

The UNEP Magazine for Youth

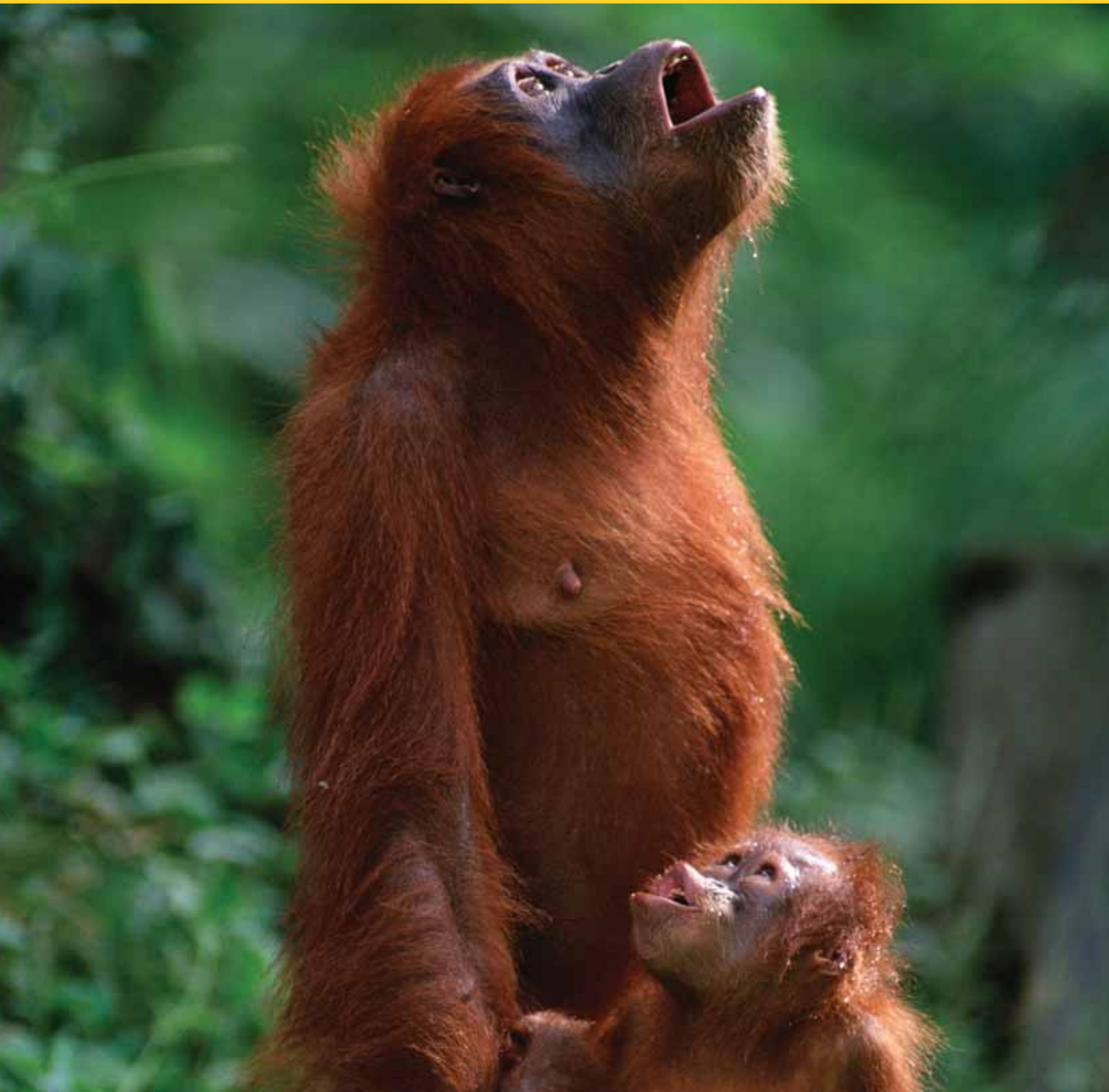


# TUNZA



for young people • by young people • about young people

## Forests and trees



**A portrait of home • Sacred forests**

**Urban jungle • Chemical cornucopia • It's up to us**

## TUNZA

the UNEP magazine  
for youth. To view current  
and past issues of this  
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**Partners for Youth  
and the Environment**

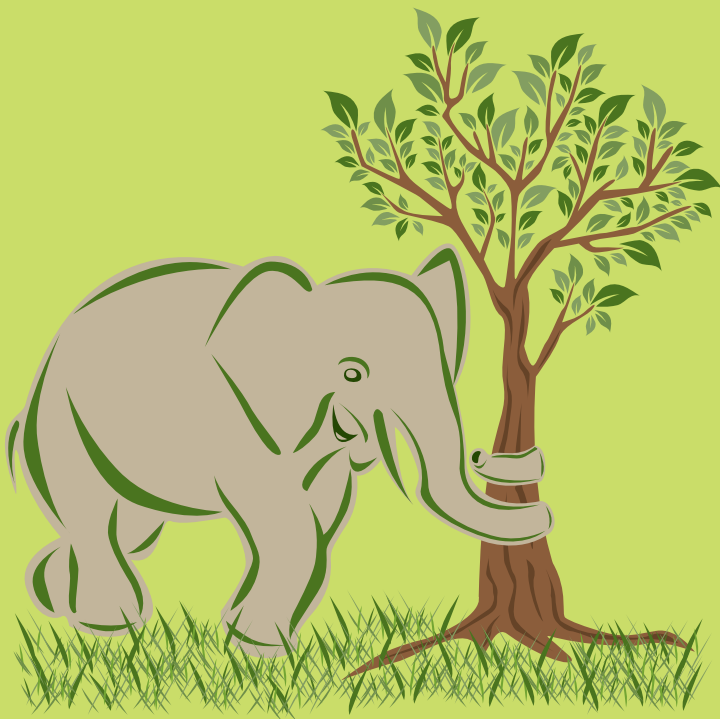


**UNEP and Bayer, the German-based multinational involved in health care, crop protection and high-tech materials, are working together to strengthen young people's environmental awareness and engage children and youth in environmental issues worldwide.**

A partnership agreement, originally signed in 2004 and renewed in 2007 and 2010, runs through 2013. It lays down the basis for UNEP and Bayer to implement the projects under the partnership. These include: TUNZA Magazine, the

International Children's Painting Competition on the Environment, the UNEP Tunza International Youth and Children's Conferences, youth environmental networks in Africa, Asia Pacific, Europe, Latin America and the Caribbean, North America and West Asia, the Bayer Young Environmental Envoy Program and a photo competition, 'Ecology in Focus', in Eastern Europe.

The long-standing partnership between UNEP and Bayer has become a public-private partnership that serves as a model for both organizations.



## What ecosystem services are worth (per hectare per year)



### Cameroon's forest services

Climate regulation \$842–2,265

Non-timber forest products: \$41–70

Flood regulation \$24

### Hawaii, USA

Groundwater recharging services of the forested Ko'olau watershed: \$35,500–\$65,750

### Costa Rica

The pollination value of forests next to coffee plantations: \$395

## Reducing Emissions from Deforestation and Forest Degradation



The UN's initiative on Reducing Emissions from Deforestation and Forest Degradation (REDD, [www.un-redd.org](http://www.un-redd.org)) is a mechanism that facilitates the flow of funds from the developed to the developing world to conserve forests. To date the REDD Policy Board has approved \$55.4 million to support the development of national REDD strategies in Bolivia, Cambodia, Democratic Republic of the Congo, Ecuador, Indonesia, Panama, Papua New Guinea, Paraguay, the Philippines, Solomon Islands, Tanzania, Viet Nam and Zambia. In the longer run, as partnerships between nations are established, REDD could raise as much as \$30 billion a year.

## EDITORIAL:

# A different way of thinking

We all know that timber, fibres, foods and medicines from forests have a price. But the services forests provide – often referred to as ecosystem services, such as regulating water and controlling floods, storing carbon and preventing erosion – go undervalued despite being far more significant. The current rate of forest felling contributes 20 per cent of our carbon emissions, but what is the true worth of keeping that carbon locked up? Expressing such values in economic terms makes it possible to compare the value of conserving forests with the cost of destroying them.

Putting a dollar value to ecosystem services, however, is a contentious issue. Some say we should appreciate our natural environment for its intrinsic worth, and that putting a monetary value to it devalues it. Others believe that we should really pay for what we consume – not just the face value of a cheap plastic toy or that affordable mobile phone, but the cost to our environment of making, transporting, using and discarding such things.

The trouble is that nature's harvests, using traditional economic measures, do not seem to contribute much, especially at the global level: forestry, agriculture and fisheries account for less than a fifth of the world's gross domestic product. At the local level, however, they are of huge importance, representing up to 90 per cent of poor people's livelihoods. So putting a price on ecosystem services more truly reflects the fundamental needs of people on the planet, rich and poor alike.

Payment for ecosystem services is a different way of thinking. Instead of letting the markets push people to clear forests for timber, building materials and fuel or turn them into agricultural land or grazing for cattle, it rewards communities who preserve and even restore their forests – and helps fight poverty. The money comes from those who benefit from the forests' wider services – regulating climate, storing carbon and controlling flows of water. On a practical level, it can be raised through general taxation or by adding a charge to existing tariffs such as for water use, or from greenhouse gas emitters through the carbon markets. And there are also moves to redirect some overseas development aid to payment for ecosystem services.

If these services are lost because of deforestation and forest degradation, money won't restore them. But expressing their value in the language of commerce may persuade politicians, producers and consumers alike to rethink exactly what goes into that plastic toy or mobile phone.





Yann Arthus-Bertrand

**Y**ann Arthus-Bertrand has made documenting the grandeur and beauty of Earth his life's work. Born in 1946, the French photographer, film maker, environmentalist and UNEP Goodwill Ambassador started photographing wildlife on a trip to Kenya in the late 1970s, when he spent some time with a pride of lions. Since then, he has worked for *Life* and *National Geographic*, and along the way photographed naturalist Dian Fossey and the mountain gorillas in Rwanda.

Arthus-Bertrand is best known for his aerial photography – images shot from helicopters and hot-air balloons. With the support of UNESCO, he provided a perspective of our planet that we wouldn't otherwise see in *The Earth*

*from Above*, and in 2009, released *Home*, a documentary showing the glories of the planet from the air and how humanity's relationship with it is rapidly disrupting its ecological balance.

The UN commissioned Arthus-Bertrand to produce the official film for the launch of the International Year of Forests, *Of Forests and Men* – a seven-minute montage of the world's forests from above. The footage shows not only the beauty of forests, but also what we are doing to them.

TUNZA asked Arthus-Bertrand about his relationship with forests and how he feels photography can help preserve the Earth.

**TUNZA: Do you spend much time in forests?**

**Y A-B:** My house stands on the edge of a forest where I walk every morning. It is a world of sensations, where all human things seem to disappear. Forests' tranquillity and beauty, freshness and fertility express something that contributes to my physical and mental well-being. I don't think I am alone in this. We come from the forest. Humans developed their binocular vision and opposable thumbs in the trees. Perhaps that's why I feel the need to return to them from time to time, to reconnect. Yet I am aware that the forests around Paris all bear the mark of humanity.

**TUNZA: From your perspective, what is the key problem, and solution?**

**Y A-B:** I stopped once near a field in Borneo, where a farmer was cutting a patch of forest. I spoke to him about deforestation, ecosystems and climate change. He said: 'You come here in your helicopter to teach me a lesson? Me, I'm just working to feed my family.' Then he invited me on to his wooden boat where his wife was feeding a baby and watching a US television show.

We have created a dream of comfort and consumption, we profited from that dream, we showed it to others, but now we tell them: 'Sorry, not for you. The planet is in danger.' So the question is:

are we, from the developed countries, going to share? For others to have more, we need to accept having less. And that's not easy.

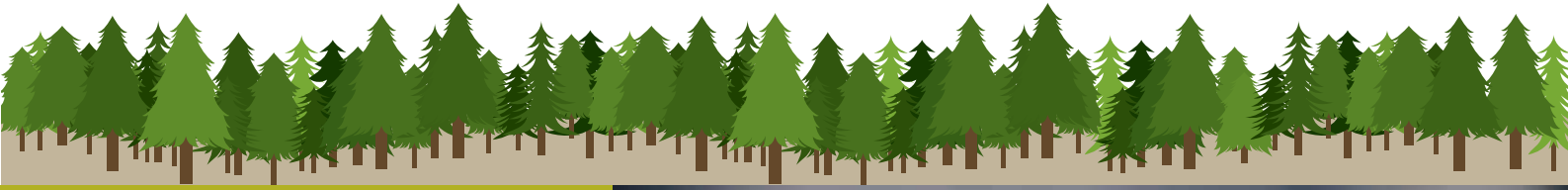
We have to change the way we think, so that people ask: 'Do I have the right to do this? May I live without considering my impact on the environment, on a planet that I share with others?'

**TUNZA: What can photography and film do to help efforts to conserve forests?**

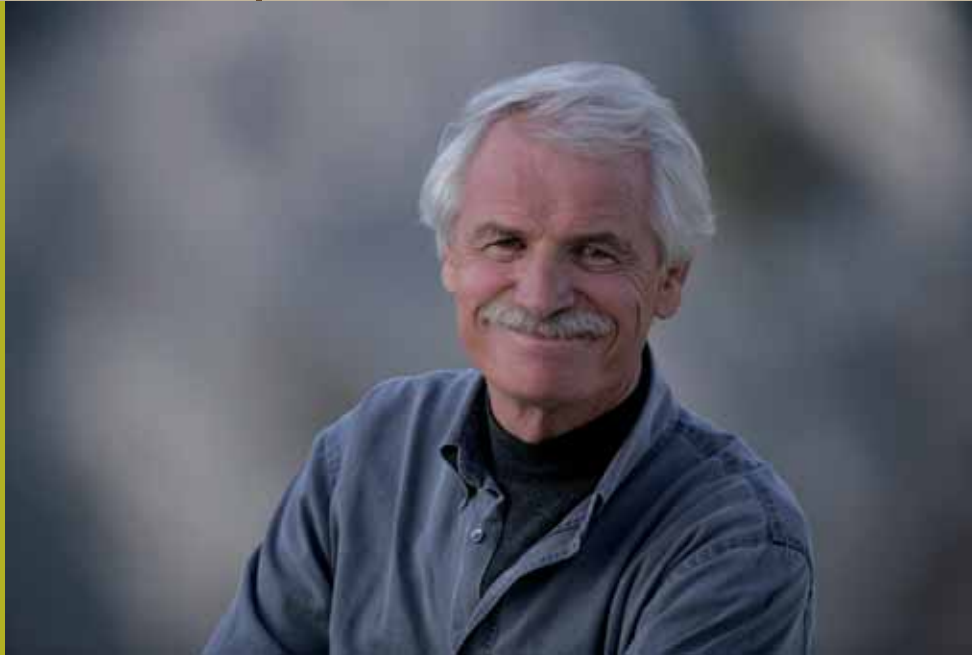
**Y A-B:** The beauty of the Earth creates enormous emotion, and through this, one can raise consciousness and pass







# A portrait of home



Yann Arthus-Bertrand

on knowledge. Each picture of the Earth or its inhabitants aims to show the best in order to appeal to what is best in us. The will to protect is strongest towards what one understands and loves.

**TUNZA: What would you say to the world's young people?**

**Y A-B:** Commitment gives meaning to life. I show it through photography, an architect can demonstrate it by designing a 'green' house or an engineer by developing a clean car. Every person

can act in his or her own way. What is fundamental is to act.

**Visit Yann Arthus-Bertrand's GoodPlanet.org for photographs, a competition, educational resources on forests, and much more.**

**See his films online:**

***Of Forests and Men***

[www.desforetsetdeshommes.org](http://www.desforetsetdeshommes.org)

***Home***

<http://www.youtube.com/watch?v=jqxENMKaeCU>



Yann Arthus-Bertrand





# A chemical cornucopia

By Luke Roberts, who is studying molecular and cellular biology at Imperial College, London

The Earth's surface was once held tightly in the grasp of forests. An estimated 14 per cent of the 150 million square kilometres that make up our terrestrial ecosystems was rainforest, for example. Today, only 6 per cent of that remains, and some believe that it, too, will disappear within a mere 40 years. The reason? Deforestation. More than 130,000 square kilometres per year (an area the size of Greece) is lost each year, driven by the human desire to turn ever-greater quantities of land over to agriculture, to monoculture plantations for food crops or timber or palm oil, to build roads or dams and to extract minerals – all to supply the demands of an ever-growing human population.

In the race to become ever more economically 'successful', have we forgotten, or do we still not recognize, the fantastic wealth that already exists in the chemical storehouses that are forests? In the stems, flowers, vines, leaves, shoots, twigs, bark, roots, seeds, fungi and fauna lies the potential for medicines, pesticides, cosmetics and other compounds of massive industrial relevance.

Consumable products are not the only offerings. Incredibly, the release of volatile terpenes from trees produces a

## Invaluable forest chemicals – a glimpse

- Taxol (Paclitaxel) originally from the Pacific yew (*Taxus brevifolia*), used to treat ovarian, breast and lung cancer.
- Quinine from the cinchona tree, once used to treat and guard against malaria.
- Tannins (polyphenols) from plants, used to treat parasitic diseases of livestock.
- Diosgenin from the Mexican yam (*Dioscorea* sp.), first used to produce the contraceptive pill.
- Salicylic acid from the white willow (*Salix alba*), the active compound of our most popular painkiller – aspirin.
- Terpenes (terpenoids) from coniferous species, vital in producing commodities ranging from food colouring, chewing gum and soap to paint, varnish, polish, ink, resin and adhesives.

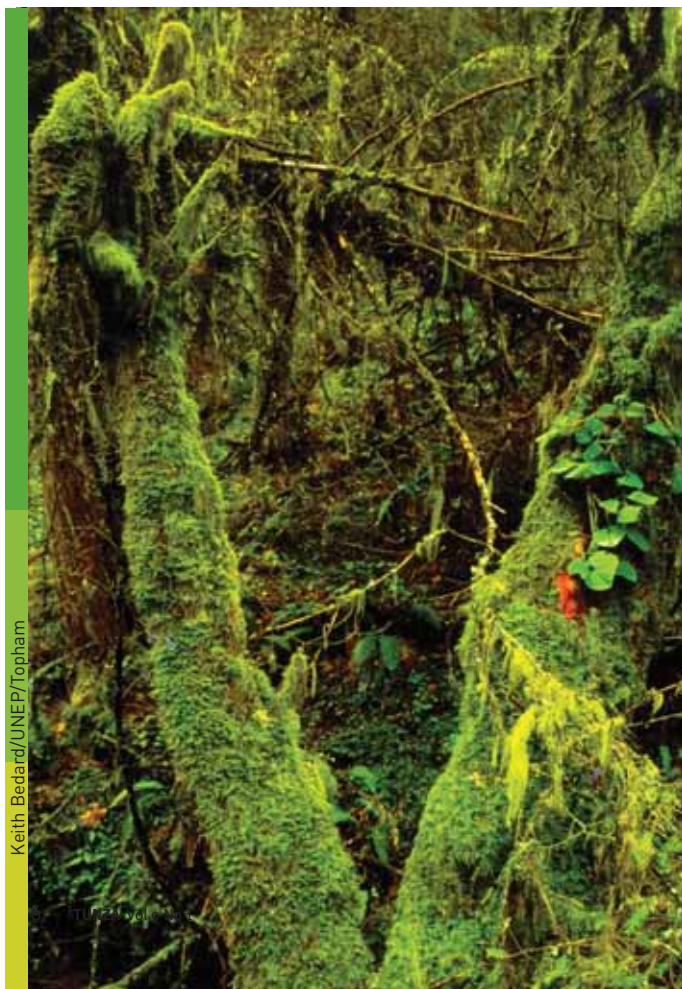
chemical 'cloud layer' that reflects sunlight back into the atmosphere – a forest's self-cooling system. In warmer weather more terpenes are released, perhaps providing some protection against increasing global warming.

With the advancement of new technologies, many naturally occurring chemicals are being replaced entirely or partially by chemicals synthesized to do a certain job: quinine, for example, has been replaced by synthetic drugs designed to be more efficient in the treatment of malaria.

It is easy to see why natural chemicals may become surplus to requirements: concentrations of such chemicals are often low and vary with seasonal and environmental factors, so lengthy purification processes are often needed. Does this mean our reliance on forest chemicals will soon be obsolete too?

Not so. For example, natural rubber – or caoutchouc, a hydrocarbon polymer from the latex of the tree *Hevea brasiliensis* – is still used extensively owing to certain physical advantages over synthetics: it is better at withstanding tearing when hot and it resists the build-up of heat during flexing.

It is critical to realize that out of the 300,000 to 400,000 plant species described, more than two thirds of these are in forests, particularly rainforests. But only 5 per cent of rainforest species have had their chemical composition explored. A poignant reason to strive for the protection of forest biodiversity – other than the inherent beauty of forest ecosystems – is the fear of losing unidentified potential. After all, you can't look for answers to questions that you haven't yet formulated. Letting undiscovered chemical assets slip through our fingers without us recognizing that they were ever there at all is not just a criminal waste – it could jeopardize the health and well-being of our lives, and of generations to come.





# Norway leads on REDD



Bjørn H Stuedal

Nigel Dickinson/Still Pictures

**R**educing Emissions from Deforestation and Forest Degradation (REDD; also see page 20) is a mechanism being negotiated under the United Nations climate change convention. It is intended to offer developing countries financial incentives to keep their forests standing and conserve the carbon stored in them, thereby fighting climate change. REDD+ goes further, encouraging sustainable forest management – helping preserve biodiversity, and providing livelihoods for millions. One of several multilateral initiatives offering REDD support is the UN-REDD Programme, to which Norway is the largest donor. TUNZA spoke to Norway's Minister of the Environment and UNEP Champion of the Earth **ERIK SOLHEIM** about why his country is leading the way, what has been achieved to date and his hopes for the future.

**TUNZA: Could you tell us why and how Norway is supporting REDD/REDD+?**

**ES:** Rainforests are disappearing at an alarming rate – an area the size of England every year. Most of the world's standing rainforests are in countries in great need of economic growth. An easy way to quick money is through deforestation, even though the consequences of forest destruction are huge. Globally, deforestation causes almost a sixth of all global greenhouse gas emissions and has severe effects on the regional and local climate and environment. Equally important: millions of the world's poorest people depend on tropical forests for their survival. And rainforests contain half of the world's plant and animal species. Unless conservation can contribute to higher income than other, destructive uses of the forests, the destruction will continue. The most important thing Norway has done is to put money on the table. We have decided to use up to \$500 million per year on activities that reduce climate gas emissions from forest destruction.

**TUNZA: What progress has there been? With which countries are you working?**

**ES:** Brazil has done an amazing job in reducing deforestation in the Amazon by almost 70 per cent in the past seven years.

The contributions from Norway are channelled through the Amazon Fund, and go to projects that should reduce deforestation further. Indonesia, the Democratic Republic of Congo and Guyana are also making progress. And more than 30 countries are working on rainforest protection with support from the UN and the World Bank.

**TUNZA: What have been the biggest obstacles in implementing REDD?**

**ES:** The biggest obstacle we are facing is MONEY. Norway has put a significant sum on the table, but this is far from enough. That is why we want this to become part of the international climate change agreement, with a requirement that all countries contribute. The challenge is threefold: developing countries must have the political courage to start this work before the international mechanism is in place; donor countries must have the courage to put money on the table before the mechanism is in place; and developing and developed countries must have trust in each other, and believe that we can achieve this together.

Another challenge is being able to check that forests are really being saved. To do this we need to monitor the forests closely in the years to come. Luckily, humanity now has satellites that make it possible to watch the forests from the sky, almost in 'real time'. In the Brazilian Amazon, the police use satellite images to find and apprehend people that destroy forests illegally.

**TUNZA: How do you see the future of REDD+, and are you encouraged by what is happening?**

**ES:** I am very optimistic. The prospects of saving the world's rainforests have never looked better, although there are huge challenges ahead. The ultimate goal is that protection of forests be part of a future global deal on climate change, but I sincerely hope that the rainforest countries will succeed in reducing emissions from deforestation and forest degradation even before a global deal has been negotiated.



# ACTION on FORESTS

UNEP



**S**aving forests from destruction prevents carbon dioxide from entering the atmosphere, promotes natural biodiversity and forest cultures, and protects soil from erosion and water from pollution. All over the world, young people are working on ways to help conserve forests. Here's how.

## Mandarina Wambui Njoroge, 24, Bayer Young

Environmental Envoy 2010, Kenya

**T**he Mau forest, located in Kenya's Rift Valley province, is the country's largest water catchment area. It has been severely degraded through extensive logging and farming: 37 per cent of the forest cover has been lost since 1963, causing rivers that once ran year-round to become seasonal, and resulting in soil erosion and floods.

Recently, the government has taken the positive step of deciding to reforest it. Unfortunately, this means that the Ogiek, a tribe of people who have always lived in the forest and traditionally depend on it for their livelihood, must be resettled. The Ogiek are not the only people here: many have illegally settled, logged and grabbed land for agriculture, doing the majority of damage to the forest. The Ogiek do log from the forest, selling timber for profit, but not on an excessive scale.

The government plans to resettle the community of 80 extended families around the forest perimeter. They'll be given land, but will have to leave their home without being offered an alternative means of survival. Along with members of the Chiromo Environmental Awareness Club, which I chaired, I developed a project that seeks to allow the

## Diana Friedrich, 19, Bayer Young

Environmental Envoy 2010, Argentina

**I**n Argentina, forests are destroyed for industry and agriculture, while poachers kill animals illegally. My project, Banco de Bosques (Forest Bank), aims to save the provincial park Urugua-I in Misiones, Argentina, part of the Upper Paraná Atlantic Forest, one of the world's most endangered rainforests, where more than 90 per cent of all amphibians and half of all plants are endemic. Within the park's 84,000 hectares are four private properties with cattle, small plantations and an access road. Unfortunately, this road leads poachers into the heart of the park, one of the last areas where the endangered great jaguar still lives.

We can only close it by purchasing the properties, so in 2008 my colleagues and I launched the Forest Bank, a website that collects donations to buy the threatened forests, giving people everywhere a chance to help save Urugua-I's forests. It's simple. On [www.theforestbank.org](http://www.theforestbank.org), we show a satellite image of the forest. Donors click on a parcel, pledge at least \$3, and receive the parcel's coordinates. A map shows how much land has been saved. As we receive money, we'll purchase the properties one at a time and donate them to the province, adding them to the park and closing the access road.

We've raised enough money for one hectare so far. One hectare equals 10,000 square metres, and most people are pledging to save 10 square metres per month. We have quite a few donors, but not enough, so please donate and help us spread the word.

**Our website:** [www.theforestbank.org](http://www.theforestbank.org)

**On Facebook:** [www.facebook.com/#!/pages/Banco-de-Bosques/126872527377361](https://www.facebook.com/#!/pages/Banco-de-Bosques/126872527377361)



Enfiliano Ezcurra

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