

The UNEP Magazine for Youth



TUNZA



for young people · by young people · about young people

The road to Rio+20



Half the planet, one voice

Green jobs, green options

TUNZA

the UNEP magazine
for youth. To view current
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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.

During the UNEP Tunza Children and Youth Conference 2011, participants worked on forging a strong, concrete global youth statement to be taken to world leaders at Rio+20. In the weeks leading up to the conference, a youth steering committee of Tunza Youth Advisory Council members and leaders of youth organizations around the world gathered ideas and statements to create a draft of the Bandung Declaration. Over three days participants read, discussed and amended the draft, and at the closing plenary, the delegates put the finishing touches to the declaration. Here are a few of the highlights.

The **BANDUNG** DECLARATION

We ... are united in calling upon world leaders to move to a sustainable development pathway that safeguards the Earth and its people for our generation and generations to come.

Rio+20 ... marks a generation since the 1992 Earth Summit – the first effective global recognition of the environmental, social and economic costs of unrestrained development. Our governments ... promised to reduce poverty, stem environmental degradation and enhance equity. Businesses and multi-national corporations have pledged to respect the environment, green their production and compensate for their pollution. Yet, our planet's future – our future – is in peril. We cannot wait another generation, until a Rio+40, before we act.

We pledge the following commitments to make the Rio+20 Earth Summit a milestone for change:

- lobby our governments to make the Rio+20 Earth Summit a top priority;
- adopt more sustainable lifestyles and educate our local communities, including indigenous communities, sharing knowledge at the same level.

We urge the Rio+20 Earth Summit to agree that all green economies should:

- protect and value natural resources and ecosystems, on which all life depends, and recognize the traditional knowledge and practices of indigenous peoples and local communities;
- invest in education and social entrepreneurship which engenders sustainable development values;
- engage citizens to protect the environment in their everyday lives...

We call upon world leaders to come to Rio to collectively reinvest political will in:

- developing national green economy transition plans and agendas for action;
- responsibly phasing out subsidies that are harmful to the environment;
- incorporating environmental and social considerations in economic policy formation and adopt alternative measures of development to gross domestic product ...



We call upon business leaders to collectively commit to:

- implementing effective corporate social and environmental responsibility through a new economic model that ensures sustainable resource use;
- [being] accountable for the sustainability of their supply chain and production patterns;
- [increasing] investment in environmentally beneficial scientific research and development ...

We need to analyse the strengths and weaknesses of the established international institutions and assess new institutional structures that guide us toward a sustainable green and fair economy. We believe such structures should:

- focus on implementing existing international agreements and plans of action;
- hold governments, corporations and civil society organizations accountable to their promises and obligations on sustainable development;
- further the implementation of the precautionary principle and demand reparations of damages, such as applied to new technologies and practices; **and**

We believe that good governance at the country, state, province and city levels should:

- meaningfully engage all stakeholders in the decision-making process, considering the views and opinions of minorities, the underprivileged, illiterate, and the unemployed;
- protect and defend the rights of young and future generations.

To read the full text: <http://www.tunza2011.org/index.php/agenda/bandung-declaration>

New beginnings at Rio+20

UNEP's Executive Director Achim Steiner, who spent many of his formative years in Brazil, talks about the issues that the world community will confront in Rio de Janeiro in June 2012.



IISD

UNEP's report, *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*, suggests that 2 per cent of global GDP invested in 10 key sectors and backed by smart public policies, can grow the global economy and generate employment while avoiding the shocks and crises of the current economic trajectory.

A timely example from the *Green Economy* report, in this International Year of Forests, is the estimate that an additional 0.034 per cent of global GDP invested in forestry annually, equivalent to \$40 billion now, could boost the value of the forestry sector by 20 per cent to \$600 billion a year by 2050. More than half the investment would go into planting forests on degraded land and the remainder into conserving forests for a variety of key purposes, from reducing greenhouse gas emissions to enhancing water supplies. And jobs in

As the world prepares for Rio+20 – 20 years after the 1992 Earth Summit set the stage for contemporary sustainable development – youth unemployment has emerged as a central preoccupation.

Globally, young people make up a quarter of the workforce but 40 per cent of the unemployed. In many countries of North Africa and the Middle East, youth unemployment hovers around 23-29 per cent or more, the reality of which played a part in the 'Arab Spring'. In other parts of Africa, youth unemployment is as high as 70 per cent. And in Asia, young people are 4.7 times more likely to be unemployed than adults. But the youth employment crisis isn't confined to any one region or just developing countries: in the Eurozone, youth unemployment has jumped to one in five, and in some countries the number is even higher.

Even in countries where youth employment seems encouraging, simple statistics can mask the reality. The International Labour Organization (ILO), a partner in UNEP's Green Economy initiative, estimates that about 28 per cent of all the young people in work remain in extreme poverty, in households

surviving on less than \$1.25 per person per day. And since the financial crisis, more young people, particularly in Latin America and the Caribbean, have only been able to find work in the informal sector, the 'black economy'.

The UN's 1986 Declaration on the Right to Development says that everyone should have 'equality of opportunity ... in their access to basic resources, education, health services, food, housing, employment and the fair distribution of income'. How to grow economies in a way that generates enough decent jobs – while keeping humanity's footprint within planetary bounds – will be a burning question when world leaders convene in Rio in June 2012. And never forget that in our world of 7 billion, 1.3 billion people are un- or under-employed, and over the next decade another 500 million young people will start looking for work.

How can Rio+20 respond to these challenges and deliver enhanced employment across the globe? And can the environmental dimension, strengthened in Rio, contribute to the economic pillar that supports the right to development, currently the prize of the few over the hopes and dreams of the many?

C. Boonjarus/UNEP

M. Edwards/Still Pictures

J. Boethling/Still Pictures

M. Schroeder/Argus/Still Pictures



forestry would be likely to rise from 25 million to 30 million worldwide, if not more.

Reduced Emissions from Deforestation and Forest Degradation (REDD or REDD+), an initiative that is evolving out of the UN Climate Convention, is one possible source of additional funds. Under the scheme, Indonesia, the host of this year's International Tunza Children and Youth Conference, is receiving up to \$1 billion from Norway. And Indonesia is trail-blazing some of the more pioneering strategies, not only to combat climate change but to accelerate a green economy as a way of implementing the broad aims of sustainable development. In Kalimantan, for example, plans to develop a Green Corridor using the REDD+ funds as a catalyst are at an advanced stage.

Indonesia's oil palm, a highly lucrative crop but a key driver of deforestation, will only be planted on degraded land. And the country has also made the link between healthy forests and more sustainable mining: there is evidence that deforestation in the uplands is leading to severely diminished river flows in the dry season, meaning that these rivers can no longer support barges

carrying ores from the mines. Transportation by barge costs about \$10 a tonne whereas by road it costs between \$40 and \$60 a tonne, and road building is another driver of deforestation. So REDD+ offers the chance not only to keep carbon out of the atmosphere, but also to keep rivers flowing in order to remain competitive and minimize the environmental footprint of other industries. Indonesia is also looking to REDD+ for assistance in creating employment in natural resource management for workers in nearby cities and towns.

The next generation

At the end of the Tunza Conference, the young people issued the Bandung Declaration (page 3) as an input to the Rio+20 process. The declaration underlines the next generation of leaders' concerns for the future of the planet and the future of decent work.

The year 1992 was a time of leadership. It is time again for leadership, for justice, and for a new pact with the global public for social progress that can sustain the lives, livelihoods and hopes of this and future generations. A time for a right to development that takes the long view rather than a right to get rich quick.

The last two or three years have been marked by fear, harsh words and for some a sense of powerlessness in the face of the global financial crisis and other challenges – climate change for example. But it has also been an extraordinary time of intellectual debate and discussion in which a wide array of creative and constructive ideas for a fresh way forward has emerged across governments, academia, non-governmental organizations, civic leaders and business, within the UN, and through the unique lens of the world's young people.

Rio+20 is now providing the food for thought, the fuel and the focus for this global awareness, this sense of endeavour to lead us from the end of an era into a new and optimistic moment for civilization. Brazil, host of the Rio Earth Summit in 2012, is very much part of that fertile debate.

Could Rio+20 represent a moment in time where the ideas, directions and values that link our common humanity – which have been maturing since the UN itself was born – fully flourish, finally bear full fruit? Young people – and the rest of the world – will know in just a few months' time.

YOUNG VOICES

Kevin Ochieng (24), Kenya, Tunza Youth Advisory Council, 2009-2011

'The great thing about young people is they have ideas. I think the Tunza network, and global youth in general, must find a way to harness the brains of Earth's massive population to effect change. Every engineering graduate I know in Africa has done a project. Where do all these ideas go?

Imagine if we put them all together, how quickly could we change the world! I'm developing a crowd-sourcing site, a place to gather, map, and share different ideas, where they can be moderated and voted on. Over time, the best ideas can gather collaborators and peer funding. Advocacy is important, but if we can offer alternative solutions, it could be far more powerful.'

Sebastien Duyck (24), France, Rio+20s <http://rioplustwenties.org/>

'Our right to participate is the result of hard work by young people before us, so now we must make sure our voices are heard, ambitious and uncompromising. If we don't get politicians to think long term, we will never get what we need. Our role is to bring new solutions to the table.'

Half the planet, one voice



From the colourful national costumes to the excited babble of many different languages spoken at once, the UNEP Tunza International Children and Youth Conference represented humanity at its most diverse and its most unified. These 1,400 young people from 118 countries gathered in Bandung, Indonesia, from 26 September to 1 October 2011, to discuss the state of the planet and ways to take an active role in shaping their future during the run-up to the United Nations Conference on Sustainable Development – Rio+20.

Through plenaries and workshops – many facilitated by children and youth themselves – the Tunza conference gave participants the opportunity to discuss Rio+20's themes: international environmental governance, sustainable development and the green economy, as well as learn how to make their voices heard.

The message of the conference was clear: young people, who make up half the world's population, stand to lose the most if the world continues on a growth trend that is out of line with what the planet can sustain. Many youth are already experiencing the effects of food and water shortages, pollution and climate change in their own countries; meanwhile around 40 per cent of the world's unemployed are between 15 and 24 years old.

Yet, as UNEP Executive Director Achim Steiner noted in his opening address, young people are in a good position not just to call for change, but to take part in creating it. 'The older we become, the more we find reasons why things can't be done,' he said. 'Tunza is about allowing you to see you are not alone, and that nothing has to be as it always has. It's people who change what happens in government, so you have great power.'

A week of inspiration By Cassandra Lin (13), USA and Ella Cunnison (12), UK

The UNEP Tunza Children and Youth Conference was tough, but inspirational and exciting, too. We all contributed to the Bandung Declaration, ensuring that leaders attending Rio+20 will hear children's voices, helped plant Bandung's first city forest, and got to experience Indonesia's traditional music, toys and crafts. Here's what some of us had to say about the week's experience.

Maryam Nisywa (15), Indonesia

'It was great to see so many kids from around the world enjoying my home city.'

Stephen Njoroge (11), Kenya

'I feel like I've done something important for the world, but actions speak louder than words, so I would like to do something practical.'

Pritish Taval (14), India

'Sustainable development is our only future. Natural resources are being used up day by day, so we need to find alternatives for a better and safer future.'

Shakeem Goddard (14), St Lucia

'When we ask our parents to buy us stuff, we are part of the economy – so we can participate in the green economy, too. I feel privileged to have contributed to the Bandung Declaration, not many children have the opportunity to do that.'

Andrea Nava (13), Guatemala

'Remember we have to save our planet because it is the only one that we have.'

Ella Cunnison (12), UK

'We, the younger generation, promised to make the world a more sustainable place. I'm proud to have been a delegate and hope all we've done here will be noticed by world leaders at Rio+20.'



We were there!



Thousands of citizen activists, including youth, participated in the Earth Summit of 1992. And several of those youth participants joined the Bandung Tunza conference as facilitators, offering advice, context and encouragement to Tunza delegates as they head down the Road to Rio.

James Hung

'The internet is a powerful tool that we didn't have 20 years ago. But it's now been used very effectively in the climate change movement and was fundamental to the Arab Spring, so encourage each other to use social media effectively. And remember not everyone will get to Rio+20, so within your group, make sure all regions of the world are represented together with minorities and indigenous people.'

'One thing we did well as youth in the earlier Rio process was vigorous debate and discussion around the issues. So I encourage you to disagree, because through disagreement and dialogue you come to understanding.'

'It's also important to understand and respect different strategies. There's a time and place for speeches, meetings, planning, direct action. Some of you will be in non-governmental or national delegations, others will be outside activists. The important thing is solidarity. You're in this together and speaking with one voice. We had solidarity at Rio'92: in spite of internal debates about strategies, we had a foundation of understanding.'

Zonibel Woods

'One of the things I wish we'd paid more attention to is what happened afterwards. Think about what happens after Rio+20, so that when you get a commitment from countries to work on new ideas, you can follow it up and ensure accountability. As far as civil society participation is concerned, in the UN it's all about precedent. I encourage you to study the Global Fund for Tuberculosis and Malaria and UNAIDS, where civil society sits and makes decisions alongside government officials.'

Michael Dorsey

'The good news is that the green economy is growing even in this worldwide depression. Although markets deliver efficiencies, they were never designed to deliver justice, equity and ecological or socio-cultural harmony, so you have serious and difficult work to do. But young people already lead the forces of change – even if not always in the limelight. Big leaps in solutions come from below, from collective resistance. You are the catalysts of hope amongst your peers.'



Photos: Karen Eng

YOUNG VOICES

Hu Ching (21), Singapore, Bayer Young Environmental Envoy 2007

'The declaration process has posed some challenges. In Asia-Pacific there are many differences between developed and developing countries so it was difficult to reach a consensus. Within Southeast Asia, some of the main issues are protecting forests and poverty eradication, whereas in Singapore,

resource and energy efficiency are bigger problems.

'I was also a youth participant at COP-15, the Climate Conference in Copenhagen, where countries were focused on their own positions, impeding progress. Rio's focus will be broader, more holistic, and will encompass a wider range of issues. Hopefully we can achieve more from Rio.'

Mariana Carnasciali (25), Brazil www.cala-bocajamorreu.org

'I think it's good for Rio that the Summit is coming back. When a country hosts an event like this, it must rethink the way it deals with environment, forcing it to deal with garbage problems, poverty problems. Brazil has made many environmental improvements already, but there's still much to do.'

In with the NEW

Every two years, Tunza conference delegates elect new members to the Tunza Youth Advisory Council (TYAC). The winners – one or two young people representing each UNEP region – assist and advise UNEP on better ways to engage young people.

Latin America & the Caribbean

Dalia Fernanda Márquez Añez (22), Venezuela



Studies: Law, with a special interest in human rights. Also runs a Venezuelan youth NGO.
Region's concerns: High rates of deforestation in Latin America and the Caribbean.
About me: I am a defender of human rights, especially the right of everyone to live in a healthy environment.

María del Refugio Boa Alvarado (22), Mexico



Studies: Natural resource management.
Region's concerns: Climate change, water pollution and availability, loss of biodiversity and deforestation, solid waste management
About me: I am interested in developing public policies based on making quality education available, as well as creating jobs within a green economy.

Europe



Andrew Bartolo (but people call me Chucky) (18), Malta
Studies: Architecture.
Region's concerns: We have problems with urbanization and deforestation, leading to a lack of biodiversity. The Mediterranean Sea also suffers from pollution and overfishing.
About me: My greatest passion is giving voice to the voiceless. It's why I got involved with UNEP.

West Asia

M. Ihsan Kaadan (23), Syria

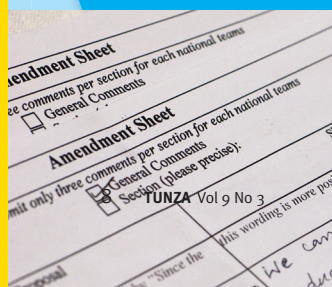


Studies: Medicine.
Region's concerns: Water shortages, desertification, pollution and climate change. A key aspect to these environmental threats is the dynamic, interactive relationships between them.
About me: As a medical student, I study the impacts of different types of environmental pollution on human bodies.

Indigenous



José Humberto Páez Fernández (20), Costa Rica
Studies: Computer programming and management of natural resources.
Region's concerns: Indigenous peoples are the most affected by climate change, and suffer from a lack of environmental education.
About me: My passion is the protection of natural resources and the empowerment of young people on environmental issues.





Asia-Pacific



Shruti Neelakantan (20), India

Studies: Journalism.

Region's concerns: Drought, floods and other effects of climate change are a great concern for farmers in India, who play a major role in the country's economy. Our coastal regions are also being affected by sea level rise.

About me: Besides my environmental activities, I plan to pursue further education in sustainable development and policy making.



Gracia Paramitha (22), Indonesia

Studies: International Relations graduate, now working in Indonesia's Ministry of Environment.

Region's concerns: Many are confused by the green economy concept. The most important thing is education, and action: recycling materials, creating jobs for the poor, encouraging ecopreneurship.

About me: Few people, especially youth, know how to address environmental issues in a negotiation process. I want to share knowledge about diplomacy with youth.

Africa



Neima't Allah Shawki (20), Republic of Sudan

Studies: Forestry.

Region's concerns: Desertification and the lack of water resources.

About me: I am passionate about forests and forestation. I have worked a lot on Sudan's forests and encourage people to save our green lands, to protect them from desertification.



Elham Fadaly (20), Egypt

Studies: Electronic engineering, mechatronics engineering.

Region's concerns: Access to energy services.

About me: I'm passionate about pursuing community service and sustainable development work within my field of study.

I dream of creating zero-waste cities in my region.

Photos: Karen Eng

YOUNG VOICES

Daniel Zardo (24), Brazil, BYEE 2010

'We have everything we need to live sustainably – money, technology, knowledge – but what's really hard to change is culture and lifestyle.'

'I've recently formed a group of youth working together as the Brazilian Agency of Innovation and Sustainability. We offer young entrepreneurs training and support to help make their businesses sustainable. In Brazil, the young people I know are excited about Rio+20. We hope that the world's nations can make and implement big decisions that allow sustainable development.'

Rishabh Singh (17), India

'A country will always prefer to industrialize than to "environmentalize". India has developmental aspirations, and the government is looking at the short-term benefits of a big economy rather than a stable and sustainable economy. That's the challenge we face: to convince our governments to make long-term investments. Our delegation asked to add intergovernmental cooperation to the Bandung Declaration, because it's also about countries helping each other. The environment is not divided by borders, and every country is a part of the planet.'

Six minutes to **save the Earth**

In 1992, 12-year-old Canadian Severn Cullis-Suzuki spoke at the Earth Summit in Rio. With eloquence and passion, she appealed to world leaders not as politicians but as parents, grandparents, aunts and uncles, reminding them that they were there not to protect Earth for the sake of economics or politics, but for those we love. Severn moved her audience to tears and shot to fame as an icon of the environmental movement. Now known as 'The Girl Who Silenced the World for 6 Minutes', the video clip of the speech is still making rounds on YouTube, continuing to inspire youth all over the world, many of whom don't realize it's two decades old.

Severn has since written a book, launched a think-tank, hosted a television show, and earned a degree in ethnobotany. Now a 32-year-old mother living in Haida Gwaii – an archipelago on the west coast of Canada – Severn is preparing to attend Rio+20 as part of 'WE CANada', an initiative to bring the diversity of Canadian voices to the attention of its government and to Rio+20. TUNZA spoke to her about life after Rio, what's changed since 1992, and what she hopes for from Rio+20.

TUNZA: How do you view your Earth Summit speech from the perspective of an adult?

Severn: Since that speech, I've spent my life travelling the world speaking as a young person who is concerned for the environment. Yet it's been so long, the event almost feels separate from myself, and I've often wondered why it was so meaningful then, and still resonant now. We didn't know it was being taped: the UN later sent us the video, which we distributed on request, year after year. Now, with YouTube, it's getting a second wave of attention. I think it's still so popular because it speaks to the need for – and the power of – the voice of youth. Adults need to be reminded of the consequences of their actions, even though they have multiple interests and ulterior motives. Young people see things for what they are and call their elders on their actions. Youth don't know what isn't possible.



When my eco-group went to Rio, there was no process for engaging young people. We were asked if we were crazy, especially by my parents. Eventually, we got support from other organizations. Getting to speak was a fluke: we'd signed up as a non-governmental organization, and were only invited to a plenary session when someone else dropped out. So I didn't have to be diplomatic. We wanted to be the conscience of the decision makers, and remind them who they really were: not just politicians but parents and grandparents.

TUNZA: Does the fact that people still find your speech so relevant and inspiring mean nothing has changed?

Severn: There have been big changes in social awareness, but it can be hard to measure their immediate impacts. Certainly some things have changed. In 1992 we were worried about the ozone layer, but because of the Montreal Protocol, it's not as big a concern now. Thanks to the UN's work bringing nations together to govern the commons, we now have systems and processes in place for environmental protection where there were none before, and where would we be without these? The UN doesn't have a great public relations system, so the average person doesn't recognize the progress it has facilitated. But we do need to strengthen the systems and institutions we already have. The conversation about governance that will take place at Rio+20 couldn't be more timely.

It's also worth noting that youth – who represent more than half the world's population – are now included in the process.



Nick Wrebe/GNU FDL/Wikipedia

TUNZA: Do you feel we should rethink how we present environmental messages to people?

Severn: The media loves negativity. A more constructive approach would be a careful mix of empowering messages – this is where we're going, what we've accomplished – so people see that change is possible, especially at the grassroots level.

The best way to use hard facts as a motivator is to partner scary information with options for action: 'What can we do? Let's find a way to fix it.' The young, particularly, can handle bad news if there's an avenue for change.

TUNZA: The world's population has grown by nearly 2 billion since your speech. What are your views on population growth?

Severn: It's certainly taking a toll on the planet. But population is really about consumption – looking, for example, at ecological footprints to see the rates at which various countries use up resources. Great care has to be taken in the way we frame the conversation, because it can be used to blame, and as an excuse for inaction. The developed world can say: 'We don't have a population problem, so why should we address environmental problems when other people are overpopulating the world?'

But consumption patterns need to change at the cultural, infrastructural level. In North America, for example,

Sharon Kalliss



Langara Fishing Adventures/Flickr



you have to go to great lengths not to be destructive. The way everything – transport systems, food systems – is set up is inherently unsustainable. So people feel helpless, a huge reason for inertia.

TUNZA: What do you hope for your own children?

Severn: I hope my son is able to fish as his ancestors have. His father is Haida – First Nations people who have lived on this island for 10,000 years. I want to teach my son that we are responsible for maintaining this island for the next 10,000 years.

TUNZA: Do you think that being raised within First Nations culture will give your children a clearer framework for stewardship than those who are not?

Severn: I do. I've been spending time here on Haida Gwaii my whole life, and it's affected me profoundly. My parents taught me to stand up for what I believe in, but what I really learned about the environment is what I absorbed from spending time here with elders. We can still go out and gather crabs and catch halibut because people have harvested sustainably here for thousands of years.

Sharon Kalliss



Langara Fishing Adventures/Flickr



Tradition holds this in good stead, but we all used to be locals. When we move and sever the connection to the place our ancestors stewarded for centuries, we lose the knowledge of how to live harmoniously with that place. People who stay put are more likely to think: 'My children are going to have to live here, so I had better behave appropriately.' This is a principle that helps take responsibility wherever you happen to live.

TUNZA: What do you hope for from Rio+20?

Severn: I've attended many world summits, and they're essential. We hope world leaders will come up with answers and put revolutionary new policies in place, and it's important to make our voices heard. But we can't wait for change to come from above. It's practical engagement at the community and municipal levels that produces concrete results.

Douglas Jason/Flickr



Douglas Jason/Flickr

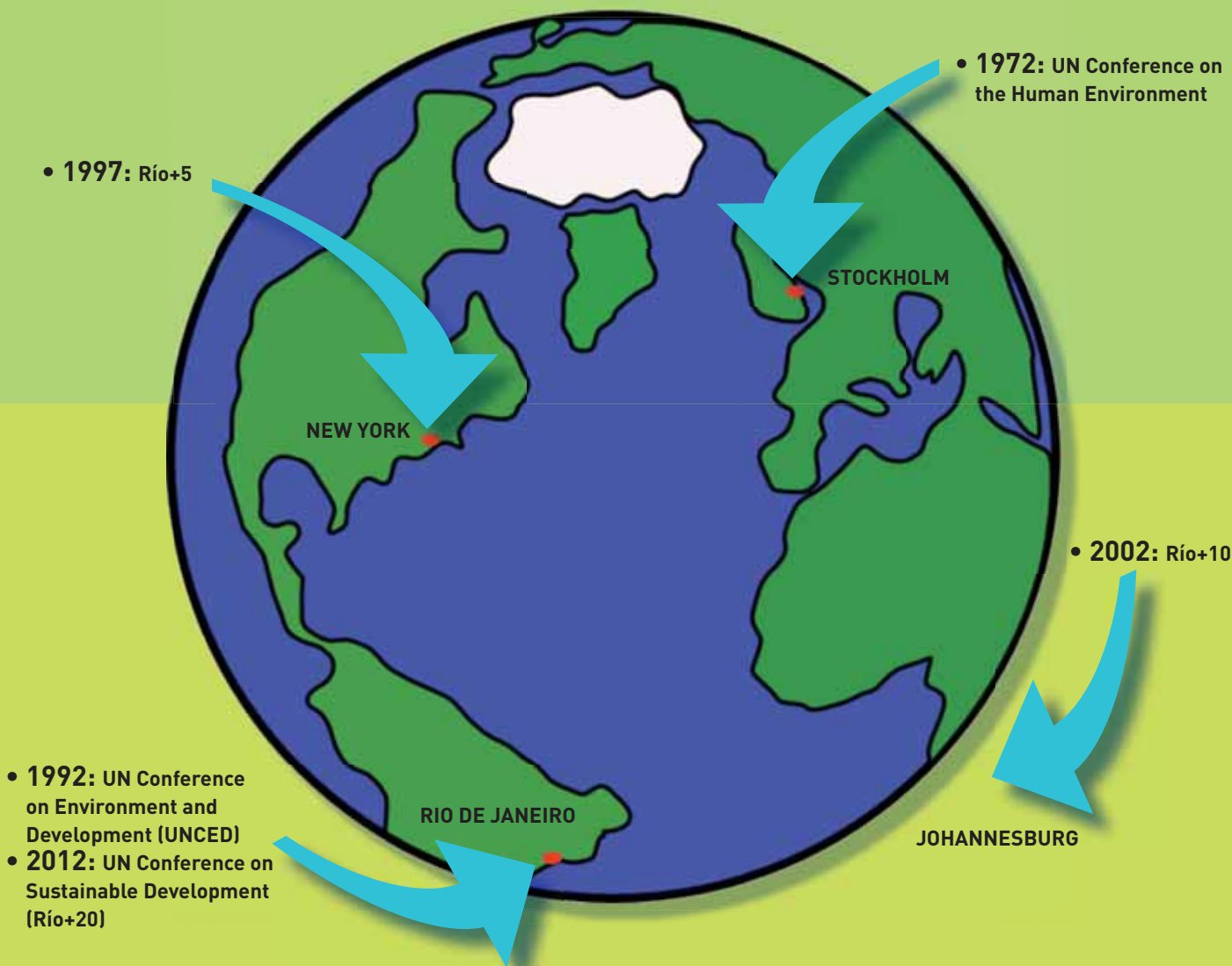


TUNZA: So what can young people do?

Severn: First follow your passion. What are you interested in? What are you good at? Society now needs everyone in every field to become sustainable. People think to make a difference they must become an 'environmentalist'. I disagree. Become whatever you're interested in first, then bring sustainability to it.

It's also important to experience and know the environment around you. Visit your dump. Visit your reservoir or water treatment plants. Go to the sites of local environmental conflicts and learn what the issues are. You'll feel involved and become an authority, giving you confidence to speak out. There's nothing more powerful than youth speaking the truth.

Earth Summits and Multilateral



TUNZA looked into it and found there are more than 200 MEAs. Here's a selection:

GLOBAL

Convention on Long-Range Transboundary Air Pollution (CLRTAP) (1979)

Vienna Convention for the Protection of the Ozone Layer (1985) and its Montreal Protocol on Substances that Deplete the Ozone Layer (1989)

Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (1989)

Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (1998)

United Nations Framework Convention on Climate Change (UNFCCC) (1992)

Stockholm Convention on Persistent Organic Pollutants (2001)

UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage (1972)

Convention on International Trade in Endangered Species (CITES) (1973)

Bonn Convention on the Conservation of Migratory Species (CMS) (1979)

Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat (1971)

Convention on Biological Diversity (CBD) (1992) and its Cartagena Protocol on Biosafety (2003)

IUCN World Commission on Protected Areas (WCPA) (1948)

FAO International Code of Conduct for the Distribution and Use of Pesticides (1985)

United Nations Convention to Combat Desertification (UNCCD) (1994)

International Tropical Timber Agreement (ITTA) (1994)

United Nations Forum on Forests (UNFF) (2000)

Environmental Agreements

RIO+20

The international conferences on the environment began in 1972 with the United Nations Conference on the Human Environment. This is what brought UNEP into being, and plenty of international agreements rapidly followed. But it wasn't until 1992, when 172 nations gathered in Rio de Janeiro for the first Earth Summit – the United Nations Conference on Environment and Development – that 'green' became a household word and the environment entered mainstream politics. The result was a host of conventions, conferences and activities. Countries all over the world created environment ministries where there had been none, and the number of multilateral environmental agreements (MEAs) blossomed.

Some of the MEAs are truly international, dealing with global ecological threats like climate change or transboundary air pollution and involving a majority of the world's nations; others, such as UNEP's regional seas agreements, reflect the more limited geographical range of a problem and the local nature of potential solutions.

The issues that brought about this plethora of treaties have made it abundantly clear that we are all interrelated. No one country can – or should – ignore environmental issues. We owe it to ourselves, our neighbours, and now to those on the other side of the world, to enter into a spirit of cooperation in the search for an effective form of global environmental governance – one that considers the concerns of the better-off as well as of the poor, the small nations as well as the populous ones, all in balance with the long-term health of the biosphere. This is no small task, so it's not surprising that people have trouble agreeing on and signing up to the MEAs.

And reaching agreement is really just the end of the beginning. Each of the MEAs asks its participating countries to develop specific implementation mechanisms and fulfill obligations involving reporting, training and public education, amongst other activities. So a very long list of requirements from any number of accords falls at the feet of each country's environment minister. This is hard enough for a big country with plenty of funds and large teams of people available to do the work, but extremely difficult for a small country with a population of just a few million people and scant resources. It takes time to develop efficient ways of recording environmental trends, and even longer to turn those trends around.

A number of the MEAs have been in existence for a long time, so it's inevitable that certain incompatibilities have arisen between them. In addition, there can be some conflict of interest or duplication of effort between one implementing body and another. So it's time for a more holistic approach. This is why international environmental governance is one of the key themes of Rio+20, the others being sustainable development and the green economy. The environment must be recognized as central to any other issue, be it trade, politics or human rights.

It's sometimes easy to feel that the cogs of international bureaucracy grind too slowly to get anything done, easy to become pessimistic and critical of what has or can be achieved. But we have to remember that a great deal already has been and is being done, and we have the international agreements and the people who put them together to thank for it. Find out more and join in!

International Convention for the Regulation of Whaling (ICRW) (1946)

Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) (1995)

United Nations Convention on the Law of the Sea (UNCLOS) (1982)

Marine Mammal Action Plan (MMAP) (1984)

REGIONAL

International Convention for the Conservation of Atlantic Tunas (ICCAT) (1966)

Barcelona Convention for the Protection of the Marine

Environment and the Coastal Region of the Mediterranean (1976)

Abidjan Convention for Cooperation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region (1981)

East Asian Seas Action Plan (1981)

Cartagena Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (1983)

Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern Africa Region (1985)

North-West Pacific Action Plan (1984)

Guatemala Convention for the North-East Pacific (2002)

Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area (1992)

OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic (1992)

Arctic Council (1996)

Convention for the Conservation of Antarctic Marine Living Resources (1980) and Madrid Protocol on the Protection of the Antarctic Environment (1991)

Convention on the Conservation of European Wildlife and Natural Habitats (1979)

Green jobs, green options

Green jobs make you think of recycling or renewable energy – jobs that are fundamentally technical. But as we move towards sustainability, other sectors and industries are going through a process of greening as they become aware of their impact on the environment and choose to embrace sustainability. No matter what interests you, you can do it in a green and sustainable way. Here are just a few examples of how things are changing and some of the people involved.

Construction and architecture

Green developers differ from traditional construction professionals by emphasizing the use of environmentally friendly building materials and prioritizing the energy efficiency of buildings, with some even learning from the natural heating and cooling systems used by termites. And what about retaining the features of older houses or historic buildings? Some specialists transform existing buildings into more ecologically viable facilities by, for example, improving insulation and installing solar panels.

Spectral Services Consultants



Dr Prem Jain founded Spectral Services Consultants, India's largest private consultant engineering company, which has worked on more than 1,000 green construction projects involving hotels, hospitals and airports, including Delhi International Airport. When working on the ABN AMRO Bank in Ahmedabad, Spectral Services was not just concerned with energy and water efficiency, but tried to influence the use of cars and avoid carbon emissions by providing bicycles and shower facilities for the bank's staff.

Politics

One of the indicators of how politics is embracing environmental imperatives is the way that green parties have proliferated: between 1999 and 2011 their number increased from 24 to 90 and they currently have 229 politicians in regional and national parliaments.

However, politicians don't need to belong to a green party to include environmentally friendly elements in their campaigns and policies. Helen Clark, for example, the former Prime Minister of New Zealand who in 2007 pledged to make her country the first carbon-neutral nation, led the Labour Party.

Yolanda Kakabadse (left), International President of WWF – the global conservation organization, bridges the gap between politics

Holcim Foundation



and civil society. Co-founder of Fundación Natura and Fundación Futuro Latinoamericano, both important non-governmental environmental organizations in Ecuador, Kakabadse also served as minister of the environment and played an important role as a key negotiator for Project Yasuni-ITT, which aims NOT to exploit an estimated 400 million barrels of oil that lie beneath one of the planet's most biodiverse places in the Ecuadorian Amazon. 'Politicians around the world need to understand that the environment and biodiversity are no longer issues to be dealt with by conservationists and scientists,' Kakabadse told TUNZA. 'They need to receive the same attention from politicians as economic crises and elections. And green policies should be accompanied by good education and communication campaigns that generate awareness of the benefits of sustainable development.'

Gastronomy and hospitality

Today, sustainable gastronomy focuses on the ecological footprint of the food. 'Think globally – eat locally' is the slogan of the C5 Lounge in Toronto, Canada. It tries to use local ingredients, reducing food miles and avoiding the carbon emissions they generate. Meanwhile Alice Waters, chef and owner of California's famous Chez Panisse in Berkeley, pioneered a culinary philosophy that 'cooking should be based on the finest and freshest seasonal ingredients that are produced sustainably and locally'.

Labelling schemes such as the Marine Stewardship Council (MSC), which certifies fisheries that are managed sustainably, help the hospitality trade in its efforts to join the green economy.

Alain Passard, owner of the Michelin-starred Paris restaurant, L'Arpège, stopped using beef in his dishes in 2001 while decreasing the options that include fish or poultry. Passard now puts all his energy into creating dishes with vegetables that are grown sustainably in his permaculture garden. Reducing the amount of meat we eat is environmentally important because producing meat uses up more land, more water and more energy for harvesting and transport, per kilo of product, than producing vegetables.

Philippe Vaures-Santamaria





BBC World Service/CC 2.0

Agriculture

The challenge for agriculture is huge – we have to double agricultural production in the coming years if we are to feed the growing world population. But agriculture can also be one of humanity's most environmentally damaging activities. Today, scientists and farmers are together exploring ways of improving husbandry and cropping techniques, minimizing water requirements, breeding disease-resistant plants and reducing fertilizer use. Of particular interest

are developing-world farmers because they have the greatest opportunity of increasing their yields sustainably.

Kenyan social entrepreneur Su Kahumbu-Stephanou has promoted organic agriculture for 14 years and has developed a wide network of agriculture professionals that includes huge food production companies as well as small farmers. It was for these that she developed the voice-based iCow app for mobile phones that helps farmers track the oestrus of their cows, enabling them to optimize breeding periods and monitor cow nutrition leading up to calving. She also founded the Kibera Slum Organic Farm on a rubbish tip in Nairobi. It's now producing an abundance of healthy fruit and vegetables for local people ranging from kale, cabbage and spinach, to sugarcane and passion fruit.

Fashion

The Urban Renewal line in Urban Outfitters' more than 20-year-old collection of vintage clothing and accessories made from recycled fabrics is just one example of how the fashion industry is embracing the green economy. Another is the use of recycled plastics by manufacturers from Patagonia to Nike to create everything from hard-wearing school uniforms to fleeces and football kit. And every season brings additional claims of sustainability and fair-trading; designer Katherine Hamnett only uses environmentally sustainable natural fabrics, while major retail chains such as Marks & Spencer and brands including Adidas are making commitments to reduce their supply-chain footprints.

Eliza Starbuck



The American designer Eliza Starbuck (left), finalist in the Green Fashion Competition during Amsterdam Fashion Week, partnered with Urban Outfitters in

Spring 2011 to produce lines that decrease the number of different clothes needed in the average wardrobe – and that have long-term wearability. Starbuck also applies a zero-waste cutting technique – pieces of a pattern fit like a jigsaw puzzle, which reduces fabric waste by around 15 per cent. Additionally, Starbuck doesn't use plastic buttons in her designs, replacing them with renewable natural products including corozo nuts.

Finance

Finance hasn't recently enjoyed much global popularity. But it is possible to work in this sector and be a key actor in the promotion of green economies around the world. Innovators are always looking for secure funding to enable them to take to market great ideas about how to pollute less and use energy more efficiently.

Michael Liebreich, CEO of Bloomberg New Energy Finance, a company he founded in 2004, provides analyses and information about clean energy and carbon markets around the world. This helps investors make informed decisions about the development of sustainable businesses and innovation in clean technology while generating profits. Michael also serves as a Member of the World Economic Forum's Global Agenda Council on Sustainable Energy.



Music and entertainment

Musicians and celebrities worry not only about lyrics, melodies and performances; they are also using their popularity to campaign and raise awareness of environmental issues. And, to practise what they preach, they are reducing the carbon emissions generated by their concerts.

Adam Gardner (below right) from the band Guster is one of the most dedicated green musicians and an environmental activist. In 2004, he and his wife founded Reverb, a non-profit organization that educates and engages musicians and their fans to encourage them to be more environmentally friendly. They also work with concert and tour organizers promoting the use of sustainable energy sources, reduce and recycle waste, and have carbon-offset programmes for audiences. In 2011 they worked with Sheryl Crow, Maroon 5 and Dave Matthews Band.

Joe Black/Wiki Commons



Daniela Jaramillo Troya, a Bayer Young Environmental Envoy in 2009, has just completed an MSc in environment and development at the London School of Economics.

Enjoying the BYEE buzz

By Alex Lenferna, BYEE 2011, South Africa



Bayer AG

In October 2011, I was excited and honoured to attend the Bayer Young Environmental Envoy's conference in Leverkusen, Germany, representing South Africa and the South East African Climate Consortium Student Forum. Convening 47 top young environmentalists from 18 countries from Asia, Africa and Latin America, this annual field trip hosted by Bayer offers the opportunity for young environmental leaders – chosen from 800 applicants – to exchange ideas and experiences, make valuable connections, learn about state-of-the-art technology that helps make industrial development sustainable, and experience first-hand how Germany's government, industry and civil society cooperate to protect the country's environment and precious natural resources.

Bayer showcased the work they do, particularly in the context of sustainability. We were introduced to the company's breakthrough innovation of sequestering CO₂ for use as a raw material in the production of polyurethane, learned about the company's eco-building projects, about the carbon nanotube technology that helps make wind turbines more efficient, and about the development of drought-resistant crops to help feed a growing population.

Of course, such innovation has an ecological cost, and we also learned how the company cleans flue gas at its waste incineration plant while using waste heat to generate electricity. Bayer also demonstrated how it uses chemistry and physics to recover precious heavy metals from waste, and works with the state environmental agency to maintain air and water quality, as demonstrated on a water-monitoring lab boat on the Rhine. And we got hands-on experience working in laboratories. Some of us created waterproof carbon-nanotube coatings; others went through the process of designing and producing an item – a plastic pen – while considering everything from energy efficiency to production costs to manufacture and marketing.

UNEP was represented by keynote speaker Fulai Sheng, Senior Economist at UNEP's Economics and Trade Branch, who designed the Green Economy initiative in 2007. Sheng presented a new way to look at the issue as we approach Rio+20. 'The traditional definition of green economy is to subject the existing economy to green principles. A new understanding is making green itself a source of economic growth and prosperity – a pillar of development – to bring about structural change on a global scale,' he said. Sheng

acknowledged the work of the envoys as an example of this new understanding, emphasizing the role we can play, saying: 'Your projects show that small-scale, community-based green economy solutions are already taking root and have the potential to bring significant economic and environmental benefits. Scaling up these kinds of green innovations through targeted public and private investments is essential to achieving a sustainable and equitable green economy for all.'

Perhaps the most rewarding part of the trip was hearing about work my fellow envoys are doing in their respective countries. The projects – all inspiring – were incredibly broad in scope: João Paulo Amaral's development of a bicycling culture in São Paulo, Brazil; Gabriel Gerardo Weitz teaching children to make solar water heaters from used plastic bottles in Argentina; Pat Patarnutaporn's research into polystyrene-eating bacteria in Thailand; Patricio Javier Mora Araya recovering earthquake rubble in Chile to rebuild a national monument; Zhan Hong Low's t-shirts made from recycled PET bottles in Singapore; and many others. Having spent a week with young people with so many innovative ideas, energy and passion, I couldn't help but leave the conference feeling optimistic about our common future.

Sharing inspiration



CSCP

One of BYEE 2011's workshop leaders and competition jurors was the ebullient Ginnie Guillén. From Mexico City, Ginnie works as a consultant at the UNEP-Wuppertal Institute Collaborating Centre on Sustainable Consumption and Production (CSCP), an independent research institute and think tank. TUNZA couldn't help noticing that envoys flocked to

Ginnie for perspective and advice on their projects whenever she was in the room, so we asked her to explain what sustainable consumption and production means, and how all our readers might take advantage of CSCP's expertise.

'The term sustainable consumption and production (SCP) was coined by the European Commission and other large, international bodies as a way for businesses to innovate or improve their existing practices. But really, it's broader than that. It's a holistic, systemic approach to sustainable development – a lifestyle.

'SCP is a set of values and principles for production and consumption that keeps in mind both the limits of nature and the needs of society. It's about making choices about what we consume and demand from producers. These principles can guide business and government policy – but can just as easily be applied to any project led by an individual or group.

'The CSCP was established to find ways to implement SCP principles wherever possible. We do research and create tools and methods that help integrate sustainability into any project or proposal, and we connect people, encouraging collaboration between everyone from grassroots communities to big business to governments. We also help scale up grassroots-level sustainable innovation – such as the projects that the envoys are presenting at BYEE – so

that they can gain momentum and have a bigger impact in the world.'

What should young people be thinking about when planning a sustainable project or business venture?

'Every project is different, but first make sure there are ways to evaluate your project's impact in concrete economic, social and environmental terms. Clarity of outcome determines the impact of any project. We typically start by writing down a description of the desired outcomes, consider the limitations of the present situation, then create a detailed plan of action that bridges the gap between idea and outcome.

'For example, an entrepreneur trying to create a sustainable product – whether a smokeless cooking stove or a solar-powered laptop – must ask whether the necessary resources, technology and skills are available, and how and where to acquire them. The entire life cycle of the product must be considered. This helps determine time frames, given existing constraints. But you must also remain flexible. This doesn't mean lack of clarity, but being ready to cope with challenges by making quick changes. If things don't work one way, be ready to try another, given the restrictions of the environment and of social well-being.'

How does your work help carry out UNEP's vision and/or benefit the world?

'We spread the word that a sustainable lifestyle is possible, and create connections and generate understanding between different parties. Our work helps others understand how consuming/producing sustainably is possible and profitable, and doesn't necessarily mean additional cost or sacrifice. In this way, SCP supports all efforts towards a green economy.'

Can you help our readers with their projects?

'Yes! Come find out more at www.scp-centre.org and drop us a line at info@scp-centre.org.'

A visit to the King's Forest

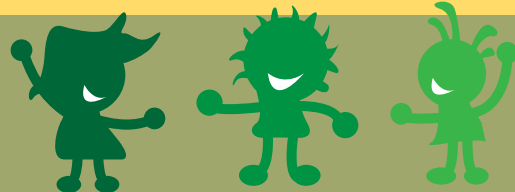
New on the BYEE agenda this year was a visit to one of Germany's oldest forests – the Königsforst, or 'King's Forest', so named because it was once a hunting ground reserved for royalty – guided by Stephan Schütte, head of state-owned forests in North Rhine Westphalia. Only 10 kilometres from Cologne, this 3,000-hectare forest serves not only as precious urban green space, but is carefully managed to produce timber (including pine and spruce). Rangers walked envoys through the lush forest, demonstrating how they measure and mark trees by hand, choosing some to reach full maturity for timber, while selectively logging others to make space for growth. Hunting is also carefully managed, is in fact required, to keep the forest ecosystem in balance. Unchecked, wild animals such as deer and wild boar – which have no natural predators here – can destroy trees. Only 30 per cent of Germany's original forest cover remains, but such effectively enforced protection keeps forests standing in a financially and ecologically sustainable manner.

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Young leaders



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S.E. Rudianto

Sarah Ervinda Rudianto, Indonesia

The farming community of Kidang Pananjung village in West Java, Indonesia, has no appropriate waste management system. Farmers typically just dump waste and manure, or burn it. Meanwhile, villagers use illegally collected firewood for cooking, contributing to deforestation and the risk of landslides. My project tackles these problems by introducing biogas reactors.

'In the laboratory, I tested various substrate ratios to determine the optimum combination for biogas production, finding that biogas produced from equal quantities of cow manure and organic waste is 25 times better than cow manure alone, and 30 times better than organic waste alone. I then installed a bioreactor at the home of an influential community leader, which is important because the main challenge is changing minds and lifestyles.

'The working reactor now serves as an example when I conduct workshops in the rest of the village. Ultimately, my goal is to have one bioreactor in each neighbourhood, and for the villagers to learn to install and run bioreactors themselves. Once a week, I visit the village to conduct workshops, check on the substrates being used, and check pressure levels. I may also try building a larger-capacity biodigester to serve eight or ten houses.

'A by-product of the reactor is valuable fertilizer. I'm working on a management system so that farmers can use this themselves or sell it for extra income. My dream is that Kidang Pananjung will serve as a model biogas village for Indonesia.'



Bayer AG

M. Muli

Michael Muli, Kenya

In Kenya, many households still use charcoal and firewood as the major source of cooking fuel, causing dangerous indoor air pollution. Firewood harvesting contributes to deforestation while communities have trouble managing their household waste.

'One solution to all these problems is to make briquettes out of household waste material. The group I work with is still experimenting with various materials and ratios to find maximum efficiency. So far, we've found that the combination of sawdust, waste paper and dry leaves works even better than charcoal.

'Our project is split into two branches. For low-income rural households, we teach community groups to make briquettes by gathering appropriate waste materials, soaking them in water, then forming them with a simple machine we've developed, which presses eight briquettes at a time.

'The second branch serves urban populations who, despite the availability of natural gas and kerosene, still use charcoal and firewood because it's cheaper. My group plans to set up a briquette-making business. We'll gather waste materials like sawdust and agricultural waste – pineapple tops, leather shavings, rice husks and so on – press briquettes, and sell them at supermarkets as a green alternative to charcoal and firewood. At 2 cents per briquette, these will cost less than charcoal.

'This project aims to create employment for Nairobi youth, raise awareness of the repercussions of charcoal and firewood use, help encourage responsible waste management and introduce green technologies – and less polluting fuels – to urban and rural communities. We've made a good start. Now our biggest challenge is to find a suitable space in Nairobi where we can start manufacturing briquettes.'



The Bayer Young Environmental Leaders competition, judged at the Leverkusen study week, looks for original projects with the potential to change or save lives, be scaled up, and which are environmentally sustainable. During the week, 18 projects, one per country, were presented to a panel of judges representing Bayer and UNEP. The following four won project support worth up to \$1,400.



Bayer AG

M. Reyes

María Reyes, Ecuador

Mercury, a heavy metal, is one of the world's most toxic pollutants, resulting in nervous system disorders, destruction of flora and fauna, and birth defects. In South America, mercury is used for gold extraction, and large quantities find their way into rivers, swamps and lagoons. In some parts of Ecuador, mercury-contaminated water is used for drinking, agriculture, aquaculture and livestock.

'My efficient and low-cost solution is to use the aquatic fern *Anabaena azolle* – which has been found to fix mercury – to clean river water. I plan to set up a process to clean the Siete River, contaminated by waste from gold mining in the Ponce Enríquez region. I propose redirecting the river into small pools where the fern would be cultivated. The contaminated plants would then be buried as controlled waste. While decontaminating the river, we must also convince industry that taking responsibility for water remediation is good for business.

'*Anabaena azolle* would be grown and supplied by local farmers, who would benefit economically. Surplus plants not used for water remediation can be sold as a nitrogen-rich organic fertilizer and animal fodder, helping to diversify farmers' incomes. Though this project focuses on a local problem, mercury contamination is a global hazard. If the use of *Anabaena azolle* is adopted, it could make a huge difference to ecological and human health.'



Bayer AG

Meilai Padiapco

Mary Jade P. Gabanes, Philippines

'It occurred to me as a special education teacher that no one ever thinks to educate disabled children about the environment, much less include their voices in the Green Brigade – yet they, too, can be an active part of the solution. I decided to change this by first teaching them basic environmental ideas, accommodating their level of understanding. "This tree, this plant, you and me, the soil we're standing on, we're all part of the environment. If we don't take care of it, it all may be gone tomorrow."

'We began art therapy sessions, making crafts with recycled materials. This improves the children's fine motor skills and hand/eye coordination. We also produced an environment-themed musical variety show for the victims of the Japan tsunami, in which a blind child sang, deaf and mute children performed in sign language, and a mentally disabled child performed a ballet. This show was attended by 700 people and covered by TV networks and print media. Imagine how many hearts we touched!

'Finally, I mounted a photo exhibition at the largest shopping centre in our city, so that I could show the thousands of people who go to the mall every day what these special children are doing, hoping they'll also be inspired to act.

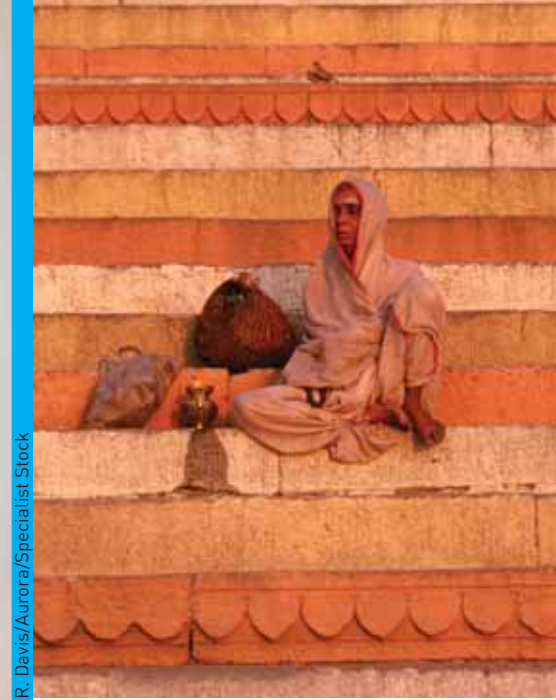
'Why special children? They're the perfect partners in getting the environmental message across. If people like you and me see them going out of their way – despite their limitations and disabilities – to make a stand for Mother Earth, then wouldn't we ask ourselves "What more can I do?"'



Stanford University

K. Smith/Alaska/Specialist/Stock

Start with yourself



R. Davis/Aurora/Specialist/Stock

Religious thinker and scholar Karen Armstrong has written more than 20 books on the world's religious traditions, and she is particularly concerned with exploring the role of religion and spirituality in the modern world. In 2009, Karen won the TED Prize, a \$100,000 award given annually to support the vision of an exceptional individual and which gives that person a wish for a better world, which TED (Technology, Entertainment, Design: a non-profit organization dedicated to promoting 'ideas worth spreading') will try to make happen. As a result, Karen launched the *Charter for Compassion*, a document around which religious leaders can work for peace based on the principle of the Golden Rule: 'Do not do to others what you would not like them to do to you.' TUNZA asked Karen what insight, if any, the teachings of the world's religions can offer as we rethink our relationship with Earth in the run-up to Rio+20.

TUNZA: What do religious and spiritual teachings have to do with environmental protection and sustainable development?

Karen: All the world's religions have, from their beginnings, been concerned about the Earth's resources. Ancient peoples worried that the planet might run down if continually ransacked, giving rise to sacrificial rituals. Ancient cultures very rarely ate meat that hadn't been sacrificed spiritually, honouring the animal. Even today, as a hunted animal dies, bushmen honour the fact that hunter and hunted depend upon one another and share the same predicament.

In China, in about the 8th century BC, aristocrats became aware that whereas there had always been plenty of wild game, species were declining. So a series of rituals arose that encouraged the nobility to live with restraint instead of killing and consuming with abandon. Not only were banquets less opulent, but teachings trained people to think, speak and behave more moderately and thoughtfully in all aspects of life. Centuries later, an industrial revolution that again plundered nature as well as a cycle of terribly destructive wars revived such thought, giving rise to Confucianism and Taoism.

And in Buddhist and Jain meditations, one radiates compassion to every single creature on the face of the Earth. All such practices remind us to be aware of and empathize with all life, to take as much care of it as we care for ourselves – that is compassion. Such a shift in perspective moves humans beyond the selfish, greedy, 'me first' mentality at the root of

taking more than what is needed, which causes imbalance and suffering.

So you're saying the Chinese understood that external laws weren't going to make people stop hunting, but a change of heart and philosophy would?

Yes, and this is an important point. We do need laws if we're going to save the environment – extensive regulation about how often we fly and drive. But this won't get votes, so there must also be some kind of internal transformation that will enable people to give up privileges and comforts that they take for granted. That's where the core teachings of the world religions come in.

I'm not talking about blindly accepting creed or doctrine. The idea of religion being about 'belief' only came in the late 17th century, skewing the way we understand religion in the West. Originally, all so-called religious doctrines were essentially programmes for action. You can't understand what it is about unless you practise it, like any skill, such as dancing. You don't learn to dance by reading a book. You must practise hard for years, developing the necessary skill to move with a grace that is impossible for an untrained body. In the same way, a religious teaching of myth only makes sense when you translate it into practical action; only then do you discover that it is telling you a truth about human nature.

So when Jesus asks his followers to believe, he's not asking them to accept doctrine. He's asking them to commit to

working for the Kingdom of God, a world where rich and poor will someday sit down together at the same table. The five pillars of Islam prescribe fasting and giving alms – hunger reminds us how other people suffer, and that there are more important matters than personal comfort. Judaism is about putting the Torah into practice, Confucianism is about respect and courtesy while Buddhism has no time for belief at all!

The guide to behaviour central to all the faiths is encapsulated in the Golden Rule: 'Do not do to others what you would not like them to do to you.' This rule extends not just to people, but to all species and the environment, because we are part of nature and must treat nature as part of ourselves.

So why have we lost sight of this teaching?

We have simply become caught up in the culture of the money-based economy we live in. Our brains were designed to help us survive in an environment where it was a huge struggle just to eat. Now, many of us live in plenty, yet we've still got those greedy impulses, grabbing as much as possible because we think we need it. The result is that we live in an economy that tells us we must keep spending money on stuff we don't need.

Is scientific knowledge to blame for eroding our sense of kinship with nature?

On the contrary. Science shows us the intricacy of nature, and of human evolution. Science should fill us with absolute reverence for nature, and remind us of how much we don't know – species yet undiscovered that all play a role in supporting our ecosystems, which we are busy destroying in our selfish or excited way.

Disciplined examination using science can help us go beyond our self-centred perspective by helping us experience fully the magnificence of our planet. The Buddhist prayer that goes with the compassionate meditation says 'Let us cherish all creatures' – all of them, without exception – as a mother does her only child. That's the kind of concern we have to have. It leaves self behind.

The natural world is also one of the first things that gives humans a sense of the divine, inspires reverence. It's about the sense of transcendence when you see a magnificent starry sky, the ocean, the mountains.

Young leaders all over the world are preparing for Rio+20. It's another opportunity for the world to come together and catalyse a change of heart. What should they keep in mind?

As with any spiritual practice, it starts with yourself: you cannot ask other people to be more mindful of the environment if you're not committed to taking action in your own life – walking instead of jumping in the car, asking whether this plane journey is really necessary. Can you make your coat last another season?

The main problem of our time is building a global community where human beings can live together peacefully and respectfully. This is a chance for young people all over the world to work together, whatever their creed or cause.



T. Crocetta/BIOStockphoto/Specialist Stock



S. Corlett/Design Pics/Still Pictures



S. Soh/UNEP



A. Boonsiri/UNEP

7 steps into the future

Ocean plastics

While the scope of the problem of plastics in the ocean is huge, the San Francisco company Method – manufacturer of eco-conscious cleaning products – has collaborated with plastics recycling company Envision to develop a bottle that is ‘up-cycled’ from plastic waste gathered by beach clean-up organizations – particularly in Hawaii, at the southern edge of the North Pacific Gyre. Called Ocean PCR, the material comprises 25 per cent

Gyre plastic and 75 per cent recycled polyethylene, and in quality matches virgin high-density polyethylene (hdpe) – the type of plastic most often used for milk containers, shampoo bottles and so on. Ocean PCR itself can be recycled indefinitely when blended with hdpe. It doesn’t keep plastics out of the ocean, but if this innovation catches on, we could someday recycle and reuse all the plastic that already exists rather than creating more.

Method Products Inc.



Water wise

In South Africa, wastewater company Clearedge has developed a bioreactor that uses bacteria to clean grey water – water used for washing that would otherwise go down the drain. Bacteria feed on the dirt and other substances in the water, which is a more effective, lower-energy method of cleaning water than pumping it through filters. The system is made up of locally collected PET bottles packed into tanks, creating a large surface

area on which the bacteria can grow. Most car washes in South Africa now use these bioreactors to recycle the same water continuously, saving enough drinking water to supply one household for every four cars washed. The system would work for showers, floor washing and more, and the materials can be sourced locally anywhere – potentially reducing rubbish and saving drinking water all over the world.

www.clearedgeprojects.com



CO₂ breakthrough

A breakthrough technology developed by Bayer AG and the CAT Catalytic Center has made it possible to use CO₂ captured from a coal-fired power plant to produce polyols – chemicals used in the production of polyurethanes. Polyurethane, currently made completely from fossil fuels, is used in everyday items such as foam mattresses and sporting gear, and is highly efficient as an insulator for buildings.

Now, the amount of oil needed to produce it has been reduced by incorporating the new CO₂-based polyols into the polymer chain, locking away the carbon from the atmosphere. Bayer has started testing the process in a pilot plant in Leverkusen, Germany, to ensure that it is both energy efficient and ecologically sound. The world could begin sleeping on CO₂-based polyurethane as soon as 2015.

Michael Rennertz/Bayer AG



Waste not

Plant debris, paper and everyday municipal solid waste can take years to break down in landfill, emitting methane. The Muncher, a newly developed aerobic organic waste compost system, shortens the process to less than an hour, reducing waste mass by 70 per cent while converting it into useful by-products and killing pathogens. The process uses naturally occurring aerobic microorganisms to digest waste, and results in nutrient-

rich organic fertilizer, both solid and liquid. Run on electricity, the prototype processes 5 tonnes of waste daily; a full-scale model will have a 500-tonne daily capacity. Potential applications include increasing capacity on site at landfills and processing organic waste at restaurants and hotels. The Muncher also cleans up such toxins as PCBs, nitrogen wastes and crude oil, so may be used for environmental remediation.

jildickinson/Ecologico-Logic



Water and power

Desalination plants play a vital role in arid regions such as the Middle East, but the process is extremely energy intensive and expensive. Meanwhile in water-short China, laws require that new power plants must provide their own freshwater. Tackling both problems, an Israeli firm recently built an innovative desalination plant in the Hangu district of Tianjin, to supply water to power the steam boilers in a

nearby state-run power plant. The desalination process is powered by waste heat from the power plant. Seawater is heated with steam, then evaporated to produce freshwater and table salt. Some 20 per cent of the plant's daily 200,000 cubic-metre freshwater output is used in the power plant's steam boilers, and the rest provides drinking water to the local population, as mandated by law.

IDE Technologies Ltd



Hybrid vigour

Every environmentally aware driver wants a Prius hybrid, which runs on petrol and electricity. But that may change as Volvo launches the V60 Diesel Hybrid – the world's first plug-in hybrid with a diesel engine. It can be used as an entirely electric car: on its 12 kWh lithium-ion battery, rechargeable from the mains in under four and a half hours, it has a commuter-friendly range of 50 kilometres. For longer journeys, the car maximizes efficiency

and minimizes emissions using a combination of an electric motor and a diesel engine – an efficient option as diesel contains more energy per litre than petrol, and diesel engines require less fuel to run. The V60 Diesel Hybrid can travel 1,200 kilometres on one tank of fuel, with an astonishing efficiency of 1.9 litres per 100 kilometres – less than half the upper limit required by the European Union for new passenger cars.

Volvo



Solar tunnel

Trains are a relatively climate-friendly way to travel, but still use an enormous amount of energy. Currently, this comes from diesel or electricity – the latter typically supplied by coal-fired plants. Fully solar-powered trains are a long way off, but Europe has just opened its first solar railway tunnel in Belgium, supplementing the high-speed

line between Paris and Amsterdam. More than 50,000 square metres of solar panels cover the 3.4-kilometre tunnel's roof, generating enough energy to light up local signals and stations, and power the equivalent of Belgium's entire train fleet for one day per year – while decreasing CO₂ emissions by 2,400 tonnes annually.

www.henderyckx.com





EMVL/GNU FDL

BEYOND THE ART OF THE PROBABLE



RIO+20
United Nations
Conference on
Sustainable
Development

BRICE LALONDE has led a student movement, founded a political party, run for the French presidency, served as France's Environment Minister and then as Climate Ambassador in international negotiations. Today, he is the UN Secretary-General's Executive Coordinator of the United Nations Conference on Sustainable Development – that's Rio+20. When TUNZA spoke to him, we started by asking about how young people could help.

'Whether we like it or not, we live in a globalized world. But we need to embrace the concept of planetary citizenship. At Rio+20 and beyond, you, young people, can help ensure that decision makers go beyond thinking solely in terms of their own national interest.

'The environmental – but also economic and social – issues facing us are planetary in scope, so we are all in it together. We need to think, act and network on a planetary scale. Tools exist – the net and social media know no boundaries and their strength has been clearly shown across the world during 2011. Young people grew up with them, you understand them, know how to use them and, because of them, many of you already think as planetary citizens. And you mustn't get hemmed in by conventional wisdom. The decisions being made now are about your future and sometimes someone has to say 'no', to rebel, to dream a little and see beyond what is currently accepted by older people. We need that.

'In 1992, Severn Suzuki's speech (see page 10) was inspirational in stepping outside the norm, and it's still vibrant today. I hope the same for Rio+20 – that it will still be relevant in 2032.

'Twenty years after the Rio Declaration, its three conventions and Agenda 21, we must make sure that Rio+20 is strong on implementation and action. Confirming that a healthy environment is good for economies would be a great start – backed by a schedule for the achievement of agreed, measurable Sustainable Development Goals – SDGs.

'So often, politicians can't or don't have the time to take the long-term view that sustainable development demands – but that long-term view is essential to ordinary people and especially to young people.

'To change things, we must involve all stakeholders. Not just as an afterthought, as happens so often at the moment, but as a vital part of the whole development process. That means local government, municipalities and civil society – including young people – and it means business and industry, too.

'Introducing that long-term view to the business community is really important. We must involve them, and together develop ways of providing sustained investment and finance that encourage innovation and the development of a green economy, based on renewable energies, to develop sustainably and eradicate misery. And then get on with it!

'Many of you, young people, can help change by speaking up in your families, in your place of work, or your school and university. As consumers, you can make environmentally smart choices; that, too, will make a difference. And never forget Rio'92's mantra: "think global, act local".

'Rio'92 came at a moment of geopolitical change, shortly after the dramatic breaching of the Berlin Wall. It was groundbreaking in its day – for the first time world leaders came together and provided strong leadership on development and environment.

'Now, the world is wrestling with a financial and economic crisis, a crisis of indebtedness. The discussions, however, are largely about the short term rather than about our reliance on fossil energy sources, our diminishing resources and over-consumption, which are building up massive environmental debts. You can help change that. But remember – solutions don't grow on trees.'