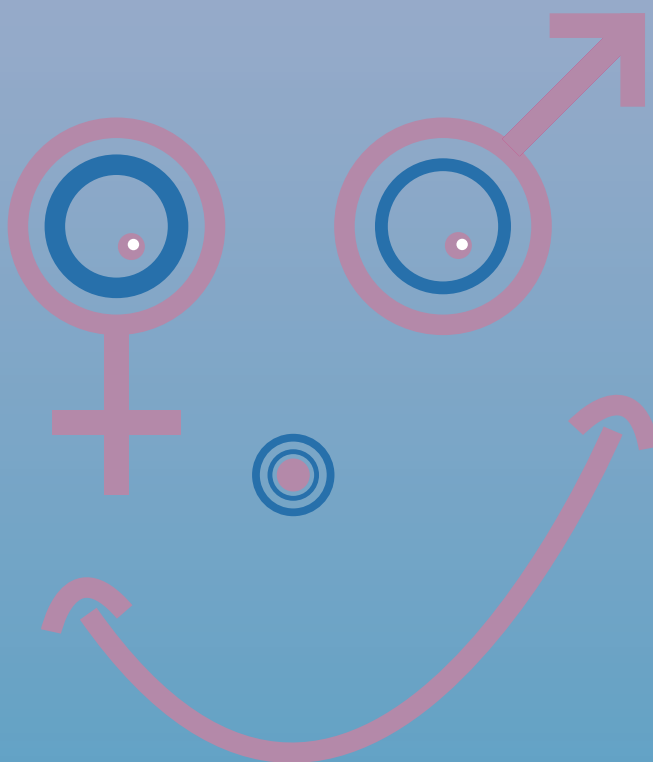


Gender equity & the environment

Why gender matters

Women who changed
environmental thinking



Green grannies

Working women

Kerala, land of equity

Future environmental leaders

TUNZA

the UNEP Magazine for
Youth is available at
www.ourplanet.com
and www.unep.org



United Nations Environment Programme (UNEP)

PO Box 30552, Nairobi, Kenya

Tel (254 20) 7621 234

Fax (254 20) 7623 927

Telex 22068 UNEP KE

E-mail unepub@unep.org

www.unep.org

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Director of Publication Eric Falt

Coordinator Wondwosen Asnake

Editor Geoffrey Lean

Guest Editors Karen Eng and Claire Hastings

Nairobi Coordinator Naomi Poulton

Circulation Manager Manyahleshal Kebede

Youth Contributors Preetam Alex, India; Nina Best, Brazil; Luis Carlos Campiz Mercado, Colombia; Pedro Chaffe, Brazil; Fika Fawzia, Indonesia; Manisha Ganeshan, India; Alfredo Gersava Jr, Philippines; Margaret Koli, Kenya; Marina Mansilla Hermann, Argentina; Tanya Mowbray, United Kingdom; Julien Paquin, France; Gabriel Rocha, Colombia; Elissa Smith, Canada; Renny Turangga, Indonesia

Other Contributors Julia Horsch, Bayer; Barbara Kingsolver; Martin Palmer, Vicky Finlay and Xiaoxin He, ARC; Rosey Simonds and David Woollcombe, Peace Child International

Design Daniel Lopez Zamora, Ecuador

Front cover Edward Cooper, Ecuador

Web Editor Graham Barden

Production Banson

Head, UNEP's Children and Youth/Sport and Environment Unit Theodore Oben

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Change of address Please send your address label together with your new address to: Manyahleshal Kebede, Circulation Manager, TUNZA, UNEP, PO Box 30552, Nairobi, Kenya, e-mail manyahleshal.kebede@unep.org

Contents

Editorial	3
Wild things 1	4
Why gender matters	4
Making peace	5
TUNZA answers your questions	6
Banking on poverty	7
Future environmental leaders	8
Building dreams	10
Wild things 2	11
Working women	12
No retreat	14
Thinking about everything	15
Super women	16
Who's who?	18
Greening their valley	18
What's cooking?	19
Tunza dedication	19
Bridging the generation gap	20
Poor, but rich...	21
Seven women who changed environmental thinking	22



Partners for Youth and the Environment



UNEP and Bayer, the German-based international enterprise involved in health care, crop science and materials science, are working together to strengthen young people's environmental awareness and engage children and youth in environmental issues worldwide.

A partnership agreement lays down a basis for UNEP and Bayer, who have collaborated on projects in the Asia and Pacific region for nearly 10 years, to step up current projects, transfer

successful initiatives to other countries and develop new youth programmes. Projects include: TUNZA Magazine, the International Children's Painting Competition on the Environment, the Bayer Young Environmental Envoy in Partnership with UNEP, the UNEP Tunza International Youth/Children's Conference, youth environmental networks in Asia Pacific, Africa and Latin America, the Asia-Pacific Eco-Minds forum and a photo competition, 'Ecology in Focus', in Eastern Europe.

Cool & Cooler



COOL: Travelling by environmentally friendly train to see loved ones, rather than by car.



COOLER: Talking face-to-face, cheaply or for free, using webcams and programs like Skype, iChat or NetMeeting.



COOLEST: Cars that run on air. French company Moteur Développement International is developing lightweight cars whose pistons are driven by compressed air. Urban vehicles just use the air, and so emit no pollution. At longer distances and higher speeds, dual-energy engines switch to fuel mode – which can use both petrol and biofuels – and run an on-board compressor to refill the air tanks.



COOL: Eating locally grown food.



COOLER: Growing your own. One easy way – even in cities or arid areas – is to use a recycled-plastic EarthBox, which has its own fertilizing and water-efficient irrigation systems. The Growing Connection, a campaign developed by FAO and the American Horticultural Society, is introducing the EarthBox to young people around the world, including in Mexico, Ghana and Nicaragua.



COOL: Recycling plastic bags and bottles.

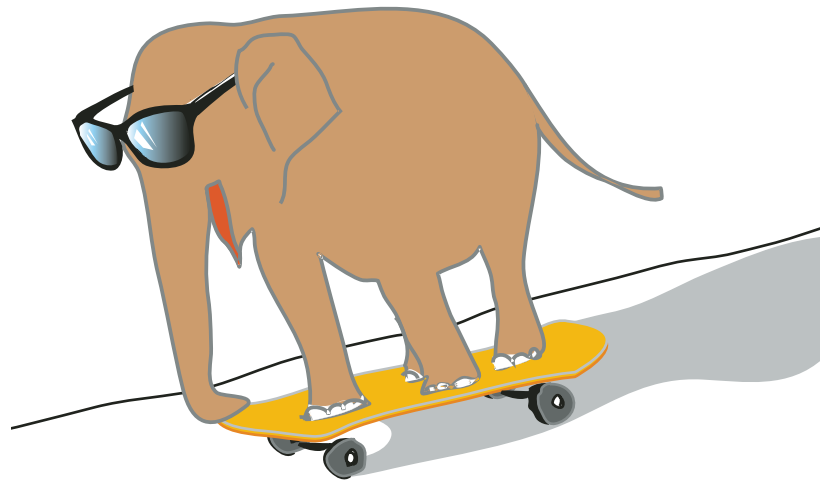


COOLER: Elevated Wetlands, an environmental sculpture by Noel Harding that uses a substitute soil made from recycled waste plastic to grow grasses, birch, and evergreen trees beside Toronto's Don River. Solar-powered pumps move polluted river water into the sculpture, which acts as a filter, cleaning the water while nourishing the plants.

WARM: Turning up the thermostat.

WARMER: Cuddling under a blanket.

UNEP promotes environmentally friendly practices globally and in its own activities. This magazine is printed on 100% recycled, chlorine-free paper using vegetable-based inks.



Editorial

We call it Mother Nature, and throughout the centuries poets and playwrights have described nature as female. Yet, ever since 'mankind' began to clear ground for agriculture, her fate has almost always been determined by men. And that may be one reason for the environmental crisis that now starkly faces the planet.

Women, generally, seem to be better connected with the need to live in harmony with the Earth, to care for it and nurture it. Partly this is the feminine approach, partly it is common sense, but partly it is also because women – particularly in the developing world – are both in closer contact with the natural environment and suffer most when it is harmed.

Yet, though there may have been a few matriarchal societies – about which little has been established – it is men and male values that have ruled, and ruined, the world. Even now there is not a single country, as the United Nations Development Programme's *Human Development Report* tells us, where women and men enjoy true equity. Over most of the world fewer women than men can read or write, and fewer girls go on to secondary school than boys. Everywhere, in developed and developing countries alike, women's earnings are lower and their work in running households and bringing up children is not regarded as economically valuable.

Worse, women only play a small part in making the decisions that determine the future of the Earth and its peoples. Things are better than they were – the number of national female legislators has quadrupled in the last 60 years. But still only 15.3 per cent of legislators in developing countries are women – and developed countries do little better, with just 21.1 per cent.

Of course, we should not overgeneralize. Many men fight passionately for the environment; many women have been instrumental in helping to destroy it. But there can be little room for doubt that a better balance of genders in decision making would help us achieve a better balance with nature.

WILD THINGS



John Cancalosi/Still Pictures

GIANT WATER BUG

Male insects typically shun parenting duties, but the giant water bug – up to 5 centimetres long and 2.5 centimetres wide – is willing to shoulder the load. During mating, the female glues around 100 eggs to the male's back, and then leaves. The single father carries his offspring piggyback for a month, agitating the eggs underwater to provide oxygen, and stroking them and airing them in the sun to prevent infection. Once the eggs hatch and the babies swim off, he stops eating so that he won't inadvertently consume his progeny.

SWANS

Swans have long been thought to mate for life. But advances in DNA technology have found this to be a romantic fiction. Scientists have discovered that the eggs in a paired couple's nest can have been fathered by several different males. This suggests that while swans



Bruce Montagne/UNEP/Topham

are socially monogamous – staying together as a couple over long periods and nurturing their young together – they are not necessarily sexually monogamous. You could call it an open marriage, or maybe just swanning around.

SONORAN SPOTTED WHIPTAIL

The Sonoran spotted whiptail, from North America, is one of 15 similar species made up of only females. The single-sex lizards are the hybrid offspring of two bisexual species (having both males and females). Usually, only sterile offspring result from interspecies breeding, but in this case, females are born that are able to reproduce without sperm: as adults, they lay unfertilized eggs that hatch into more females, a form of asexual reproduction called parthenogenesis.



John Cancalosi/Still Pictures

Why gender matters

'Women', so the saying goes, 'hold up half the sky'. In fact, they do more than their share when it comes to looking after the planet. And as they usually live and work in closer contact than men with nature and the land, they suffer more from environmental pollution and degradation. They are in the front line of the fight over the future of the Earth.

In developing countries women are almost entirely responsible for growing food to feed their families; in sub-Saharan Africa, for example, they produce and market over 90 per cent of all the food grown locally. So they are the first to be hit by soil erosion and deforestation.

As the trees are felled, women also usually have to spend more time getting both fuel and water. Not long ago, women in the Indian state of Gujarat only had to go out to collect firewood every four of five days; now they have to spend four of five hours every day at the back-breaking task. Collectively, women in India spend a staggering 150 million work days a year fetching water, and in South Africa they walk the equivalent of going to the moon and back 16 times every day.

Both fuel and water often bring sickness home with them. Unclean drinking water causes diseases that kill more than 3 million people a year, mainly children, and as the carers of the family, women take the strain. Meanwhile, the smoke from burning firewood swirls around the homes of the poor, carrying a toxic load of pollutants, and killing more than another 1.5 million people each year, mostly women and children, who spend the most time indoors.

Women are also generally more vulnerable to chemical pollution than men because they tend to carry more fat and thus store more of the poisons that build up in it. And they



pass them on to their unborn babies and through breast feeding: scientists at the University of Groningen in the Netherlands, for example, found a cocktail of at least five toxic chemicals in the blood of every newborn baby they examined, and some had as many as 14.

Children born to mothers exposed to pesticides in countries as different as the Sudan and the United States of America have been found to be more likely to die soon after birth. Near North America's Great Lakes, women exposed to toxic polychlorinated biphenyls (PCBs) have given birth to children with dramatically lower intelligence and delayed motor development, while boys whose mothers were contaminated with the ubiquitous 'gender-bender' phthalates were born with smaller penises and other signs of feminization of their genitals.

It is no surprise, therefore, that women are in the vanguard of the battle for the environment. They formed the Chipko movement which halted the felling of forests in Northern India. In Sierra Leone, one study found, they could name 31 uses of trees, whereas men only knew of eight. And they often conserve important food crops: research on 60 kitchen gardens managed by Thai women found 230 different vegetable and other species, many saved from a nearby forest before it was cut down. The soil in women's plots in Ghana keeps its fertility longer than the earth tilled by their menfolk, while half of Britain's organic farmers are female, 10 times the proportion of women farmers in the country as a whole.

Women do seem to be better attuned to the needs of the environment, and more committed to protecting it, than men. But until they are given at least an equal share in taking the decisions that determine how the world is run, there is little chance of stopping the sky metaphorically falling on our heads.

UNEP/Topham



Making peace

In the beginning there were only the Sea Goddess, Maguayen, and the Sky God, Kaptan. The two were terrible rivals. Maguayen created whirlpools, hurricanes and tsunamis, and Kaptan retaliated with thunderbolts, rain and lightning. When the thunderbolts and rain hit the sea, Maguayen would conjure up storms and waves that reached the sky. To stop her, Kaptan threw stones into the sea. Over the aeons of their feuding, the stones built up to become the islands of the Philippines.

A bird – a kite – suffered from Maguayen and Kaptan's fighting, as the incessant storms and raining boulders kept it restlessly flying over the sea. It tried to make peace between the sea and the sky by persuading them to meet twice a day at the horizon. Over time, the enemies became friends – and then fell in love.

From Maguayen and Kaptan's love a small bamboo seed fell into the shallows beside one of the islands. It grew into a tall stalk, finally providing the kite with a perch. From inside the bamboo came a voice. 'O please, Lord of the birds, let us out.' The kite thought it was strange that the stalk should speak to him, but it spoke again. 'O gracious and kind bird, please let us out.'

As the cautious kite pondered what to do, a small lizard scampered across the bamboo stalk. With a quick reflex, the kite pecked hard at the lizard and the bamboo split open. Slowly a beautiful woman and a strong man climbed out of the stalk. They were the first people. In time they married, had many children and populated the Earth.





Q&A

TUNZA answers your questions

Q What is the difference between gender equity and gender equality? And what can young people do to promote gender equity?

A Gender equity is being fair to both women and men. It is a precondition of, and leads to, equality. Gender equality is about equal access to resources, opportunities and rewards – allowing both men and women truly to work together. Young people have a special responsibility to ensure everyone enjoys the same opportunities, rights and obligations in all spheres of life – and that theirs and future generations do not suffer from the gender imbalances of the past.

Q Are women better at caring for the environment than men? If so, why is this?

A In many parts of the world women are the providers of food, water, heat and other resources for their children and extended families. To survive, many have developed an intimate understanding of nature and are in the front line of managing and preserving our natural resources.

Q Women authors like Rachel Carson and Barbara Ward played a major role in starting the modern environmental movement in the 1960s. Are their writings still relevant?

A Both women were passionate about the environment, the disparity between rich and poor, and the well-being of all humankind – and were among the first to warn about the crisis of sustainability that we now face. Their writings are, if anything, more relevant than ever.

Q How does a safe, close supply of clean water affect women's lives in rural areas? How can we achieve universal access to clean water?

A Women and girls are the providers of water in many parts of the world, walking hour after hour to fetch it. A nearby supply can cut their workload and allow more girls to attend school in the time saved. Access to clean water saves the lives of children who would otherwise perish from waterborne diseases, and helps improve maternal health. We must press governments and the private sector

to invest in providing safe and affordable water for all, and ensure that the people directly affected – particularly women – participate in the decisions that are made.

Q If women have better access to health care services, including family planning, does the environment also benefit?

A Indira Gandhi called poverty 'the greatest form of pollution'. Healthy women with healthy families – with access to modern medicine and reproductive health services which empower them to decide how many children to bear and when – contribute to their family's economic well-being and are better able to maintain a healthy home and a healthy local environment. However, as countries develop and people move out of poverty, many other factors that affect the environment, such as rising consumption levels, come into play.

Q Does the fact that, in many places, women may not own land have a bad effect on the environment?

A Ownership gives people the rights and responsibilities to control the use of the environment. It is also our strongest connection with the natural world. Many women do not have the right to own or inherit land, and as such they lack the rights to cherish their natural resources. This leads to other forms of inequality in their lives. Ownership empowers them, and gives them access to credit and other economic opportunities that help the functioning of our planet.

Q How does better education of women affect the environment?

A Through education communities become aware of the dangers caused by degraded environments. Education also increases women's ability to use and manage environmental resources and empowers them to play a bigger role in decisions affecting their families and thus the community. It also means that they are likely to have smaller families, with the potential to reduce pressure on the environment. And of course, better understanding leads to better decisions, whether by men or women.

Do you have any QUESTIONS on environmental issues that you would like the experts at UNEP to answer?

Please send them to unepub@unep.org, and we will try to answer them in future issues.

Banking on poverty



Donna Morris/FINCA International



Shehzad Noorani/Still Pictures

Can \$27 beat global poverty? Economist Muhammad Yunus thinks so. In fact, he knows so.

Thirty years ago he lent just that amount to a group of poor artisans in Bangladesh to pay off their debts. It started a financial services revolution. It's called microcredit and it has won him the 2006 Nobel Peace Prize.

Microcredit lends tiny amounts of money – typically \$50 to \$100 – to poor entrepreneurs who cannot get traditional bank loans because they don't have the money or property to guarantee repayment. It enables them to finance projects that help them escape poverty.

Many were sceptical when Yunus first developed the idea. But today, the World Bank estimates that there are 7,000 microcredit institutions around the globe serving 16 million people – and the United Nations declared 2005 the International Year of Microcredit. Since Yunus founded the Grameen Bank ('Bank of the Villages' in Bangla), the lives of some of the world's poorest people have been turned around.

It all grew out of Yunus' commitment to the rural poor. 'I made a list of people who needed just a little bit of money, and when the list was complete there were 42 names,' he says. 'The total amount of money they needed was \$27. I was shocked.'

The artisans had been borrowing money from a moneylender each week to buy the materials for basket making and other crafts. Most of their profits went to paying off their debts and interest. Yunus continues: 'I saw how people suffered for a tiny amount of money, and the moneylender took advantage of them, squeezed them in a way that all the benefits passed to the moneylender and none remained for the borrowers.'

Focusing on the poorest of the poor, the Grameen Bank meant dealing with women. Yunus understood, as the Nobel

Committee put it, that: 'Economic growth and political democracy cannot achieve their full potential unless the female half of humanity participates on an equal footing with the male.'

But in traditionally Muslim Bangladesh, getting women to participate was not easy at first: 'When I began I wanted to make sure half the borrowers were women,' says Yunus. 'It was not easy because women themselves did not think that they should borrow money. I had to do a lot of convincing.'

Gulbadan Nesa is one of them. Five years ago she borrowed \$90 to buy chickens so that she could sell eggs. 'Not long ago I was almost begging for money to feed my family,' she explains. 'Today I have my own house and enough money to feed my children and send them to school.'

Now 96 per cent of the Grameen Bank's clients are women, and microcredit organizations worldwide have found women to be a good bet. They are more likely to pay back their loans than men, and more likely to invest income in their families, thereby spreading the benefits. And when women have financial control and responsibility, they are better able to participate in society.

And that's the whole point of microcredit. In stark contrast to ordinary banks, which aim solely to make a profit, microcredit institutions set out to benefit their clients socially and financially. The Fonkoze Bank of Haiti, for example, offers basic literacy and numeracy classes for its mainly uneducated female clients. In Uganda, the Foundation for International Community Assistance provides life insurance and outpatient health services. And at the Grameen Bank, saving is encouraged as an integral part of lending. But as Yunus is quick to point out: 'This is not charity. This is business: business with a social objective, to help people get out of poverty.'



Environmental protection is always an investment in the future, and we are ready to support young people worldwide in their commitment

to it and to sustainability,' says Bayer Director Dr Wolfgang Plischke.

He was speaking at the opening of the 2006 Bayer Young Environmental Envoy Conference. The company founded the Young Environmental Envoy Program, today a mainstay of the UNEP/Bayer partnership, in Thailand in 1998. It has since grown to include young people from 16 countries with fast-growing, emerging economies in Asia, Africa, Eastern Europe and Latin America.

Bayer Young Environmental Envoys submit project reports and essays to selection panels in their home countries, and undergo a thorough interview process before being chosen to head off to Germany for a week of field trips, lectures and networking opportunities. This year, the 48 envoys were chosen from 1,200 applicants – to get there candidates must display strong leadership and environmental involvement as well as a good command of English.

'We want to foster dialogue between young environmentalists and scientists from around the world,' adds Dr Plischke, 'and we hope the envoys learn more about existing technologies, facilities and practices. By the end of the week we hope they will leave with an enhanced understanding of the mutually reinforcing roles that industry, government and individuals play in protecting the environment.'



Photos: Bayer



Future environmental leaders



'PLANTING 15,000 trees? No big deal. Good planters can do 800 to 1,000 a day.'

Grabbing a potato fritter and a couple of spoons from his plate, Gabriel Rocha explains. 'You work in pairs. One works the shovels to make a hole' (the spoons dig into the salad), 'and the other plants the seedling' (the potato is firmly planted). 'The whole thing takes about seven seconds.'

It's the third day of the Bayer Young Environmental Envoy Conference and I am getting a crash course in re-foresting Colombia. The programme includes field trips, lectures by environmental experts and networking opportunities. Impromptu instruction is a bonus.

Over the buzz of multilingual conversation, Luis Carlos Cámpiz Mercado, another Colombian, exalts peer-to-peer education: 'It's hard for farmers when government technicians tell them to change their ways. But they trust each



other and have confidence in their own innovations. So we work with indigenous farmers and learn as much from them as they do from us.'

That's what the Conference – held each November at Bayer's international headquarters in Leverkusen, Germany – is all about. The 48 Envoys – described by UNEP's Communications Director, Eric Falt, as 'environmental leaders of tomorrow' – include scientists, law students, engineers, medics and foresters.

For them, the trip is an opportunity to experience modern environmental protection in Germany, first-hand. It's also a chance to exchange ideas, cards and project proposals with their international peers. Michael Schade, Bayer's Head of Corporate Policy and Media Relations, opened the Conference by welcoming all the Envoys, especially those from Viet Nam and Malaysia – countries participating in the programme for the first time. 'We hope you will have an exciting week,' he tells us, 'and that you will take advantage of the expertise around you. You are the specialists. Let's all learn from each other.'

The pace is intense. From day one there are speeches, workshops, field trips and presentations. Despite jet



TUNZA youth editor Claire Hastings meets Bayer Youth Environmental Envoy Fika Fawzia (left), from the University of Indonesia.



‘When I was 12, I helped a turtle rehabilitation scheme on Pramuka Island, north of Jakarta. To protect hawksbill turtles from local fishermen who eat them and their eggs, we collected the eggs, hatched them and raised them until the young turtles could be released into the sea.

...right now I am working at a non-governmental organization trying to raise environmental awareness among law students. Many problems in Indonesia exist because we lack the capacity to implement environmental law, particularly permits for mining and logging. Knowing the law can really help and if law students won't go to the environment, we'll bring the environment to them.

...the BYEE week in Leverkusen has really got me thinking – such as about Germany's Environmental Information Act, which showed me how strong implementation regulations can make a difference. I was also very impressed by the rubbish and waste management. In Indonesia, our Waste Management Act is still a draft, and we, as law students, are trying to move it forward.

...in environmental work, there are both advantages and disadvantages for women. In Indonesia, as a girl, it is easier to work with communities and children. As a guy, you can connect more to government officials and people working directly with environmental protection. It doesn't mean a girl can't get along with officials, or guys with communities, but there are some roles that are gender biased.

...regardless, we all have to work together. If environmental protection is the goal, you don't just kick the ball to the goal by yourself. You pass it to others and they make the goal for you, and thus for everybody.’

Claire Hastings



lag, Envoys pepper speakers with questions about patent laws, equitable distribution of resources and sustainable development. Over dinner, the conversation slips back to the afternoon's discussion. ‘It's all very well to talk about sustainable development,’ comments Manisha Ganeshan, an earth scientist from Mumbai. ‘But acting sustainably is much harder. We may have the resources, but creating the necessary infrastructure costs money that we don't have.’

Manisha is working on converting geothermal energy from hot springs into electricity. The hands-on science that she's seen at Bayer appeals. ‘I don't want to be stuck in a lab all day,’ she says. ‘I'd rather get my hands dirty.’

Brazilian Pedro Chaffe finds Bayer Crop Sciences fascinating. When developing new fertilizers and pesticides, Bayer tests each product for soil and groundwater contamination. Pedro says these procedures and techno-



logies would be particularly useful in his community, where groundwater is threatened by chemicals used at a local golf course.

After mornings of PowerPoint and theory, there's a chance to see environmental protection in action. The AVEA municipal waste management centre's recycling programme is impressive. But as we watch a box of radios being dropped off, Margaret Koli, an Envoy from Kenya, comments: ‘If you gave those to a Kenyan, he'd fix them or use them to fix something else!’



The farewell dinner begins, and no-one shows signs of slowing down. Salsa is playing; colourful national costumes swirl around the room; e-mail addresses are exchanged and details of projects hatched during the week are finalized. Though environmental problems loom large, the Envoys seem confident they can be surmounted with effort and education.

After all, it can all start with just a couple of spoons...

Building dreams

Towns and cities cover just 2 per cent of the world's land, but are now home to half the world's population and consume over 75 per cent of all resources. By 2030, they will contain another 2 billion people. So sustainable urban landscapes are vital now and for our future.

Slum hope

A billion people worldwide live in slums – that's around one in every six people alive. Slums conjure images of grime, poverty and despair. Yet, at times, they are becoming places of dignity, innovation and hope.

Most slum dwellers have flocked to the towns and cities from the often neglected countryside in search of jobs and a better life. They fling up shantytowns of shacks on land that developers shun as unsafe, such as steep slopes, flood plains and canal or river banks, or in the lee of polluting factories. Many, perched on steep hillsides, are prone to landslips; many, on the plains, to floods.

People build their shanties from whatever they can lay their hands on: mud, plastic sheets, cardboard – only rarely bricks or concrete blocks. Worse, clean water and any form of sanitation are extremely rare – causing deadly waterborne diseases.

Slums are an environmental and human disaster. And the ones who suffer most are those who spend the most time at home – women and children.

Yet all over the world slum dwellers have shown that they can make amazing improvements to their homes and their fate, if they are given half a chance. One initiative that provides such hope is the Slum Networking Program, founded by an Indian civil engineer, Himanshu Parikh.

Slum Networking helps slum communities get basic services and – as its name suggests – link them with other settlements. Sewer and water lines are laid down in looped systems to equalize pressure, and roads are built lower than surrounding buildings so that rainwater drains away instead of creating stagnant pools that breed mosquitoes and lead to disease.

Neighbourhood committees advise the planners and engineers, thus empowering residents and harnessing local knowledge. Community halls are specially built to act as a

Constructive ideal

BAYER YOUNG ENVIRONMENTAL ENVOY Alfredo Gersava Jr has developed an innovative technology that could revolutionize low-income housing in his native Philippines. A civil engineering student, he was disturbed both by

mounting agricultural waste and the lack of durable, affordable housing for poor villagers. His solution? Rice Hull Cement Bonded Blocks.

He uses rice hulls – which account for most agricultural waste in his country – instead of sand to make cement building blocks. These are cheaper to produce and resistant to fire and fungus. Besides developing and

Cheering Bronx

'Why would you go for a walk in a toxic neighbourhood?' asks Majora Carter, who has lived all her life in New York's South Bronx. One of the poorest urban communities in the United States of America, it handles 40 per cent of New York City's commercial waste, and hosts 15 waste management centres, four power stations and a sludge treatment plant. Its people have long suffered from high levels of asthma and other pollution-related illnesses – alongside low levels of community involvement.

Carter, who has a flair for community mobilization and organization, founded Sustainable South Bronx in 2001,

provoked by plans to send even more of New York City's garbage there. It aims to bring economic and environmental rebirth through creative planning.

'Instead of just getting garbage facilities and power plants, low-income communities should get parks and greenways like everybody else,' she says.

The big breakthrough came when she had a proposal to build a greenway along South Bronx waterfront approved, turning under-used land into a belt of much needed green space. It should improve health as well as the environment: with a safe space outdoors people are likely to take more exercise.

Her organization is also pushing for green roofs. Covered with soil and plants, flat roofs become both beautiful and environmentally helpful. They add insulation, reducing the



nucleus for people's involvement. 'Green spaces, too, are integral to improvement programmes,' says Parikh, 'and the survival rate of trees planted by residents is higher than for those planted by civic authorities.'

By networking 181 communities in this way, the city of Indore (in Madhya Pradesh state, central India) gained 360 kilometres of new roads, 300 kilometres of new sewers and 240 kilometres of water pipes; 120 community halls; and more than 120,000 trees. A World Bank study found that family income doubled, fatal diseases were slashed by 90 per cent, and the amount that families spent in improving their homes increased tenfold.

'Starting with quality infrastructure in the poor areas and working outwards can actually improve whole cities,' concludes Parikh. 'Rather than being parasitic, slums can come to benefit the people who live outside them.'



AC Sales/UNEP/Topham

patenting the technology, he has started teaching villagers in three indigenous communities how to make the bricks for themselves.

So far 20 houses, providing solid shelter for 100 people, have been built with the blocks. As Alfredo puts it: 'I don't have money to give to disadvantaged people, but I do have ideas, technology and education!'

buildings' energy use, and encourage biodiversity as wildlife finds a home in the concrete jungle. They also absorb rainwater and reduce runoff, cutting the risk of flooding. And just 1.5 square metres of green roof with 40 centimetres of foliage produces about the same amount of oxygen as a tree with a 5-metre-wide canopy.

The key to Carter's success is intertwining environmental and economic sustainability. The people of South Bronx do not necessarily fit the image of alfalfa-munching greenies, but – as she is quick to point out – most have eco-friendly lifestyles: they don't own cars, they cycle and recycle, and they have sustainable consumption levels.

She says: 'I want to give our community permission to dream, to plan for healthy air, healthy jobs, healthy children and safe streets.'



WILD THINGS



Terry Embury/UNEP/Topham

LION

Male lions may impress with their showy manes – the heavier the mane, the more virile the animal – but it's the females that do the hard work of feeding the family. Hunting cooperatively in groups, the females stalk their prey, making a sudden charge to bring it down. They then call the rest of the pride to the kill, but have to sit back and wait while the adult males tuck in, only eating when the males have had their fill. The males' job is to guard the pride: they patrol its territory, spraying their scent and protecting it from intruders.

PRAYING MANTIS

The praying mantis has a voracious appetite, eating other insects like butterflies and even small animals. But occasionally the female will munch off her partner's head as they mate. This may be a reproduction strategy, because the male produces



MR Padmaraju/UNEP/Topham

more sperm as it dies. But it might also be triggered by artificial conditions – like in labs where the insects may be confused by unfamiliar surroundings. In one study, when a pair was left alone in the dark, there was no cannibalism, just a ritual courtship dance.

SEAHORSE

Seahorses are the only animals whose males get 'pregnant' and give birth. After they couple, linking tails in a courtship dance that can last several hours, the female deposits her eggs in a brood pouch in her mate's body. The male fertilizes the eggs and carries the embryos in the pouch for two or three weeks, providing them with oxygen and nutrients, and adjusting salinity to prepare them for life in sea water. When the pregnancy comes to term, he expels the tiny offspring, which are independent as soon as they're born.



Chris Bradford/UNEP/Topham

World population



But throughout the world, women tend to live longer...

Life expectancy	Men	Women
World	63.9	68.4
North America	75.3	80.6
Europe	69.9	78.3
Oceania	72.7	77.0
Latin America & Caribbean	69.3	75.5
Asia	66.4	70.4
Arab world	66.1	69.4
Africa	48.8	50.2

Yet this overall gender balance is not reflected in our decision making, whether about the environment, economics or health. Over the past 60 years the number of female members of parliament (MPs) worldwide has increased fourfold, but still only one in five MPs are women...

Women as % of MPs

Developed regions	21.1
Developing regions	15.3
Latin America & Caribbean	20.4
East Asia	19.5
Sub-Saharan Africa	16.2
Southeast Asia	15.8
South Asia	12.8
West Asia	7.6
North Africa	7.0
Oceania	3.2

WORKING

Day in of an Indonesian



2000 sleep

1900-1930 put children to bed, rest

1630-1900 walk to the river, bathe, wash clothes, walk home, pray, cook, feed family, clean up

1600-1630 cut wood for cooking, carry it home

1400-1600 walk back to field with children, work some more

1130-1400 walk home, welcome children back from school, pray, cook, feed family, clean up, rest

The professionals

Everything we do has an impact on the environment, and many believe that women have a greater concern for the world around us than men. So some people argue that if the natural gender balance were reflected in business, industry and the professions, and women were better rewarded, so environmental issues would be better considered.

Women as a proportion of all those working in the non-agricultural

sector is increasing all over the world, but still varies considerably from region to region...

Women as % of industry and services

Developed regions	46.4
Latin America & Caribbean	43.2
East Asia	41.2
Southeast Asia	38.8
Oceania	37.3
Sub-Saharan Africa	35.0
North Africa	20.3
West Asia	20.1
South Asia	17.2

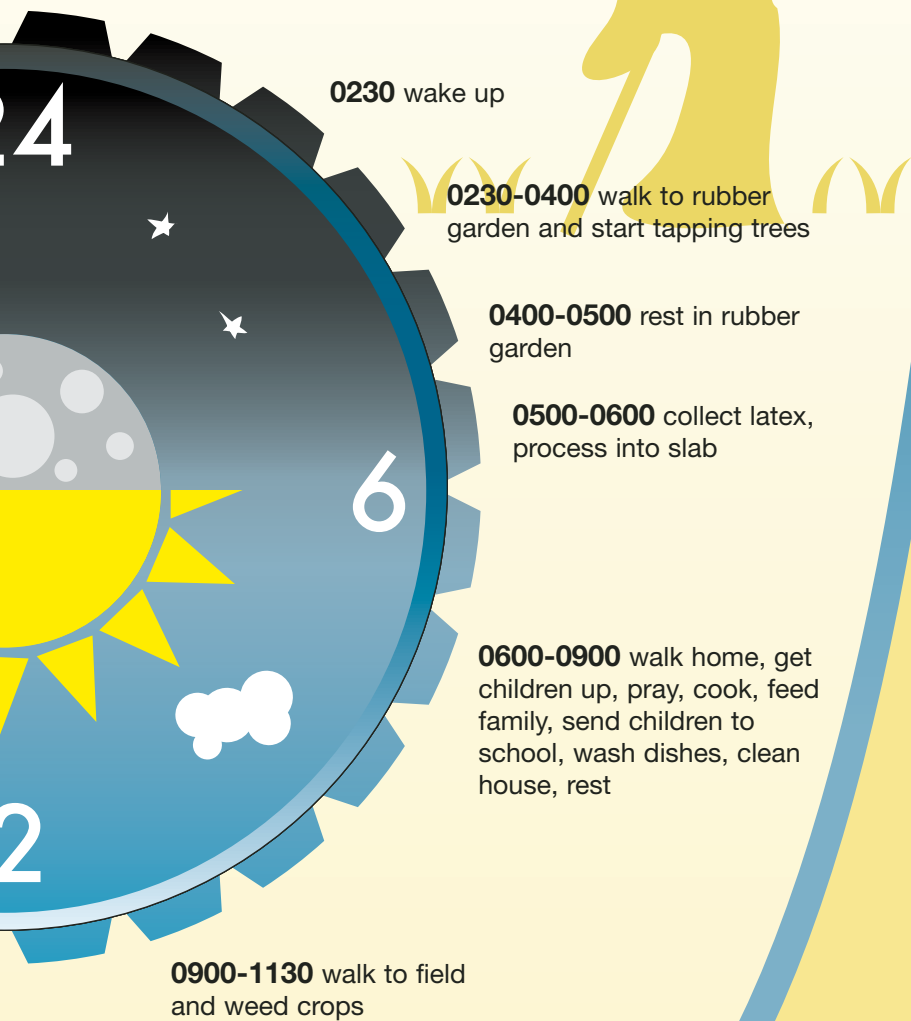
And the proportion of workers who are women varies even more from country to country...

As % of professional/technical workers

Lithuania	70
Philippines	62
Namibia	55
Canada	54
Japan	46
Mexico	40
Saudi Arabia	31
Pakistan	26
Yemen	15

WOMEN

the life woman farmer



Even today, the majority of women have fewer educational opportunities than men, so it is not surprising that fewer are literate. It is changing, but there is a long way to go in secondary schooling in most regions...

	% literate male/female	% secondary enrolment male/female
World	87/77	68/64
Europe & Central Asia	99/96	95/90
East Asia & Pacific	95/88	69/68
Latin America & Caribbean	91/89	84/90
Middle East & North Africa	77/57	71/63
East & Southern Africa	70/56	32/28
South Asia	71/46	54/44
West & Central Africa	69/48	39/29
Sub-Saharan Africa	70/53	33/26

In some places, most commonly in Africa, HIV is more prevalent amongst women than men, hindering their ability to be economically active and look after their families – and their environment...

(selected countries)	% of men	% of women
Zimbabwe	15.6	25.0
Cameroon	4.1	6.8
Rwanda	2.7	3.4
Ghana	1.6	3.0
Papua New Guinea	1.4	2.2
Russian Federation	1.7	0.5
India	1.3	0.5
Brazil	0.7	0.4
Switzerland	0.6	0.3
Colombia	0.9	0.3
Lebanon	0.2	0.1

But women's earning capacity in business, industry and the professions still lags behind men's – even for the same jobs...

Women's earnings as % of men's	
Kenya	90
Sweden	83
China	67
Turkey	61
Belgium	50
Bolivia	46
Nigeria	43
Malaysia	40

And a huge amount that women do – from childcare to cleaning and cooking – is unrecognized as economically productive...

% of women's work unrecognized		
Urban	Colombia	76
	Nepal	75
Rural	Venezuela	70
	Indonesia	65
	Philippines	71
	Bangladesh	65
	Guatemala	63
	Kenya	58

But these activities have direct links to the environment – from the wood cut to fuel stoves, through the growing or buying of food or the water used for washing and drinking, to what we teach our children at home. Valuing women and encouraging them to spread good environmental practice could make a vital difference.

Sources: UNFPA State of the World's Population Report 2006; UNSD MDG Indicators; FAO Fact sheet: Women, agriculture and food security; WRI World Resources Report 2005; UNDP Human Development Report 2006; World Bank Development Data; UNESCO.

No retreat



Xiaoxin He/ARC



Van, Hlek Sopheap/ABE



José Nicolae/Nazca Pictures

Entering a religious community is often seen as retreating from the world. But increasingly nuns and monks are engaged in fighting for the planet.

In July 2006, a new ecologically friendly Daoist temple opened on China's sacred Taibaishan Mountain. The Taibaishan Tiejia temple in Shaanxi Province, which also serves as a centre for environmental education, replaces one lost by nuns and monks during the Cultural Revolution.

Daoists believe that everything is composed of two opposing but interdependent primal forces or energies: yin, symbolized by water, corresponds to night, darkness and feminine energy; yang, symbolized by fire, is masculine and corresponds to day. When they reach harmony, the energy of life is created.

Respect for this equilibrium prohibits Daoists from exploiting nature, and enjoins them to respect and learn from it. So the new temple – built in partnership with the Alliance of Religions and Conservation (ARC) and WWF, the global conservation organization – aims to help educate the world about the environment through this philosophy of balance.

It is just one of the many religious communities around the globe that, far from living isolated lives of prayer and study, work for the Earth. 'Most congregations of religious orders were founded to give moral consideration to people who are marginalized in society,' explains Mary Bilderback, a member of Religious on Water (ROW), an organization of environmentally concerned American Roman Catholic nuns. 'We are now aware that all creation deserves moral consideration.'

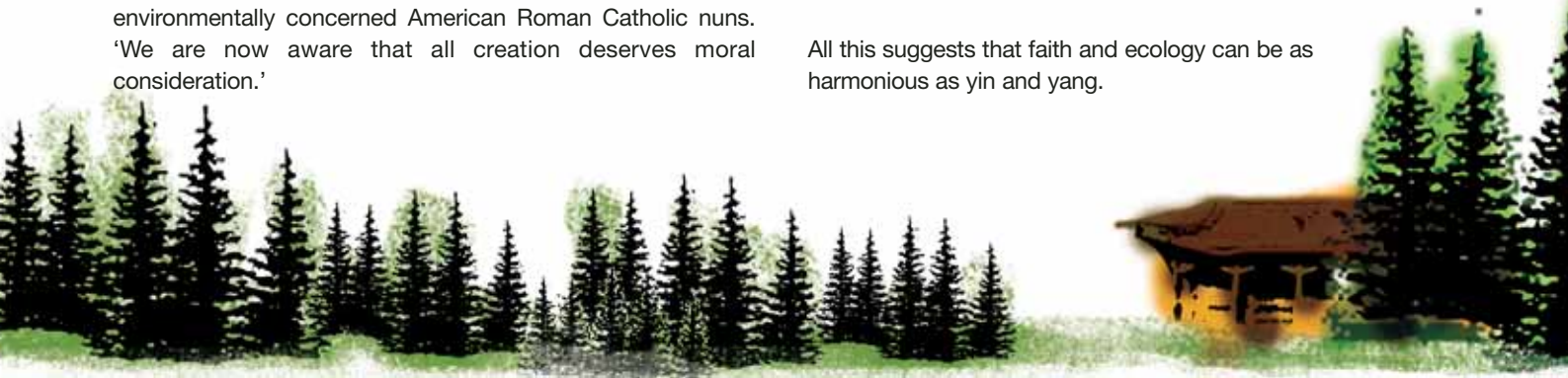
ROW started in 1999 when six religious communities got together and learned about tidal dynamics and coastal issues – and about the role that faith can play in ecological action.

'What happens to water will determine the future of the human and Earth communities in which we live and minister,' says Sister of Charity Carol Johnston. Together with conservation group Clean Ocean Action, ROW has collected thousands of signatures calling for legislation to protect the New Jersey coast and prevent pollution of its waters.

On the other side of the world, members of the Buddhist Sangha (community of nuns and monks) throughout Cambodia recently formed the Association of Buddhists for the Environment, which promotes the preservation of forests, wildlife and wetlands and other natural resources. It constructs water management systems, installs compost bins, and plants and maintains trees and vegetable gardens. People's respect for the nuns and monks encourages them to change environmentally damaging ways.

Greek Orthodox nuns of the Solan community in France are also getting their hands dirty. They cultivate vines and orchards in their 10 hectares of forest, managing it sustainably. They felled selected trees and then planted new saplings so that it is full of trees at different levels of development, and it can sustain the community's fuel needs. The nuns are committed to achieving food and energy self-sufficiency by farming organically and using wood and solar power.

All this suggests that faith and ecology can be as harmonious as yin and yang.



Thinking about everything

BARBARA KINGSOLVER, biologist, journalist and author, is a storyteller *par excellence*. Her writing is filled with dynamic characters and vivid settings, and she is deeply concerned about the environment. A mother of two daughters, Kingsolver has worked for environmental justice and conservation projects since she was a university student. Currently, she lives with her

husband and children on a farm where she grows organic vegetables and makes cheese in between lobbying local and national governments about environmental causes and, of course, writing prolifically.

TUNZA caught up with her and picked her brain about writing, activism, motherhood and the future of the planet.



Steven L Hopp

Q *With your background in biology, how did you end up writing fiction? Why not stick to fact-based writing such as journalism?*

A I've loved stories all my life: reading them, telling them, unravelling their meanings. People read newspapers for information, but literature for wisdom. Studying biology helped me understand the world. Writing fiction is a way of distilling some of the things I've come to understand and believe, and shaping them into a package that fits in a reader's heart.

Q *Most of the main characters in your work are strong women. Do you think women have a unique perspective on taking care of the Earth?*

A Every woman in the world is different. So female characters in fiction, if they're believable, will be just as varied and quirky. I've written women characters who are weak, strong, vain, cynical or ridiculous. But the ones who carry the day, in a story, will be those who remind a reader of the best parts of herself – in fact, in theory, or in the future.

Q *What kinds of environmental activism are you involved in these days? What are your current pressing concerns?*

A I'm involved in environmental work

at the international and national level, in my state and community, and in my household. In a certain way, it's all the same work: owning up to the ways my group is using too many of the world's limited resources, creating too much waste, running up a debt that others will have to pay. And so it's part of the same game plan, whether I am discussing with national leaders the urgency of reducing our country's fossil fuel use, or reminding my fifth-grader to get up in time to catch the school bus because it's wasteful for all the parents to drive kids in separately. We're all in this together.

Q *Your fiction is firmly rooted in places: the Congo in *The Poisonwood Bible*, *Appalachia in Prodigal Summer*, *Arizona in The Bean Trees*. How does your sense of belonging to a place inform your activism?*

A Humans, like every other animal, can only be as healthy as our habitat and our food chain. Each of us is connected to the place where we eat, drink, breathe, submit our wastes to be processed, and displace other creatures to make our homes. Understanding these links is our very first step toward responsible living.

Q *Has being a mother to two daughters changed how you engage with the environment?*

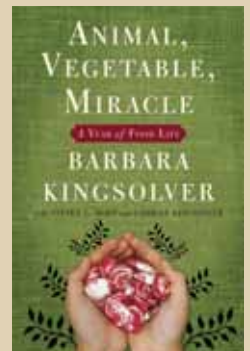
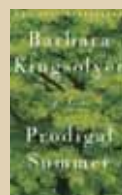
A Before I had children, the future of humanity worried me in an abstract way, like a scary movie. Now, it can make me weep. As I watch my girls growing up into a seriously damaged planet, I have to look at huge horrors like global warming and face them head on.

Q *Please tell us about your forthcoming book, *Animal, Vegetable, Miracle*.*

A Nearly half the fossil fuels we burn in America are spent in the food pipeline, mass-producing food products and shipping them to or from every corner of the planet. This will not be possible for much longer. Our family did an experiment, to see how well we could eat on the products of our own garden and the farms of our neighbours. The result is our forthcoming book, *Animal, Vegetable, Miracle: A Year of Food Life*.

Q *How do you think young people can make the most significant progress in conservation?*

A By thinking about everything they use: electricity, paper, food, water, oxygen. Where does it come from? What got destroyed in order to make it? Once we understand how precious and limited our resources may be, we will honour them by living more sustainably.



Gender issues:

How much do you know?

1. What percentage of the 1.2 billion people living on less than one dollar a day are women?

- a. 50%
- b. 60%
- c. 70%
- d. 80%

2. Indoor air pollution from open fires or smoky stoves causes how many deaths per year?

- a. 1.2 million
- b. 1.5 million
- c. 1.9 million
- d. 2 million

3. In sub-Saharan Africa, women are responsible for which percentage of household food production?

- a. 20-30%
- b. 40-50%
- c. 60-70%
- d. 70-80%

4. How many 15- to 19-year-old girls give birth each year?

- a. 10 million
- b. 18 million
- c. 14 million
- d. 20 million

5. Which country has the highest percentage of parliamentary seats held by women?

- a. Norway
- b. Canada
- c. Belgium
- d. Sweden

6. Globally, how many girls are not in primary school?

- a. 1 in 3
- b. 1 in 4
- c. 1 in 5
- d. 1 in 6

7. Of the 900 million illiterate people in the world, how many are women?

- a. 300 million
- b. 600 million
- c. 400 million
- d. 800 million

8. Which South American country has the highest percentage of girls in secondary education?

- a. Chile
- b. Bolivia
- c. Suriname
- d. Argentina

Answers: 1c, 2b, 3d, 4c, 5d, 6c, 7b, 8c

Super women

UNEP honours outstanding environmental leaders of both genders through its annual Champions of the Earth awards. Female Champions include Julia Carabias Lillo, former environment minister of Mexico, who coordinated a rural development programme in its impoverished peasant communities; Sheila Watt-Cloutier, an activist and Inuit community leader who campaigns about the effects of climate change on the Arctic and traditional ways of life there; the late Dr Rosa Elena Simeón Negrín, who, as Cuba's Minister of Science, Technology and the Environment, was instrumental in raising the environmental awareness of Cubans; and Massoumeh Ebtekar, Iran's first female vice president, who has helped protect marine life in the Persian Gulf and fight air pollution in Tehran.

The Women's Environment and Development Organization (WEDO) – founded in 1990 by former United States congresswoman Bella Abzug and feminist activist and journalist Mim Kelber to bring women together for international conferences and actions – is also a UNEP Champion of the Earth. In 1992, for example, WEDO convened more than 1,500 women from more than 80 countries to help put women's rights and gender equality on the official sustainable development agenda at the United Nations Conference on Environment and Development (UNCED) – proving that, working together, women can accomplish even more than is possible as individuals.

But individual efforts are still crucial, and though women all over the world are devoted to the task, many are unsung heroes. Here are just a few more amazing women with their shoulder to the wheel.

Aila Keto

If it had not been for Dr Aila Keto's efforts, almost 3 million hectares of rainforest in Queensland, Australia, would have been logged or at risk.

Her love of rainforests sprang from growing up on a cane farm near one. She became a research scientist devoted to conservation and co-founded the Rainforest Conservation Society of Queensland in 1982; it is now known as Australian Rainforest Conservation Society and she is still its President.

Through it she helped attain three World Heritage listings for Queensland, including 1.5 million hectares of land in the wet tropics. In 1994, she helped stop all rainforest logging in the state's public lands. And five years later, she helped strike an

Becklectic/Flickr.com





From left to right: Bella Abzug (WEDO); Aila Keto (Keith Scott/Australian Rainforest Conservation Society); Olya Melen (The Goldman Environmental Foundation); Rahat Najam (WWF-Pakistan); Libia Grueso (David Lent/The Goldman Environmental Foundation); Julia Bonds (The Goldman Environmental Foundation); Lucy Mulenkei (MADRE)

historic deal between the timber industry, the conservation movement and local government, preserving 1.25 million hectares of hardwood forests. Her awards include a place on UNEP's Global 500 Roll of Honour.

Olya Melen

Twenty-six-year-old Ukrainian attorney Olya Melen has proved that when it comes to fighting for the environment, passion and courage are what count.

Two years ago she was working at an organization called Environment-People-Law, when the Ukrainian Government planned to create a canal for large ships between the Black Sea and the Danube. It was to cut through the heart of the Danube delta – a network of lakes and rivers covering nearly half a million hectares – designated as a Ramsar wetland of international importance and a UNESCO World Heritage site and biosphere reserve.

Melen challenged the Government's attempt to reverse the area's protected status, arguing that the canal would do major harm to the environment. The judge agreed that the project's environmental impact assessment was inadequate.

Despite this victory, the first phase of the canal's construction was pushed ahead. A new Government administration has now taken over, bringing the project to a standstill. But the delta is not safe yet: President Viktor Yushchenko has said he wants the canal to be completed.

Rahat Najam

For more than a decade, Rahat Najam has been working to protect wetlands in Pakistan. It's an unusual calling for the region and especially rare for a woman. She now works for WWF-Pakistan.

Since it is the women in Pakistani communities who collect freshwater, she decided to teach them about the importance of wetlands. She has also conducted research into waterbirds as indicators of pollutant levels, and helped get three wetlands designated as Ramsar wetlands of international importance: the Indus delta, the world's fifth largest delta with major mangrove forests; the Rann of Kutch, a desert area seasonally flooded by monsoon rains and tides, providing habitat for many bird species; and the Deh Akro-II Desert Wetland Complex, a wildlife sanctuary in a complex of sand dunes and permanent lakes. Together, they total more than 1 million hectares.

Libia Grueso

The jungles of Colombia's Pacific coast are home to more species of amphibians and birds than anywhere else on Earth – and to 3.5 million Afro-Colombians, poor people caught in the crossfire of industrial development and agriculture, civil war, mining and logging. Every year, up to 80,000 hectares of rainforest are destroyed.

So social worker Libia Grueso co-founded the Process of Black Communities (PCN), to advocate for both the rights of Afro-Colombians and environmental protection.

In volatile Colombia, taking this kind of leadership is dangerous; others who have supported sustainable development have been assassinated. But Grueso and others helped the Afro-Colombian community gain territorial rights over nearly 2.5 million hectares. The PCN has since successfully challenged oil palm plantations, logging and industrial shrimp farming, which harms local mangroves. It is encouraging traditional farming and helping communities to be self-sufficient.

Julia Bonds

When Julia Bonds' six-year-old grandson pulled handfuls of dead fish from a mining-polluted stream in West Virginia's Coal River Valley, she knew it was time to take action. She now directs the Coal River Mountain Watch, which fights the devastating effects of blasting mountains in the United States' Appalachians to get at coal seams.

The blasting fills the air with particles that cause respiratory disease, and pollutes drinking water with arsenic, mercury and lead. Debris from the exploded mountaintops has buried 1,600 kilometres of streams and more than 120,000 hectares of forests. And flooding has increased as soil and vegetation have been removed.

Now Bonds devotes her time to monitoring mining companies for violations, representing communities near mining sites, and campaigning against hazards associated with mining. Often threatened, she has helped get operations suspended at a polluting mine and won protection for communities from mine blasting. She, like Olya Melen and Libia Grueso, has received a Goldman Environmental Prize.

Lucy Mulenkei

Kenyan journalist and grassroots organizer Lucy Mulenkei gives indigenous people concerned with their environment a voice. She runs the Indigenous Information Network in Nairobi, which twice a year publishes *Nomadic News*, covering the concerns of Africa's hunter-gatherers, nomads and other indigenous peoples. The Network organizes workshops where people exchange information and work out positions for international conferences, and coordinates workshops on biodiversity conservation.

Clyde H Smith/Still Pictures





www.unep.org/women_env

If you've ever wished to know about women active in protecting the planet, look no further than UNEP's Who's Who of Women and the Environment. Launched on International Women's Day, 8 March 2006, www.unep.org/women_env identifies – and pays tribute to – women in the forefront of the battle for sustainable development, and provides a valuable networking resource. At present, the site includes 199 women from 49 countries, from decision makers such as Sweden's Environmental Ambassador Viveka Bohn to scientists such as Dr Chan Eng Heng – a professor who leads

grassroots marine turtle conservation projects in Malaysia. It also includes women who first entered the fray as young people, like HRH Princess Basma bint Ali of Jordan – the founder and chair of many environmental non-governmental organizations, who was nominated as a Hero for the Planet by *Time* magazine – and Canadian activist Severn Cullis-Suzuki who spoke for youth at the 1992 Rio Earth Summit.

UNEP wants it to become a fully comprehensive directory, and new nominees are always being considered. If you think someone who isn't on the list should be there, use the form on the website to nominate her. You can even nominate yourself!

Greening their valley

Bayer Young Environmental Envoy Renny Turangga reports on the success of a group of young people determined to improve the farming methods of their community in Indonesia.

‘When my father was young carrots tasted sweet, but after years of using chemicals, they had lost their flavour. So we are trying to grow our dream carrots: healthy and sweet,’ explain Winarto and Suayatmi, two members of a pioneering organic farming group in East Java, Indonesia.



Renny Turangga

Like most people of Wonomulyo village, Suayatmi, 21, farmed using fertilizers and pesticides. But she was concerned about hazards to children's health and long-term effects on soil. When volunteers from the Gerakan Peduli Sekitar Kita environmental care movement held seminars in the village about the benefits of organic farming, Suayatmi and 15 other young farmers decided to give it a try. They named themselves Taruna Tani Bukit Hijau, or Green Valley Farmer's Group.

Suayatmi is one of just two women in the group but she and Mismiati, 14, the group's secretary, are important role models. In Wonomulyo most women are married by their 18th birthday and drop out of school to farm with their husbands. Neither Suayatmi nor Mismiati are married and they are proving to the village that women can be agents of change. They hope their role in the group will encourage women farmers to join.

Despite ridicule from other farmers who thought that using organic fertilizers and pesticides was a waste of time and money, Taruna Tani Bukit Hijau sowed a pilot carrot crop. Eventually, older farmers (usually parents or relatives of group members), convinced by the youngsters' enthusiasm and sincerity, supported them by lending land and labour.

When the first carrots were harvested, everyone celebrated. Although the process was long, in the end the organic carrots sold for more than conventional ones.

In East Java's mountainous farmland, machines like tractors are rare. The fields are worked using hoes, shovels, and elbow-grease, with farmers having to constantly climb up and down near-vertical hills. Wives join their husbands, working together to earn enough money to feed their families and pay for their children's schooling.

Learning how to farm organically takes training. Gerakan Peduli Sekitar Kita hosts courses for young farmers on topics like how to make organic fertilizer and how to implement an organic farming system.

Taruna Tani Bukit Hijau is still trying to grow the best and healthiest organic food. Plans for planting cabbages and onions are in the works. They know there's a long way to go but they have big dreams to achieve.

What's cooking?

Everyone eats food, but almost always it is women who cook it. And for the world's poor it is usually a time-consuming, laborious and dangerous business.

It starts with collecting the fuel – the wood, plants, dung and charcoal – on which 2.5 billion of the world's people depend for their energy. That often involves carrying back-breaking loads many hours a day, mostly for cooking, which takes up 85 per cent of the energy burned in developing country homes. It also often contributes to deforestation.

Once the fires are lit, toxic smoke – containing a cocktail of deadly chemicals – builds up in poorly ventilated buildings, causing cancer as well as respiratory and eye diseases. More than 1.5 million people – mainly women and children – die every year as a result.

Renewable energy offers a solution. Solar cookers that concentrate the sun's rays were invented in 1767, but are only now coming into their own. At least half a million of them are used in China, South Asia and Africa. With sunlight and a domestic box cooker, enough rice to feed a family of five can be cooked in 45 minutes. Solar panel cookers are being manufactured in Kenya for just \$2, and in India box cookers are constructed out of reused cardboard. Best of all, they are emission-free.

Mixing cow dung, sewage, water and compost may seem gross to some people in developed countries, but in the developing world it is a matter of making the best use of



B Rajan Babu/UNEP/Topham

available resources. Purpose-built tanks, covered tightly and stirred occasionally, produce biogas (70 per cent methane and 30 per cent carbon dioxide) for cooking, and leave behind potent compost to enrich vegetable plots and fields. A million people in Nepal use it every day. Biogas burns cleanly – no greenhouse gases here – and is safer than an open hearth because the stove is turned off when not in use.

Storing food can also be a nightmare in hot areas where there is no refrigeration. Dehydration is one solution: drying fruits and vegetables enables them to be stored for months and then quickly rehydrated for use. Indian scientists are working on harnessing geothermal energy for the purpose: heat and steam, escaping from naturally occurring vents in the Earth's crust, are piped to farms, augmenting solar heat. Communities can then eat their produce all year round and sell the surplus.



Elissa Smith, Tunza Youth Advisor for North America, describes how she became dedicated to protecting the environment.

Lake Erie no longer freezes over as it did when I was a child growing up in the Great Lakes region of Canada. My father's fruit farm and my mother's maple bush near Niagara Falls are not as productive as they were. The trees are heat stressed, new pests are migrating northwards and the growing season is changing. It is this first-hand experience of climate change that keeps me working to fight it.

I first got involved in environmental issues in high school, when I tried to

learn as much as I could and to live as sustainably as possible. Then I took my activism to the national level by participating in environmental campaigns. My particular goal was to strengthen the Canadian climate movement by increasing youth participation in decision making.

Eventually I found myself president of the Canadian Youth Environmental Network – representing over 300 environmental youth organizations – and chair of the Sierra Youth Coalition. From there, I became interested in the global perspective – and jumped at the chance to serve as a Canadian youth delegate to a number of United Nations conferences, including the United

Nations Commission on Sustainable Development.

I continue my role as chair of the Sierra Youth Coalition, Canada's largest youth environmental non-profit organization, and work online as blogmaster for <http://itsgettinghotinhere.org>, a community project created by leaders of the global youth climate movement. We receive about 2,000 readers a day.

As a Tunza Youth Advisor, I relish the opportunity to make connections with like-minded people around the world. It can be a struggle to balance full-time community development studies with activism. But it's well worth it to help create a more just and sustainable future for generations to come.

TUNZA DEDICATION

Bridging the generation gap



Kate Chung/Toronto Raging Grannies



Marie Skoczylas/Thomas Merton Center



Marie Skoczylas/Thomas Merton Center

An amazing environmental activist, she tackles industrial polluters without batting an eye. With a will of steel she lobbies governments and petitions ceaselessly. A megaphone and banner are never far from her grasp. She wears a green cape with 'Enviro Woman' in gold sequins...

Actually, she's more likely to wear bifocals and carry a cane. She could also be your grandmother.

Grannies – and older women in general – are fighting for the environment as never before. They head pressure groups and lead campaigns, as both professionals and interested amateurs. They are usually free of raising children, and have the time and energy to devote to environmental causes. Like young people, they flout conventions and ask challenging questions, but by virtue of their age and acquired wisdom, they also have credibility.

'She can say things so that people understand her intellectually, and don't want to hit her,' says a friend of Wilma Subra, a chemist and grandmother who helps communities fight polluters along a 140-kilometre stretch of the Mississippi River known as Cancer Alley, where toxins from the chemical and fertilizer plants along the river leach into soil and drinking water. Subra supports local clean-up campaigns by providing facts based on scientific analysis, and helps people draft environmental management proposals.

Then there is Raging Grannies International, an association of women over 55 who turn the idea of 'nice little old ladies' on its head. Dressed in 'granny gear' – flowered hats, cardigans, frumpy dresses and aprons – they sing satirical songs against degradation and social injustice. Started 20 years ago by a group of women in Victoria, Canada, it provides a network of Granny Gaggles across North America, as well as in Australia, Greece and the United Kingdom.

The Grannies embrace non-violence but are not above a little guerrilla action to get their points across – climbing fences to get into VIP areas or swarming around targeted politicians. Their strength lies in their numbers and their sheer audacity: it is hard to ignore a group of behatted women singing loudly, often off-key, about deforestation.

Other older women have fought for the toughest of environmental issues. Theo Colborn did much of the pioneering work both in identifying and in campaigning against 'gender-bender' chemicals. And decades of campaigning by elderly widow Nancy Tait brought a worldwide industry to its knees after her husband died of an asbestos-induced cancer.

And this is not just in the developed world. When Fatima Jibrell, now in her 60s, returned to her native Somalia in the mid-1990s, she found increasing desertification. Charcoal was being

made out of acacia trees as much as 500 years old, in kilns fuelled by vegetation that could have been used to feed grazing animals. She established the Horn of Africa Relief and Development Organization to tell people about the environmental consequences of charcoal production, and trained young people as her ambassadors.

Jibrell's campaign is ongoing. She teaches women and youth in desertified areas to conserve water by building small rock dams to slow run-off during the short rainy season.

Recognizing the link between resource management and peace, Jibrell helped found the Buran Rural Institute. In May 2001, young people from the Institute formed a Camel Caravan and travelled through a nomadic area teaching people about livestock and resource management, health care and peace. 'If we can teach people to work together and respect each other's rights, we can convert violence into peaceful cooperation,' Jibrell explains. 'Women have an important role to play in this. If we succeed, the tensions, war and violence will quickly diminish.'

Granny-action and youth activism are pretty similar, actually. But just imagine what could be accomplished were young and old to band together...



Poor, but rich...

They call it the Kerala phenomenon. At first glance, the southern Indian state seems typical of the developing world – poor, overpopulated and agrarian. Yet its high literacy, low infant-mortality and falling birth rates put it on a par with the developed world. How come? There are many interrelated issues, including Kerala's long-standing tradition of matrilineal inheritance, but three in particular seem to be at the heart of the achievement. Literacy, female health, and locally appropriate solutions to problems of poverty have together helped raise the state to what one anthropologist calls 'the Mount Everest of social development'.

Kerala's impressive literacy results from intensive campaigning. Primary school networks were expanded and made affordable outside urban centres. Rather than bringing illiterate adults to school, the state took literacy to them in the countryside, holding classes in cow sheds and rice paddies, on the seashore and in tribal hill areas. Volunteers worked with leprosy patients and collected eyeglasses for the poor sighted to help them read signs. Just 13 months after starting a pilot project, 96 per cent of the people in the trial region were literate. The cost? Just \$26 per person.

Women and girls are the greatest beneficiaries. Schooling enables girls to make informed choices about their futures, and gives them marketable skills. Women with an elementary education have two fewer children than those without, and they and their children live longer and are healthier. In Kerala women tend to marry later than India's national average of 18, and they have fewer children. In 2001 the state's

birth rate fell to 14 live births per 1,000 women, below the level at which the population replaces itself.

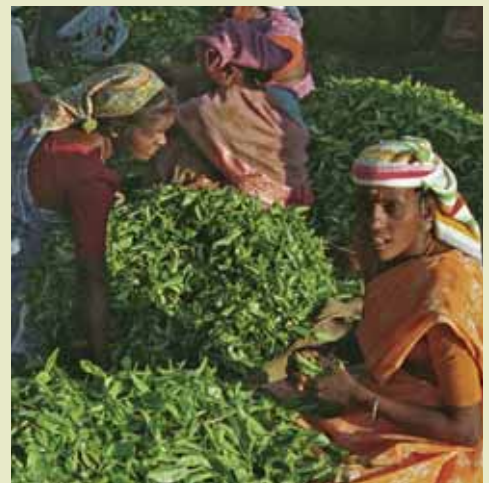
Kerala has also invested in affordable health care. Community clinics dot the landscape, dispensing free birth control and teaching new mothers about breastfeeding and nutrition. As a result, infant mortality is a low 12 per 1,000 live births. The state is also one of the rare places in the developing world where more girls are born than boys, indicating that girl babies are as highly valued as boy babies.

Then there is its unique People's Resource Mapping Project, designed to move beyond word literacy to land literacy. Villagers and topographers work together to create detailed maps of local soils, proximity to the water table and topography. As it is usually women and children that work the land, their literacy and participation are crucial to its success. Once the map is created, villagers can make informed choices about what to plant and how best to rotate their crops, whether to divert a stream for irrigation, and where to plant trees to prevent erosion. Sustainable agriculture is an essential part of creating small economies that both empower and enrich local communities, and tread lightly on the Earth, minimizing environmental degradation and waste while using fewer resources.

Amartya Sen, the Nobel-winning economist, describes human development as advancing the richness of human life, rather than the richness of the economy in which human beings live. Kerala is a real-world example.



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Seven women

who changed environmental thinking

MICHIKO ISHIMURE

In the 1950s, Japanese poet Michiko Ishimure heard of a mysterious disease that was plaguing the people of the fishing village Minamata. Victims suffered convulsions, numbness and difficulty speaking, often falling into a coma and dying. Ishimure visited the local hospital and was sickened by what she found, chronicling the horrors of the disease in *Pure Land, Poisoned Sea* (1968), and bringing the issue to the nation's attention. Researchers knew by 1959 that the disease was caused by mercury from a local chemical plant, but it took nearly a decade before this was officially acknowledged. Besides shedding light on the tragedy, Ishimure helped show humanity's effects on the environment – a remarkable achievement, especially given the subservient role women then played in the country's society.



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JANE GOODALL



Michel Gunther/BIOS/Still Pictures

The primatologist Jane Goodall changed her field by living among chimpanzees in a remote part of Tanzania, and gaining their trust. She discovered that they hunted and ate animals including monkeys and small pigs, rather than being primarily vegetarians, as was once thought. She saw them making and using tools and exhibiting violent and warlike behaviour with one another, and she insisted that animals have distinct personalities and emotions. Her discoveries forced scientists to reconsider what sets human beings apart from other animals, as these characteristics had been thought to be uniquely human. The Jane Goodall Institute for Wildlife Research, Education and Conservation runs a youth programme called Roots & Shoots, active in nearly 100 countries.

GRO HARLEM BRUNDTLAND

Under Gro Harlem Brundtland's leadership, the World Commission on Environment and Development first defined 'sustainable development' in 1987 as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. A physician, she began to recognize – while studying at the Harvard School of Public Health – that health, human development and the environment are all interconnected. On return to Norway she worked in the Ministry of Health, and served as its Minister of the Environment before becoming its youngest-ever and first woman Prime Minister in 1981. She was also the first woman to be appointed Director General of the World Health Organization.



Hanne Hvattum

Wangari Maathai, 2004's winner of the Nobel Peace Prize, founded the Green Belt Movement – a grassroots organization that has helped women plant more than 30 million trees, thus empowering them, improving the environment and creating a better quality of life by providing a readily available, sustainable source of fuelwood. In the process, she says, 'women have become aware that planting trees or fighting to save forests from being chopped down is part of a larger mission to create a society that respects democracy, decency, adherence to the rule of law, human rights, and the rights of women'. She has practised what she preaches, campaigning for democracy and human rights in Kenya, despite being imprisoned and beaten up.



William Campbell/Still Pictures



Friends of the Earth (Hong Kong)

A green revolution is beginning to take place in the world's most populous nation, and Mei Ng is one of its instigators. China is often attacked in the West for its gross pollution and its rapidly increasing carbon dioxide emissions, but it is also doing more about them than any other nation has done at this stage in its industrialization. Mei Ng, the Director of Friends of the Earth (Hong Kong) has been helping to catalyse the country's budding green movement since 1992, travelling 26,500 kilometres to 15 provinces, and touching over 860,000 people. In 2000 she was both elected to the UNEP Global 500 Roll of Honour and appointed China's Environment Envoy.

Voluble, eloquent, restless and passionate, Vandana Shiva is one of India's leading alternative voices on the environment and sustainable development. A physicist and ecofeminist, she established the Research Foundation for Science and Ecology in 1982, and has long been a champion of organic agriculture and farmers' rights, and one of the country's leading campaigners against biopiracy, globalization and genetically modified crops and food. In 1993 she received a Right Livelihood Award (dubbed the Alternative Nobel Prize) for 'placing women and ecology at the heart of modern development discourse.'



Nic Paget-Clarke



IISD/Earth Negotiations Bulletin

Deforestation of the Amazon has diminished since Marina Silva, a fiery rubber tapper's daughter, became Brazil's environment minister. Born in the forested state of Acre, she had no formal schooling until she was 16, but finally won her way into university by studying at night while working as a maid. She battled for the rainforest alongside the rubber tappers' leader, Chico Mendes, whose assassination in 1988 made him a worldwide martyr, and at 38 she became her country's youngest ever senator. As minister she has persuaded the Government to seize illegally cut logs, close down illicit enterprises and fine and imprison offenders. In recognition of her work in defence of the environment, Marina Silva is a Champion of the Earth 2007.

together...

we can take **BETTER** care of the Earth