise funds on our behalf
- **corporate partners** with whom we work to develop sustainable business practices and leadership
- **project participants** who collect scientific data
- **individuals** who generously give their time, free of charge, as trustees, speakers at our events and in other capacities
- **trusts and foundations** who support our programmes

We recognise as many as we can opposite.

HOW OUR INCOME WAS SPENT IN 2016



	% of income	£'000s
Embedding sustainability in business	47%	2009
Engaging the public	15%	663
Enabling scientists	9%	403
Educating the next generation	7%	290
Development and fundraising costs	6%	242
Administrative, governance and office costs	16%	686

THANK YOU TO OUR SUPPORTERS

CORPORATE PARTNERS 2016

Aramco
British American Tobacco
Heathrow Airport Ltd
HH Global
HSBC Holdings plc
KPMG
Mitsubishi Corporation
PwC
Royal Dutch Shell plc
Tate & Lyle plc
Thames Water

TRUSTS AND FOUNDATIONS, GOVERNMENTS AND MAJOR DONORS:

Earthwatch Shulman Awards
The Clark Bradbury Charitable Trust
The Diwan of Royal Court, Sultanate of Oman
European Commission – Horizon 2020
Mitsubishi Corporation Fund for Europe and Africa
Pauline Meredith Charitable Trust
The Prince Albert II of Monaco Foundation
States of Jersey
William Dean Countryside and Educational Trust

DONORS

Louise Barrett
Martin Brunt
Chris Budgett
Patricia Frankl
Reggie Heyworth
Caroline and Ian Laing CBE
John Lambert
George and Judith Mason
Lord and Lady Remnant
Kiren Shoman
Neville Shulman CBE and Emma Shulman
Jack Whitehall
A contribution to remember Dr Kate Barlow

TEAM EARTHWATCH FUNDRAISERS

Abby Bailey
Anthony Roach
Emily Winfield
Frank Maeder
Lucy Goodman
Malcolm Bradbrook
Richard Wright
Rima Chai
Thomas Smith

OFFICE VOLUNTEERS

Leo Coucher
Paul Baker
Pete Davies
Simon Shepherd
Tony Strong

TRUSTEES

Louise Barrett *(retired March 2016)*
Mark Collins
Iain Coucher
Dorothee D'Herde
Nick Dobson
Ed Green
Dr John Hemming CMG *(retired March 2016)*
Lucian Hudson
Lisa King
Superna Khosla - Treasurer
Geoff Lane - Vice-Chair
Dax Lovegrove
Dr Jack Matthews
Anthony McMahon *(retired October 2016)*
Judith Mosely - Chair
Adam Powell
Herschel Post MBE *(retired March 2016)*
Professor Dan Rubenstein *(retired June 2016)*

INDIVIDUALS

Estelle Bailey
Phil Clarke
Sarah Colenbrander
Dr Mike Hannis
Ellie Harrison
Tom Heap
Professor Mark Huxham
Tony Juniper
Miles King
Simon King
Professor Georgina Mace
Nigel Marven
Dr Mike Morecroft
Paul Rose
Professor Sian Sullivan
Andrew White
Dimitri Zenghelis

All those who have contributed their stories and images to this publication

EARTHWATCH® INSTITUTE

Earthwatch Europe
Mayfield House, 256 Banbury Road
Oxford OX2 7DE, United Kingdom
www.eu.earthwatch.org

@Earthwatch_Eur

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Cover image: John Hunt