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*19 cities, towns and municipalities
honoured with Europe's
first climate award.*

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THE CLIMATE
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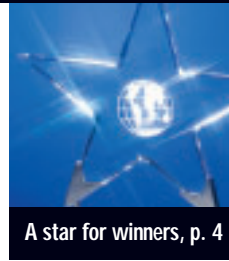
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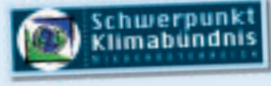
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A PLEASANT CLIMATE FOR LOWER AUSTRIA.



Provincial Governor
Dr Erwin Pröll

The Climate Alliance concerns everyone of us; no one can opt out of the responsibility we have for our planet. The good thing about the Climate Alliance is that everyone, regardless of age and circumstances, can contribute to the protection of the climate every day.

If we do not succeed in stopping the climate change, one day our children and grandchildren will hold it against us. This is why Lower Austria, with more than 200 member municipalities, shows so much commitment to the Climate Alliance.

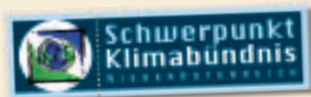
For us, it is important to bear international responsibility in the context of the Climate Alliance. We also help protect the world's



Councillor for Environment Mag
Wolfgang Sobotka

largest habitat, the Amazonian rainforest. We support small-scale cultivation in the huge rainforest area, sustainable resource management of natural resources by the indigenous peoples, and responsibility towards the extensive fauna and flora.

Small-scale cultivation is also our goal in Lower Austria. We want to strengthen domestic production, make sure that the distances travelled to supply people's needs are not longer than necessary, and give a fresh impetus for a sound economic development and stability in the social fabric.



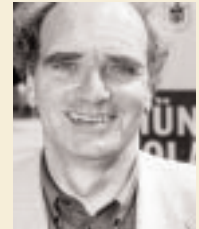
Climate protection can only be successful if people in towns and villages join in, commit themselves to finding individual ways for their municipalities, and develop new ideas. Many of our more than 200 Climate Alliance municipalities as well as many municipalities in the European Union and the membership candidate countries have shown great enthusiasm for climate protection. The Climate Star award puts those into the limelight who have spearheaded climate protection. This is our way of saying "Thank you."

Provincial Governor
DR ERWIN PRÖLL

Councillor for Environment
MAG WOLFGANG SOBOTKA

1,000 STARS ON THE HORIZON.

Cities, towns, and communities are in the vanguard of climate protection.



Joachim Lorenz,
Climate Alliance/
Alianza del Clima e.V.,
deputy chairman

This summer's disastrous floods bring it home to us: the protection of world climate is essential for our future.

The Kyoto Protocol can only be a first step. A drastic reduction of greenhouse gas emissions, especially CO₂, requires greater efforts. In the Climate Alliance, European cities, towns, and communities

Climate Star 2002
the european award for
local climate protection activities



co-operate to achieve goals of vital importance: protection of the climate, sustainable development, and fair relations between north and south. Our initiative is based on local approaches, and the partnership with indigenous peoples from Amazonia adds a global perspective to our alliance. How much has been achieved in climate protection on the municipal level ten years after the foundation of the Climate Alliance? What is the commitment of the more than 1,000 member municipalities? How effective are measures for the reduction of greenhouse gas emissions on the local level? Taking into account all these questions, an international expert jury has awarded the Climate Star, the first European award for local climate projects, to 19 outstanding projects.

As the need for concerted climate protection measures becomes more urgent and cities and municipalities have to face an increasingly difficult budgetary situation, we think that governments must increase their support for local climate protection measures. It is a declared aim of the Climate Star award to underline the need for further concerted action on a local, national, and international basis.

I especially wish to thank the Councillor for Environment Wolfgang Sobotka for his exemplary climate protection initiatives and his contribution to the successful staging of the first European Climate Alliance award.

JOACHIM LORENZ, Climate Alliance/Klimabündnis/
Alianza del Clima e.V., deputy chairman



" WE MUST ACT. "

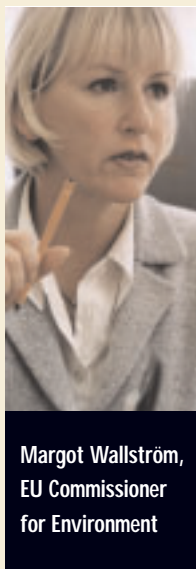
The European Union has a special responsibility for fighting climate change, says EU Commissioner for Environment Margot Wallström (Sweden). To her, the EU enlargement is a major opportunity for the environment and the climate.

U&G: How important is fighting climate change for the EU?

WALLSTRÖM: Climate change itself and its potential impacts bear high risks. From what the scientists tell us, these would mostly affect developing countries, where the poor are more vulnerable to the effects of climate change.

Future generations – our children and grandchildren – would pay a heavy price if we decided to sit on our hands and do nothing. Don't forget that climate change also poses economic risks. The floodings in Europe during this summer illustrate the kind of events that will become more frequent as climate change happens. If we don't act now, we will have to make even greater and more costly efforts in the future to put things right.

The European Union has a special responsibility for fighting climate change. It is being watched closely from all corners of the globe to see whether it lives up to



low, and even turn climate change into a business opportunity. The ECCP (European Climate Change Programme) demonstrates the Commission's commitment to applying cost-effective measures for reducing greenhouse gas emissions. Our list of measures also shows that different sectors, and portfolios, will have to share

its leadership credentials. We therefore need to fulfil our obligations in the first commitment period of the Kyoto Protocol – and beyond.

U&G: How difficult is it for the EU to perform well here?

WALLSTRÖM: I am personally convinced that we can keep the implementation costs of the protocol very

the burden of Kyoto. And that's an important point.

U&G: Ten new member states will join the European Union in 2004. What will be the effects on the EU's environment policy?

WALLSTRÖM: The path has at times been rocky. But, looking back, a lot has been achieved since the accession negotiations on environment were launched. One of the requirements for accession is that candidate countries must adopt and implement all of the Union's legal acts, among them around 270 on environmental issues. Putting these laws into practice can be expensive, particularly so in the candidate countries, where environmental protection has not been a priority in the past. According to European Commission estimates, the ten central and eastern European candidate countries have to invest between 80 and 110 billion euros to comply with EU environmental requirements. All this brings along great opportunities for the accession candidates, the Union, and the climate. ■

A STAR FOR WINNERS. *Hand-blown crystal glass, high gloss finish – this is the star-shaped sculpture awarded to the winners of the Climate Star competition 2002.*

WHY A STAR? Wolfgang Sobotka, Lower Austrian Councillor for Environment and host to the 2002 Climate Star award ceremony, regards stars as "the symbols of orientation." To Mr Sobotka, the sculpture is clear and pure, and perfectly represents the idea of protecting our precious environment. The logo of the Climate Alliance, a stylized globe, adorns the centre of the sculpture.

Kurt Zalto, master glass maker at Glashütte Zalto in Neu Nagelberg, crafted the glass sculptures, which are mounted on a marble socket with solid silver fittings. His vision: "I wanted the Climate Star to look modern, clear, and translucent." ■

CLIMATE & Alliance



A STAR WITH A FUTURE.

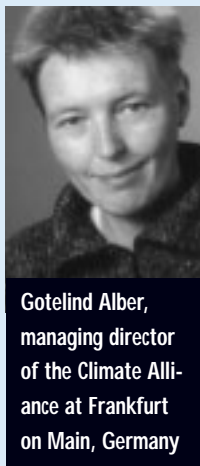
Gotelind Alber, the managing director of the Climate Alliance at Frankfurt am Main, Germany, takes stock of the Climate Star's first conferment.

U&G: Who is the Climate Star award designed for?

ALBER: The Climate Star is the first European award for local actions for climate protection and it is designed for all cities, towns, municipalities, and districts within Europe. We issued invitations to all potential participants in March this year. The Climate Alliance was supported by city and community associations like the Sustainable Cities & Towns Campaign, Energie-Cités, Eurocities and the Union of Baltic Cities. I would like to say a hearty thank you for their support.

U&G: Are you pleased with what has been achieved?

ALBER: Yes, indeed I am. And I am pleased that small municipalities applied as well as big cities did. 102 cities, towns,



Gotelind Alber,
managing director
of the Climate Alliance
at Frankfurt
on Main, Germany

Climate Star 2002
the european award for
local climate protection activities



districts, and municipalities from 13 countries submitted comprehensive applications. 25 of the applicants were municipalities with up to 10,000 inhabitants, 39 with up to 100,000 and another 39 with more than 100,000 inhabitants. **U&G:** Was there a main focus on any specific field of climate protection? **ALBER:** The submitted projects covered energy, mobility, land management, and north-south cooperation. The most represented sector was energy with a total of 65 applications of which 37 deal with sustainable energy. It is especially rather small municipalities that focus on this field of action. 15 of the admitted projects in this cate-

SPOILT FOR CHOICE.

A jury of six international experts has chosen 19 outstanding climate protection projects to be awarded the Climate Star.

102 municipalities and regions from 13 European countries applied for the Climate Star award in one of the three categories:

- **CATEGORY 1:** up to 10,000 inhabitants (25 applications)
- **CATEGORY 2:** up to 100,000 inhabitants (39 applications)
- **CATEGORY 3:** above 100,000 inhabitants (39 applications)

THE CRITERIA TO JUDGE WERE: efficiency, innovative potential, the widespread effect, applicability, CO₂ reduction, and the potential to serve as a role model for other municipalities.

MEMBERS OF THE JURY: *Wim Kersten* (Netherlands), *Friends of the Earth*, Policy Advisor to the European Parliament

Dr Kora Kristof (Germany), head of the energy division of the Wuppertal Institute for Climate, Environment and Energy.

Prof Dr Stefan P. Schleicher (Austria), Economics Department, University of Graz

Mag cand Henrike Wegener (Germany), European Coordinator of the climate bet "The Bet – European Youth Fighting Climate Change"

PhD Andrzej Wiszniewski (Poland), project coordinator, Ecofund, Warsaw

Mag Silvia Zamboni (Italy), Journalist and former Councillor for Environment of Bologna. ■

gory deal with energy either from sunlight, wind, water, or biomass. The second important sector is mobility, urban planning, and land management with 25 applications. The applications in this sector showed that cities and municipalities seize the opportunity to actively provide for climate protection and sustainable city planning. All of the submitted projects in this field indicate the tendency that municipalities initiate bundles of specific measures which are more than the sum of their parts.

U&G: What are the prospects for the future?

ALBER: Climate change and climate protection will be dominating subjects in this century. As soon as the Kyoto Protocol comes into effect, climate protection will be compulsory at all levels of policy-making. Many cities, towns, and municipalities have anticipated this development, and they have played an important role in climate protection. In the future, we must go one step further. To achieve "climate protection mainstreaming", we have to take into account climate protection whenever we make planning and investment decisions. These experiences and solutions should, which now still may seem unusual, become a household name in municipal policies. As an award with a future, the Climate Star is an important step if we want to rise to this challenge. ■



Wolfgang Mehl

WOLFGANG MEHL,
head of Climate
Alliance Austria

"The 2002 Climate Star awards in St. Pölten, Austria,

are to internationally honour all the efforts Austria, its regions and municipalities have undertaken to protect the climate internationally. The Climate Star is the most important award of this kind; a real chance for climate protection." ■

" WE PIN OUR HOPES ON THE CLIMATE ALLIANCE."

The Climate Alliance concerns everyone, and we can all contribute to the protection of the climate, says Wolfgang Sobotka, Lower Austria's Councillor for Environment.

The Climate Alliance is a crucial factor in Lower Austria's ecological policy and contributes to its success. While carbon dioxide emissions are still on the increase throughout Austria in general, significant successes have been achieved in the province of Lower Austria. "Despite the fact that the economy is growing and traffic is increasing, we have been able to reduce the emission of CO₂ by 500,000 t per year. This is the achievement of those Lower Austrian municipalities that are members of the Climate Alliance and



have made great efforts for climate protection," says Mr Sobotka, who regards the Climate Alliance as "a tool for obtaining a higher quality of life. It promotes small-scale cultivation of the land. By using sustainable resources from our forests and fields we preserve and even create jobs in our region." This strategy may stop migration out of economically weak regions. In order to reach the goals of the Climate Alliance, Mr Sobotka counts on a wide host of measures in connection with mobility.

These range from model projects that promote public transport in towns to information campaigns on fuel-efficient driving, from double-decker trains for commuters to replacing busy street junctions with roundabouts for free-flowing traffic. Mr Sobotka explains, "This is indeed a diverse mix of measures, and it will take so-

me time until the positive effects on the climate become evident. True success will only come when the use of alternative energy finally gains general acceptance in the fields of building and mobility." Mr Sobotka wants to use all these measures to achieve the Climate Alliance's aims; from increased subsidies for eco-friendly building to an eco-management programme for firms. He says, "20 per cent of the required measures have been taken, 40 per cent are being realized, and another 40 per cent are still awaiting implementation." ■



Wolfgang Sobotka,
Lower Austria's
Councillor for
Environment

THE CLIMATE ALLIANCE IN LOWER AUSTRIA.

The province of Lower Austria has been a member of the Climate Alliance since 1993. More than 200 Lower Austrian municipalities have already joined the Climate Alliance, and half of the population is living in municipalities that are members of the alliance. In 1998, only 36 municipalities comprising 20 per cent of the po-



population were part of the Climate Alliance. In 2000, the provincial government started to grant special 2-year-subsidies to special Climate Alliance target regions. The towns of Bruck, Hainburg and Schwechat and their surroundings in the east of the province were the first ones to form such a region. The town of Bruck has managed to cut CO₂ levels by 50 per cent. Now, the Bucklige Welt-region in the south of the province is about to become the next Climate Alliance Region.

Wolfgang Mehl, head of Climate Alliance Austria, praises Lower Austria for its commitment, "This province's achievements have been outstanding in every aspect."

ECONOMY: The Lower Austrian government supports businesses that open up internal processes to scrutiny – from acquisition to waste disposal. Such systems of environmental management often reveal promising potentials for improvement and for saving energy and money. Launched in 1998, the eco-management programme is designed to "initiate a constant upswing for Lower Austria", say Councillor for Environment Wolfgang Sobotka and Councillor for Economy Ernest Gabmann. The multi-layered framework is also open to schools and the provincial administration.

MOBILITY: Cars will remain the most frequently used means of transport in rural areas. This is why councillor Wolfgang Sobotka wants to bring about a "change of behaviour and with this a change of values: "traffic reduction" must become a household name like separate waste collection or energy saving."

An initiative was started to promote economical, and thus ecological, driving. Fuel consumption is expected to decrease by 20 per cent, which is equivalent to 20 million litres and 50,000 t of carbon dioxide emissions per year, subject to decent participation. Mr Sobotka states, "Economical



driving brings advantages for everyone. Environment and road safety benefit greatly and, last but not least, eco-conscious driving fattens everyone's purse."

HOUSING: The province of Lower Austria has amended its legislation on subsidies for residential construction. In order to receive financial support, buildings have to meet high ecological standards. The centrepiece is a mandatory energy indicator, explains Lower Austria's Vice-Governor Liese Prokop. Only energy-efficient buildings with controlled ventilation whose energy index does not exceed 60 kWh/m² per year will be granted subsidies. Extra money is granted for special

energy saving measures like installing solar collectors and improving thermal insulation.

AGRICULTURE: In Lower Austria there are about 3,100 organic farms. About nine per cent of Lower Austrian farms employ organic farming techniques, making the province a leader in this field within the EU. An initiative on ecological gardening has been launched by the provincial government. Mr Sobotka explains, "Research has shown that many gardens are plainly over-fertilized and over-treated with pesticides. The idea of ecological gardening has gained ground quickly in our province and people show great interest." ■



"The Climate Alliance is a tool for obtaining higher quality of life", says Mr Sobotka.

" OUR FUTURE IS AT STAKE. "

Climate change might become this century's pivotal crunch.

THE FUTURE OF CLIMATE PROTECTION IS IN RUSSIA'S HANDS. Only with Russia's support the Kyoto Protocol can become a binding instrument for the reduction of greenhouse gas emissions. Europe and the US are both making efforts to convince Russia of their respective points of view. The outcome of this tug-of-war is still wide open.

Stefan P. Schleicher, chairman of the Austrian Council on Climate Change, explains the importance of Russia's decision, "Only if Russia decides in favour of the Kyoto Protocol will climate protection really begin in earnest." Is the Kyoto Protocol really the panacea for climate change? Is this international agreement on the reduction of greenhouse gas emissions really a universal remedy to prevent disastrous floods in central Europe, irregularities in monso-

on rains in Asia, and the disappearance of Pacific islands? Will it slow down the melting of glaciers and the polar caps; will it spare us from devastating thunderstorms, will it put a stop to extreme heat waves and droughts? To put it in a nutshell: will the ratification of this agreement stop the greenhouse effect?

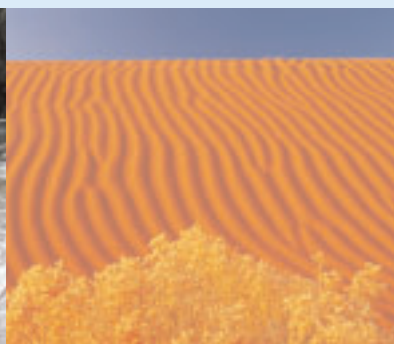
IT IS GETTING WARMER. Climate change, which has long been considered an exaggerated horror vision of over-anxious environmentalists, has undoubtedly become reality. The catastrophic floods in Europe this summer gave evidence of what scientists all over the world have establis-

hed: the temperatures are rising. Helga Kromp-Kolb, professor at the Institute of Meteorology and Physics in Vienna, gives alarming figures for Austria, "The data provided by the Central Institute of Meteorology and Geodynamics in Vienna show a relatively constant rise in temperature of 1.8 ° Celsius over the last 150 years. In higher altitudes, temperatures are rising even faster. Climate change in Austria is above international average – within the same period temperatures have only risen by 0.6 ° C worldwide and by 0.8 ° C in Europe."

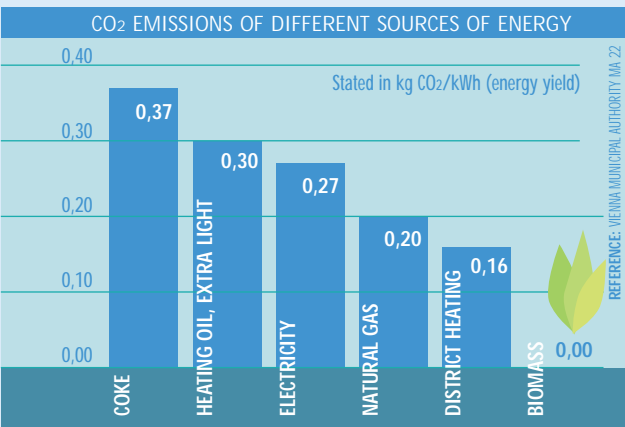
There are several reasons for this dramatic rise in temperature in Austria. One of them is the country's geographical position, says Ms Kromp-Kolb, "The warming process evolves more slowly in coastal areas as the oceans take more time to warm than land does." Wind plays an important role, as well as the fact that three different climatic zones meet over Austria. Ms Kromp-Kolb predicts a rise in temperature of three to four degrees in Austria for the next 100 years. Data provided by the International Panel of Climate Change substantiate this development. Temperatures are expected to rise by 1.4 to 5.8 degrees Celsius throughout the world. Ernst Ulrich von Weizsäcker, former director of the United Nations Centre for Science and Technology and president of



Prof. Stefan Schleicher says,
"Only when Russia decides in favour of the Kyoto Protocol will climate protection really begin in earnest."



Floods, droughts, forest fires – the consequences of the climate change are becoming more and more obvious.



the Wuppertal Institute for Climate, Environment and Energy, speaks of a point of no return, of an irrevocable development. "The winters will become more extreme," says the climate expert Stefan P. Schleicher, professor of thermal engineering in Graz, Styria. There will be stronger precipitation, more disastrous thunderstorms, and a significant rise in temperature. Snow lines will move up to a higher altitude, which will have enormous effects on tourism and thus on the Austrian economy. Traditional ski regions at around 1,200 meters above sea level will be haunted by the fear of uncertain snow conditions. That event tourism is replacing traditional skiing and that snow guns are used 24/7 is a warning sign that indicates a development which is threatening to extend mas-

sively in the future. Old-established ski resorts like the Arlberg region or Schladming in Austria are greatly endangered, says Mr Schleicher.

though the global weather system is extremely complex and not wholly understood, experts say that such a rapid change in temperature is bound to have severe implications for future weather and climate patterns. "We cannot relate these catastrophes to climate change with complete certainty, but the pieces fit together very well," says Mr Schleicher. This may be the reason why today even major insurance companies take an increasing interest in climate change.

Insured damage after winter storms in 1999 was at least twice the amount of money that had to be paid after the

then unprecedented damages in the winter of 1990. The former German minister for environment, Klaus Töpfer, presented a UN study with startling figures for insurance companies at the World Climate Summit in New Delhi in October this year. In the next decade, damages due to natural disasters are expected to cost 153 billion euros every year – this is three times the Austrian national budget. Even the damage caused in 2002 will amount to

71.5 billion euros. Mr Töpfer, executive director of the UN Environmental Programme, explains: "Man-made climate change is already on its way. The poorest parts and the poorest people will suffer most as they have neither the money nor the resources to cope with these developments."

EU Commissioner for Environment Margot Wallström agrees: "From what the scientists tell us, these changes would mostly affect developing and emergent countries, where the poor are more vulnerable to the effects of climate change." Ernst Ulrich von Weizsäcker points out that the countries at sea level will have to



Dr Ernst Ulrich von Weizsäcker says, "The victims are developing countries and countries at sea level ..."

GLOSSARY.

KYOTO PROTOCOL: The Kyoto Protocol is seen as the first milestone of climate protection on an international level. It is an international agreement proposed at the World Climate Summit in Kyoto, Japan, in 1997. In a nutshell the agreement requires the wealthiest industrialized countries to reduce greenhouse gas emissions (below 1990 levels) by 5.2 per cent from 2008 to 2012. The

burden of initial emission reduction rests on the industrialized countries, which have built high standards of living based on fossil fuel use, and which have produced most of the greenhouse gases residing in the earth's atmosphere. The countries can decide whether they want to fulfil the contract by reducing their domestic emission or by trading emissions with other countries. The Kyoto Protocol cannot become a binding law before it has not been signed by at least 55

countries that produce 55 per cent of worldwide CO₂ emissions. Since the US decided to opt out of the Kyoto Protocol, Europe is endeavouring to win Russia over.

GREENHOUSE GAS: Before 1850 human activity had little influence on the amount of carbon dioxide in the atmosphere, but since the industrial revolution concentrations of carbon dioxide, methane, nitrous oxide and chlorofluorocarbons, or CFCs, have greatly increased.

Burning fossil fuels is responsible for most of the increase in carbon dioxide. The upsurge in concentrations of methane is due to gas produced by livestock and rice paddies. If greenhouse gas emissions drop slightly, the average world temperature in 2100 could be 1 degree C warmer than in 1990. But if they increase a lot and the climate proves very sensitive, the rise could be 3.5 degrees C. Scientists think they have uncovered evidence of just such sensitivity.

deal with the effects of climate change, whereas the countries in the north get off "comparatively unharmed. This will create a considerable amount of anger, which will increase as climate change does." Stefan P. Schleicher, delegate of the Austrian Council on Climate Change at the summit in New Delhi, regards these developments as a potential cause for heavy international disputes, "The poor countries know about their situation and seek to defend themselves. In the Pacific region, authorities have started to organize resettlement for hundreds of thousands of people within the next two decades."

HIGH TECH FOR DEVELOPING COUNTRIES . The severest threats for world climate may still be on the cards, says Mr Schleicher, "If China had the same per capita oil-consumption as the US, today's oil production would have to be doubled. This is simply impossible; we would never find that much oil."

Is there a way out? How can we obtain equal opportunities for all? The economist Schleicher says, "We need different economic policies for most of the world's population. High tech is the only way for po-



Sea level is rising because of the global warming – glaciers and polar caps are melting.

orer countries to achieve a long desired degree of prosperity without causing tremendous pollution, which would put us all under pressure." Mr Schleicher calls for a change of paradigms in development aid policy, "Take the Kingdom of Bhutan located

between India and China: small photovoltaic panels on rooftops are used for the generation of energy. This system is far cheaper than energy supply by diesel engines."

Is it the future of development aid to furnish these countries with high tech products from the laboratories of the world's best scientists? "Yes," says Mr Schleicher, "because only the technology of tomorrow gives these countries the chance to develop without depending on coal or oil. There is no alternative if we want to avoid conflicts. And we have to bear in mind that it is our future which is at stake here." It is essential to look for climate-friendly solutions all over the world. There are countless potential starting points and progress can be made in every single area of life.

The 2002 Climate Star competition has presented a wide range of ideas how to make it happen. The EU has good reason for making great efforts to win Russia over: once Moscow will have ratified it, the Kyoto Protocol can enter into effect. Despite all concessions and back-to-back deals, this would be a milestone for climate protection. ■

GREENHOUSE EFFECT: As a car with its windows rolled up on a sunny day keeps the sun's warmth inside the car, carbon dioxide or any other greenhouse gas has the ability to prevent the reflection of solar radiation back out into space. The greenhouse effect is a natural phenomenon. With excessive amounts of greenhouse gases in the atmosphere, the greenhouse effect has expanded to the point that major climate changes are underway. Warmer temperatures will lead to more severe droughts and floods in some places, and, because rapid cli-

mate changes are unpredictable, may lead to some "surprises." And even if people are able to adapt to climate change, many animal species will not. For vegetation the prospect is even worse. Plants and trees will not be able to migrate fast enough to find new habitats as the heat encroaches on their existing territory.

AGENDA 21: The Agenda is a comprehensive plan of action to be taken globally, nationally, and locally by organizations of the United Nations System, Governments, and major groups in every area in

which human activity has impacts on the environment.

Agenda 21, a part of the Rio Declaration on Environment and Development, and the Statement of Principles for the Sustainable Management of Forests were adopted by more than 178 Governments at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil, in June 1992. The full implementation of Agenda 21, the Programme for Further Implementation of Agenda 21 and the Commitments to the Rio principles, we-

re strongly reaffirmed at the World Summit on Sustainable Development held in Johannesburg, South Africa, this summer.

EU CLIMATE POLICY: The EU countries have agreed on reducing greenhouse gas emissions by eight per cent in order to comply with the Kyoto Protocol. The amount of reduction to be reached depends on a country's state of industrial development and the present CO₂ emissions. Denmark has to reduce its emissions by 21 per cent whereas Poland may increase them by 27 per cent. ■



A GLOBAL VISION.

"Local action, global responsibility."

According to this maxim, European Climate Alliance communities support South American project partners in protecting the rainforest in Amazonia. Founded in 1989, the Climate Alliance today comprises communities from 13 European and eight South American countries.

CLIMATE PROTECTION

KNOWS NO BOUNDARIES. It is the contribution of every single person that counts in climate protection. "The climate doesn't end where one's horizon does," says Wolfgang Mehl, head of Climate Alliance Austria. "If we want to fight the greenhouse effect and global warming successfully, we have to tackle climate protection all over the world."

More than 1,000 European cities and municipalities participate in the partnership with indigenous peoples from the Amazon basin.

Decisions in the Climate Alliance are made at the grass-roots level. General meetings are held to agree on policies, important projects, financial contributions, and conditions of membership.



Wolfgang Mehl is proud that in Austria not only big towns and cities but also many small municipalities commit themselves to climate protection. 460 Austrian towns, cities, and municipalities and all nine federal provinces are members of the Climate Alliance. The European Secretariat of the Climate Alliance is located in Frankfurt am Main, Germany.

THE OBJECTIVES. The aim of the Climate Alliance is to preserve the global climate. This involves reducing greenhouse gas emissions to a sustainable level in the industrialized countries of the north, and conserving the rainforests in the south of the planet. By joining, the member municipalities have committed themselves to certain goals, activity areas, and measures.

PROTECTION OF THE GREEN LUNG. With an area of 7.6 million square kilometres, the Amazonian rainforest is the largest in the world. The majority of the world's animal and plant species live in this area, which is about the same size as Europe. Destroying this unique habitat means destroying the means of subsistence for mo-

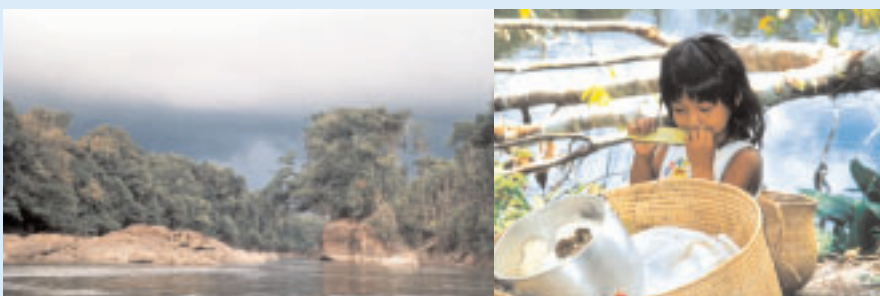
re than 400 different indigenous peoples that live in this region. A number of organizations have been established to represent the interests of the indigenous population. They are convinced that the survival of traditional ways of life hinges on the survival of the rainforest. The partnership between Europe and Amazonia supports projects for the protection of the rainforest and for the improvement of the indigenous peoples' living conditions, for instance the purchase of boats, the installation of a radio-telephone system to enhance communication and to promote the indigenous economy, or support in securing land tenure rights. ■

INFO

THE CLIMATE ALLIANCE IN AMAZONIA.

The COICA (Coordinating Body for the Indigenous Peoples' Organizations of the Amazon Basin) is the European municipalities' partner in the Climate Alliance. It is active in the following countries:

- BOLIVIA** (area: 1,100 km², 8.4 million inhabitants)
- BRAZIL** (area: 8,510,000 km², 176 million inhabitants)
- ECUADOR** (area: 285,000 km², 13.4 million inhabitants)
- FRENCH GUYANA** (area: 91,000 km², 182,000 inhabitants)
- GUYANA** (area: 215,000 km², 700,000 inhabitants)
- COLUMBIA** (area: 1,140,000 km², 41 million inhabitants)
- PERU** (area: 1,290,000 km², 28 million inhabitants)
- SURINAM** (area: 165,000 km², 440,000 inhabitants)
- VENEZUELA** (area: 910,000 km², 24.3 million inhabitants)



Amazonia – the endangered home of the Climate Alliance partners in South America.

CLEAN POWER FOR THE CLIMATE.

Energy is a central issue when it comes to climate protection.

Still, fossil fuels make the western world go round. These fuels, however, are of limited availability and cause CO₂ emissions. Many of the projects that were awarded the Climate Star show alternatives to fossil fuels and demonstrate how to live in comfort without harming the climate.

CHANCES FOR CLIMATE-FRIENDLY ENERGY. In Denmark, wind turbines are generating clean electricity just off the coast of Copenhagen. In Austria, forests produce a surplus of firewood, and in Barcelona

the sun is burning down relentlessly on rooftops covered with solar systems providing hot water. Every region offers specific opportunities to generate green energy. No matter if the power of the sun and the wind or the resources of the forests and the fields are used, there is always a chance to end the dependency on coal, natural gas, and oil without having to resort to nuclear energy.

Everywhere intensive research is being done in this field, but the problem is that the

change from conventional to climate-friendly technologies is not always completely free from risk. Even today this task requires a lot of pioneering spirit, and it may take quite some time until the investments yield profits. Regardless of the fantastic technological advances, great achievements would almost be impossible without state subsidies and initiatives launched by municipalities and provinces.

NETWORKED THINKING. "And apart from that, it's not enough to promote climate protection in one field only," says Susanne Schidler from the Institute of Technology Assessment of the Austrian Academy of Sciences. "It's like a complex machinery: if you take out a little wheel, optimize it, and put it back in its place, the whole machinery will possibly function worse than before." A policy that can rightly be considered sustainable has to be based on networked thinking. Therefore it is crucial to collaborate with those who are affected by the measures taken and to provide comprehensive solutions.

SUCCESS COMES IN SMALL STEPS. A prime example of this is the Danish award-winning project "Dogma 2000 Cities." In this initiative started in Albertslund, five municipalities – among them the capital Copenhagen – have committed themselves to a considerable reduction of CO₂ emissions. They want to achieve this goal through a host of measures: from solar energy, district heating, and cycling initiatives to low energy buildings. Such projects often spark off a sheer wave of positive follow-up developments. The municipal council of Heidelberg, for example, has decided to cover a quarter of the city's electricity demand with certified green energy. A special contract guarantees that the addi-



The Climate Star projects show interesting alternatives to fossil fuels, e.g. wind power.



nal costs for the green electricity are invested in alternative-energy projects, such as photovoltaic systems. In Modena, advanced economical oil boilers save energy and money, which again is used to fund further energy-saving measures.

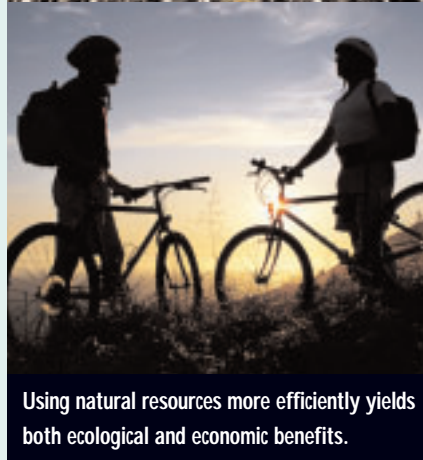
SAVING ENERGY PAYS OFF. This principle also holds true for businesses: in Lower Austria, the provincial government supports enterprises that open up internal processes to scrutiny – from acquisition to waste disposal. Such systems of environmental management often reveal promising potentials for improvement and for saving energy and money.

This proves the calculations that underlie the Factor Four theory of the German scientist Ernst Ulrich von Weizsäcker. An efficiency revolution could at least “quadruple the amount of wealth extracted from one unit of natural resources. This would make environmental protection profitable also for enterprises.” ■

JOINING FORCES TO MAKE A CHANGE.

In Denmark, five municipalities have combined their efforts to fight for the environment. Albertslund, Ballerup, Fredericia, Herning and the capital Copenhagen are collaborating in the project Dogma 2000.

Environmental management for a sustainable city: Albertslund has initiated the cooperative project Dogma 2000, which aims at a close and binding cooperation of municipalities for sustainable development. The costs of the project have been incorporated in the budgets of the municipalities.



Using natural resources more efficiently yields both ecological and economic benefits.

ALBERTSLUND wants to reduce CO₂ emissions by 50% from 1986 to 2010. The town's energy-saving plan provides that residential and industrial buildings be connected to the district heating system. Many additional environmental projects have been implemented. Albertslund has proven to be a pioneering town in the field of energy (in 1983 its solar energy system was the largest in Europe). The town had its district heating plant EMAS certified and makes a great effort to promote environmental protection.

BALLERUP aims at cutting CO₂ emissions by 20% from 1988 to 2005 by concentrating its efforts in various fields: ecologic and energy-saving construction, renovation of buildings, low-energy buildings, solar collectors (from 4 to 75 m² for each house) to supply hot water, new lighting systems for public buildings, natural gas supply, and district heating.

FREDERICIA wants to reduce CO₂ emissions by 20% from 1997 to 2005. A district heating system covers about 80% of the town's heat demand.

In **HERNING**, a waste incineration plant, a landfill gas plant, and a biogas plant produce gas, electricity, and heat. The local district heating system is fired with alternative fuels, such as wood pellets, wood chips, biogas, landfill gas, and straw. The project Safe Cycling intends to animate people to go by bike rather than by car.

COPENHAGEN wants to cut CO₂ emissions by 35% from 1990 to 2010. District heating plants provide 96% of the city's heat supply, and waste incineration covers 26% of the heat consumption. 20 offshore wind turbines, which have become a famous sight, stress Copenhagen's role as Environmental Capital of Europe and contribute 3% of the city's electricity supply. 850,000 t of CO₂ emissions per year have been avoided by changing over to district heating and natural gas and by offering energy advice. ■

DOGMA 2000 FOR MUNICIPALITIES AND THE ENVIRONMENT.

Danish members of the Dogma project:

ALBERTSLUND (29,000 inhabitants),
BALLERUP (46,000),
FREDERICIA (48,000),
HERNING (58,000),
COPENHAGEN (500,000)

■ Awarded with the **CLIMATE STAR IN CATEGORY 3** ■

CONTACT: Ms Susanne Kremmer,
Albertslund Municipality,
Department of Environment,
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e-mail: susanne.kremmer@albertslund.dk



PERPETUUM MOBILE FOR THE ENVIRONMENT.

Modena reduces heating costs for public buildings by using modern condensing boilers.

THE SAVED MONEY IS INVESTED IN FURTHER ENERGY-SAVING MEASURES. Thus, environmental protection finances itself. An experiment carried out seven years ago by the department of energy management of Modena has developed into a programme for the modernization of heating systems in public buildings. 28 outdated heating systems, mostly natural gas boilers, have been replaced by condensing boilers. After six years, the project has turned out to be more successful than expected: the new boilers have helped to save 175,000 euros per year and to reduce the fuel demand by 26%. A large-scale use of these new boilers for urban heating

" MODERN CONDENSING BOILERS FOR PUBLIC BUILDINGS."

- MODENA (178,000 inhabitants), Italy
- Awarded with the CLIMATE STAR IN CATEGORY 3

PROJECT: MODERNIZATION OF HEATING SYSTEMS IN PUBLIC BUILDINGS. 26% of natural gas could be saved by replacing outdated burners. The city administration offers a free advisory service for energy efficiency in buildings and has also established an energy efficiency website and an e-mail service: www.comune.modena.it/impianti/ ■

CONTACT: Mr Sandro Picchiolotto
Energy Manager of the Municipality of Modena
e-mail: sandro.picchiolotto@comune.modena.it

could reduce Modena's natural gas demand by 1,500,000 m³ until 2005. This would cut the CO₂ emissions caused by heating by 2%. ■

A LARGE-SCALE GREEN ELEC- TRICITY PROJECT.

A convincing idea: in Heidelberg, Germany, the city council decided to cover a quarter of the city's energy demand with green electricity.

THIS INTELLIGENT PROJECT YIELDS PROFIT – BOTH FOR THE ENVIRONMENT AND THE CITY. Is it possible to avoid the emission of 4,400 t of CO₂ and save money at the same time? Of course. In spring 2001 the Heidelberg city council decided that a quarter of the municipal buildings' electricity demand should be covered with alternative energy. This amounts to 7 million kWh per year. Thus, the city avoids the emission of 4,400 t of CO₂ and has probably become the biggest buyer of green electricity in Germany. Green electricity costs Heidelberg 325,000 euros more than conventional electricity. The Stadtwerke Heidelberg AG, the city's power supplier, invests this money to promote green electricity or to erect new green power plants. Schools and municipal sports centres benefit most from this project. They

are equipped with photovoltaic systems and the schoolchildren deal with these projects in their lessons. Currently a biogas combined heat and power plant is being built in the zoo of Heidelberg. It will be fuelled with animal faeces, rests of fodder, and fruit waste from juice production, and the plant will also be used for educational purposes. Furthermore, Heidelberg allows private persons to erect communal solar energy systems on the rooftops of municipal buildings. ■

CERTIFIED GREEN ELECTRICITY FOR MUNICIPAL BUILDINGS.

- HEIDELBERG
(139,000 inhabitants), Germany
- Awarded with the CLIMATE STAR IN CATEGORY 3

PROJECT: A quarter of the city's electricity demand, about 7 million kWh, is covered with certified green electricity. The additional money for the green electricity is invested in new green power plants. Buying green electricity under a bundled contract allows for favourable conditions of delivery. Thus the city not only compensates the additional costs of 325,000 euros but even saves 100,000 euros. ■

CONTACT: Mr Klaus Bermich, Amt f. Umweltschutz u. Gesundheitsförderung, D-69117 Heidelberg, e-mail: ralf.bermich@heidelberg.de



A biogas plant is being built in the zoo of Heidelberg. The additional costs for green electricity are for example invested in solar energy.



HERE COMES THE SUN.

Free of charge, emission-free, and available throughout the year, especially in the south: the sun is the most abundant source of energy we know – we just have to tap it.

The sun has become more modern than ever. Buildings planned by sensible architects take advantage of the manifold benefits sunlight has to offer: in winter the sun heats and illuminates the rooms, and in summer the window fronts are protected from the heat. A lot of heating and cooling costs can be saved if buildings are simply facing south.

SOLAR ENERGY FOR HOT WATER. Energy efficiency can be doubled if solar power is also used to provide hot water. "This application of solar energy makes sense in every part of the world. It helps to save an enormous amount of fossil fuels," says Serdar Sariciftci, physicist at the Institute for Chemistry of the University of Linz. Enough subsidies should be granted as to make solar energy attractive also for private households.

A good example in this connection is the award-winning project of Barcelona, where solar water heating systems have been made binding both for new and for renovated buildings. At the same time, Barcelona subsidizes the use of such systems. Another very promising project is the one launched in Kirchberg, Lower Austria, where industrial refuse is used to construct absorbing units for solar collectors.

SUNLIGHT TURNED INTO ELECTRICITY. Mr Sariciftci sees a "really gigantic potential for the future" in photovoltaics, the generation of electricity from sunlight. As of now, this technology is not very wide-

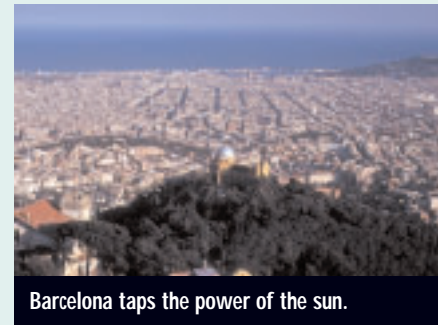
spread because photovoltaic systems are still very expensive. That is because they are based on elaborate silicon cells that were originally used in space research. Mr Sariciftci seeks ways to enable economical mass production of such systems by using plastic cells. He says that the huge future potential of photovoltaics is proved by the lively interest international oil companies take in this technology. The award-winning project of Zwischenwasser, Austria, demonstrates that solar electricity can be profitable even today. ■

SUN-KISSED BARCELONA.

The municipality of Barcelona prescribes the use of the one type of energy that is abundant in sunny Spain almost throughout the year. And what is more, it does not cost a thing.

A VISION BECOMES REALITY. In the future everything in Barcelona will hinge on solar power: whoever wants to build or renovate a house has to cover 60% of the hot water demand with solar energy. The Barcelona City Council prescribes and promotes the use of solar energy. The key legal instrument to achieve this aim is the Ordenanza Solar Térmica, the Plan for Energy Improvement in Barcelona (PMEB).

A consortium called Barcelona Energy Agency implements the PMEB and promotes and monitors its observance. Experts draw up and constantly update a detailed survey on the energy situation. So far, 54 projects have been carried out under the PMEB; some of the public-private initiatives within this partnership have al-



Barcelona taps the power of the sun.

ready been successful, like the project Go Solar for sports centres and schools.

Barcelona's aims are ambitious. The goals the partnership for renewable energy Barcelona Renewable 2004 wants to achieve until the beginning of 2004 include photovoltaic systems with an overall performance of 1.35 MWp, 10,000 m² of solar collectors, biomass for district heating and cooling systems, urban planning and design of buildings along the principles of bioclimatic architecture. Barcelona wants to cover 100% of its energy demand with renewables. ■

BARCELONA GOES SOLAR.

- CITY OF BARCELONA (1,460,000 inhabitants), Spain
- Awarded with the CLIMATE STAR IN CATEGORY 3

PROJECT: Optimization of solar energy – public initiatives become law. ■

CONTACT: Mr Toni Pujol-Vidal, Barcelona Energy Agency, c/Torrent de l'Olla, 218-220, E-08012 Barcelona, Tel: 0034 932914891, e-mail: tpujol@barcelonaenergia.com



Innovative solar collectors made from industrial refuse in Kirchberg – a communal photovoltaic system in Zwischenwasser.

SOLAR COLLECTORS MADE FROM VALUABLE WASTE.

A climate-conscious inventor from Kirchberg an der Pielach, Lower Austria, developed a solar collector made from industrial refuse.



APIONEER OF SOLAR ENERGY. Twenty years ago, Josef Turon, a dentist from Kirchberg in Lower Austria, built a solar water heating system – with his patented solar collectors he ranks among the pioneers of solar

collector technology. These solar collectors are distinguished by the materials used and by the techniques applied to construct them. The heat absorbing surface consists of recycled aluminium sheets, an industrial waste product. These aluminium sheets are pressed together with a copper tube to form a single, composite absorbing unit. The mount and the framing of the solar panels are made of indigenous woods, such as spruce and larch. Sheep wool and cellulose fibres are used for insulation.

ENVIRONMENT-FRIENDLY PRODUCTION. The product is perfect even in the details: the glass covering consists of three parts and can easily be repaired at a low cost, for example if hail damages the collectors. No welding and soldering is required to produce Turon's patented absorbers. The elements are fitted and pressed together exactly and tightly to form a uniform copper-aluminium surface. Should it nevertheless be necessary to dispose of the durable collectors, the materials can easily be separated and recycled. The solar collectors from Kirchberg are suitable for detached family houses, residential buildings, and also for large-scale solar energy systems. ■

photovoltaic system. 364 people bought shares at 72 euros each. This project has inspired the whole region, 16 municipalities have copied the idea.

This year another spectacular initiative has been launched: in April the municipal council could be won over to mount a large photovoltaic system (30 kWp) on the rooftops of two public buildings, to provide advance financing, and to do the administrative work involved. After a short time, climate-conscious citizens had bought all shares at 6,800 euros each. The system went into operation this summer. ■

SOLAR COLLECTORS MADE FROM WASTE.

- **KIRCHBERG AN DER PIELACH** (3,200 inhabitants), Austria
- Awarded with the **CLIMATE STAR IN CATEGORY 1**

PROJECT: Solar collectors made from recycled waste and environment-friendly raw materials. The components are fitted together by pressure without soldering or welding.

■ **KIRCHBERG AN DER PIELACH IS A CLIMATE ALLIANCE PIONEER**, has undertaken great efforts in the field of biomass heating, operated one of the first district heating systems of Lower Austria, is a model municipality in the field of energy efficiency.

■ **PER CAPITA CO₂ EMISSIONS FOR EACH YEAR:** 5 t in Kirchberg. Austrian average: 7.5 t. ■

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<http://www.kirchbergpielach.at>

ALL (SOLAR) POWER TO THE PEOPLE!



Green energy instead of nuclear energy: in Zwischenwasser, Austria, climate-conscious citizens have invested in a communal photovoltaic system.

Once again the citizens of Zwischenwasser in the Austrian province of Vorarlberg are in the vanguard of climate protection. Even by 1997 citizens participated in the construction of a 5.5 kWp communal pho-

THE CITIZENS' SOLAR POWER PLANT.

- **ZWISCHENWASSER** (3,056 inhabitants), Austria
- Awarded with the **CLIMATE STAR IN CATEGORY 1**

PROJECT: The initiative replaces nuclear electricity with solar energy, which helps to create energy awareness. 30 citizens financed the costs of 205,000 euros. The administration of the communal photovoltaic system is financed on a loan basis. The loan is paid back with the money obtained from feeding the electricity into the grid. ■

CONTACT: Bürgermeister Josef Mathis, Hauptstraße 14, A-6832 Zwischenwasser, e-mail: josef.mathis@zwischenwasser.at



ENERGY FROM FIELDS AND FORESTS.

If a tree rots in the forest or burns in a pellets boiler makes no difference to the climate.

But it does make a difference to us: burnt in a boiler wood provides clean heat. The respective technologies are being improved constantly. Experts say that Austrian know-how in this field could cover a niche in the international market.

ENERGY THAT GROWS ON TREES. The people of the district Rybnik in Poland have discovered the potential of wood. In a densely forested region this seems to suggest itself, though many regions have not embarked on this strategy – yet. In the traditional coal region Rybnik changing over to the renewable fuel wood almost amounts to a small revolution. However, the figures on the reduction of greenhouse gases and the awarding of the Climate Star prove that this was the right step.

Wood is abundant in many European regions. The Austrian forests produce 1.4 million m³ of wood every year, only a third of which is used. Forests need cultivation in order to stay healthy, and the excess wood can be used to generate environment-friendly electricity and heat. The Austrian Minister for the Environment Wilhelm Molterer expects a possible reduction of CO₂ emissions by two million tonnes through an increased use of biomass. "This reduction of greenhouse gases would make up for one fifth of the commitment made by Austria." Wolfgang Streicher from the University of Technology in Graz agrees that there will be a sharp increase in the importance of biomass in Austria, and

he believes that this is a necessary development: "The current use of biomass could easily be doubled." According to Mr Streicher it would be most beneficial for the climate if as many private households as possible changed over to the environment-friendly fuel wood. "Wood pellets are the ideal technology for this." Boilers fired with wood pellets are as user-friendly as oil boilers and need even less maintenance."

HARVESTING CLEAN ENERGY. Wood is an ideal fuel both for small and for large district heating networks. The project of Gornji Grad shows that these networks not only improve the environmental situation but also provide an additional source of income for the farmers, who subsequently can also work as energy suppliers. The creation of additional jobs in the region is a crucial socio-political factor in connection with the use of renewables such as rape for biodiesel, special grasses for the production of biogas, wood chips, and grain. These jobs make sure that the money stays in the region.

Stefan P. Schleicher, professor of economics at the University of Graz, cites another advantage: "Austria is very advanced in biomass technology. Exporting our know-how is a promising chance for the economy." Following the example of Den-

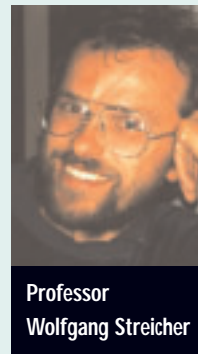
mark, the world market leader in wind energy technology, Austria could offer unrivalled expertise in biomass technology and become the leading exporter of such systems.

GREEN ELECTRICITY. "The same applies to the generation of electricity from biomass," says Mr Schleicher; also in this aspect Austria is ahead of the field. A lot of research and development work is being done on wood-powered electricity generation. Lower Austria's largest energy supplier EVN is very active in this field. Enterprises and scientific institutes have formed the research and technology cluster Renet Austria (Renewable Energy Network Austria) and carry out a number of pilot projects.

ENERGY FROM COFFEE FILTERS AND SALAD? Energy can not only be produced from wood, but also from grain or other plants, such as the coarse sudan grass, which has been tested successfully in Lower Austria. These raw materials are most efficiently used in the production of biogas, which seems to become more and more popular.

The use of biogas has become a huge success in Kristianstad, Sweden, where the people collect their organic waste in paper bags to fuel the municipal biogas plant. The food industry contributes organic refuse, and the farmers supply sewage. The fermentation of these materials yields valuable biogas, which is used to fuel public buses and an increasing number of private vehicles. The project of Thessaloniki also is a first step in this direction.

FARMERS FOR CLIMATE PROTECTION. Lower Austria's organic farmers also contribute their share to achieve the goals of the Climate Alliance. Sustainable farming produces a third less of greenhouse gases than conventional farming. Now well about 10% of Lower Austria's farming land is cultivated organically. ■



Professor
Wolfgang Streicher





CLEAR AIR, CLEAR CONSCIENCE.

In the vanguard of climate protection: Gornji Grad in the Slovenian Alps has decided to use a biomass district heating system, which has proven to be a success.

Environmental and climate protection are very important issues in Gornji Grad because this scenic municipality has specialized in soft tourism. And that is why the municipality built a sewage plant and introduced separate collection of garbage in 1994. Joining the Climate Alliance in May 2000, Gornji Grad was the first Slovenian municipality to enter this partnership. Forestry and wood processing

are among the most important traditional branches of Gornji Grad's economy, since 65% of the municipality's surface of 90 km² is covered with woodland. Now wood waste from the local wood processing enterprise is being used to fire a heating plant with two boilers in the neighbouring municipality of Vransko. The heating plant went in operation in 1998, half a year later it supplied the first 50 households in Gornji Grad. Municipal buildings with a



Wood processing has a long tradition in Gornji Grad.

massive heat demand, such as the primary school, the nursery school, and the health centre, were next. By now the heat main is 8 km long, and 86% of all buildings in the municipality have been linked to the district heating network. ■

BIOMASS DISTRICT HEATING SYSTEM IN GORNJI GRAD.

■ GORNJI GRAD

(2,700 inhabitants), Slovenia

■ Awarded with the

CLIMATE STAR IN CATEGORY 1

PROJECT: Thanks to the heating plant, which is equipped with state-of-the-art filter systems, the air quality in the region has improved considerably and CO₂ emissions have been reduced by 30 to 40%.

The Slovenian Ministry of the Economy and the EU's PHARE programme each have contributed 25% of the costs of the heating plant and the heat main (4.1 million euros). 15% of the money is provided by the Austrian national environmental fund. ■

CONTACT: Mr Toni Rifelj, mayor of Gornji Grad,
Attemsov trg 3, SLO-3342 Gornji Grad,
e-mail: obcina.gornji-grad@siol.net

They are property of the district, the municipality, the church, or of enterprises. Six buildings are heated with coal, three with oil. The pilot project Biomass for Central Heating intends to replace these heating systems with biomass boilers. The local authorities of the region alone would not be able to pay the entire costs of 50,000 euros for the new biomass boilers and their installation, but the investment pays, since the new boilers save 8,500 euros per year. The heating systems are monitored by local institutions for research and development.

Polish rural districts have no income of their own and very limited budgets (the 2002 budget of Rybnik was 3.75 million euros). The districts have to maintain interregional roads, which means that it is also their responsibility to cut back the trees along these roads. Thus, they obtain free biomass for ecological heating. ■

WOOD INSTEAD OF COAL.

■ DISTRICT OF RYBNIK

(74,600 inhabitants), Poland

■ Awarded with the

CLIMATE STAR IN CATEGORY 2

The project Biomass for Central Heating is based on the Polish law for environmental protection and a proposed programme for environmental protection in Rybnik. In nine public buildings, central heating systems fired with coal and oil have been replaced by biomass boilers that are fired with wood, which is available for free in the region. Thus, 8,500 euros of fuel costs can be saved per year. Biomass for Central Heating is a model project that could make biomass more popular with local authorities, enterprises, and private households. ■

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District of Rybnik ul. 3 maja 31,
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e-mail: starosta.srb@powitypolskie.pl

KNOCK ON WOOD.

Landscape protection through the use of a "new" fuel in the rural district of Rybnik. 

RYBNIK, A TRADITIONAL COAL REGION IN POLAND, PROMOTES HEATING SYSTEMS FIRED WITH RENEWABLE FUELS. Rybnik is situated in one of Poland's most industrialized regions, its economy is dominated by heavy industry. Coal mining has shaped social life and has financed the social infrastructure. Outdated coal-fired heating systems pollute the air of the district and of neighbouring regions in Poland and the Czech Republic.

One third of the area around the town Ly-ski is covered with woodland, nine of the town's public buildings border the forest.

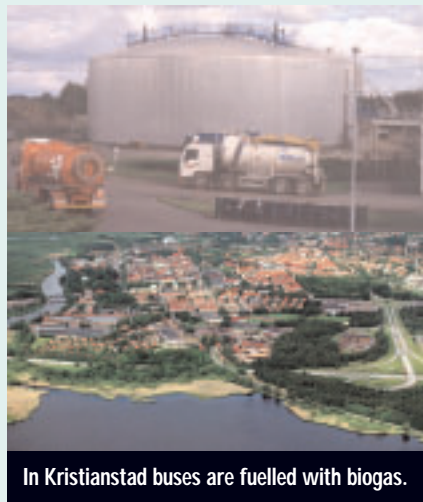


HUNTERS AND COLLECTORS OF ORGANIC WASTE.

The biogas plant of Kristianstad is the first in Sweden to co-digest solid urban waste, sewage, and other biomass into energy and organic fertilizer.



A MODEL PROJECT: the municipal government, farmers, industrial enterprises and consumers of Kristianstad, Sweden, combine their environmental efforts. Five years ago the municipal waste company Kristianstads Renhållnings AB (KRAB) put into operation a biogas plant in Karpalund, and the citizens of Kristianstad collect their



In Kristianstad buses are fuelled with biogas.

organic waste in paper bags to fire it. The plant can also process sewage and organic waste from the food industry. The biogas produced there is burnt in the central district heating plant and it is also used to fuel buses and other vehicles.

The public transport company Skånetrafiken introduced biogas as a fuel for urban transport and has been operating 22 buses fuelled with biogas since October 2002. The town administration is adapting its vehicles for the use of biogas, and even private businesses use this alternative fuel, although the special cars are still relatively expensive. A marketing programme has been launched in cooperation with local car dealers and the enterprise Sydgas to increase the number of buses, lorries and cars fuelled with biogas. ■

BIOGAS PLANT KRISTIANSTAD.

- KRISTIANSTAD (74,500 inhabitants), Sweden
- Awarded with the CLIMATE STAR IN CATEGORY 2

PROJECT: In Kristianstad organic waste and biomass are processed into biogas. Biogas production in the sewage plant has constantly been augmented since 1999, and biogas production in Karpalund will be doubled to 40,000 MWh. The overall potential of biogas production will be 44,000 MWh in 2003.

COSTS: About 12 million euros. Biogas Kristianstad is likely to inspire similar projects since its scope ranges from biogas production and marketing to recycling waste into fertilizer. ■

CONTACT: Mr Lennart Erfors, Municipality of Kristianstad
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ENERGY FROM THE LANDFILL.

In Thessaloniki landfill gas is used to produce green energy, putting a climate-friendly end to citizens' complaints.

The local authorities of greater Thessaloniki have managed to kill two proverbial birds with one stone. Many citizens had

complained about the gases produced in landfills, so the local authorities came up with a brilliant solution. The landfill gas, which is harmful to the climate, is collected in pipes where it is pre-processed. A combustion engine transforms the gas into energy that is fed into the public grid. The local authorities also want to root sustainability firmly in the minds of the next generation. Distinguished scientists and environmentalists come to the schools to make the youngsters aware of environmental issues. This educational programme was launched three years ago and consists of several phases: creation of awareness, excursions to natural habitats, group work, and presentation of the results. ■



Clean energy from landfills.

LANDFILL GAS.

- THESSALONIKI and surroundings (2,000,000 inhabitants), Greece
- Awarded with the CLIMATE STAR IN CATEGORY 3

Organized by the Association of Local Authorities of Greater Thessaloniki (ALAT).

PROJECT: Landfill gas is collected, an engine burns 164 m³ of gas per hour (methane content: 45% – 50%). The resulting energy is fed into the public grid.

COSTS OF THE SYSTEM: 500,000 euros. ■

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" WE WILL ALL PROFIT FROM REDUCING TRAFFIC."

Traffic is one of the three main causes of the greenhouse effect. A lot of fantasy, courage, and sensitivity is necessary to reduce traffic amounts for the benefit of our planet.

The status quo is the same almost everywhere: traffic is increasing. This holds also true for Lower Austria, where the number of cars and lorries has increased by 25% compared to 1992 and is still increasing.

LARGER DISTANCES. Friedrich Zibuschka, university professor of transportation studies and traffic planner with the provincial government of Lower Austria, does not think that the reasons for the increase are to be found in the patterns of human behaviour. "An average person leaves the house 2.5 times a day and this pattern has not changed anywhere during the last 100 years. One of the main reasons for the increase in traffic are the distances we travel. Distances between workplaces, homes, and places where people spend their

leisure time have grown considerably during the last 50 years," Mr Zibuschka explains. The consequences for the world's climate are enormous: vehicles are among the main producers of CO₂ emissions and therefore traffic is the driving force behind global warming.

CUSTOMER ORIENTATION. Public transport offers a great potential for reducing pollution. Encouraging people to switch to means of public transport requires customer orientated strategies. Means of public transport must operate on a regular basis, must be fast and affordable; the services have to be extensive. These qualities ensure that people leave their cars at home, sparing themselves the search for and costs of parking space, and possible traffic jams.

Municipalities which are members of the Climate Alliance serve as models. When powered with renewables, means of public transport relieve the environment even more. The Climate Star winning project of Graz demonstrates how the city's 56 buses fuelled with bio diesel recovered from old cooking oil help save 2,500 t of CO₂. Recycled wastes are also being used for the award-winning project of Kristianstad, Sweden: 22 buses are powered with biogas provided by the local biogas plant where organic wastes are processed. Moreover, a different approach to planning and erecting towns and cities is necessary. Stefan Schleicher, a member of the Climate Star awarding jury and professor of economics in Graz, demands: "We need a different structure for future towns and cities, reducing the distances



In Graz, 160,000 kilos of old cooking oil are recycled into fuel for public buses.



we have to travel. Ostfildern's award-winning project shows us how to do it."

Bikers and pedestrians need less time compared to persons using a vehicle when travelling short distances; at any rate, this way of travelling is cheaper and more climate-friendly. An excellent example is the award-winning city of Linköping, Sweden: an extensively promoted campaign has encouraged the inhabitants to leave their cars behind and go by bike – the number of distances travelled by bike has increased by one third.

PROMOTING SUSTAINABILITY. Especially in rural areas, cars remain the most frequently used means of transport. Therefore, Lower Austria's Councillor for Environment Wolfgang Sobotka wants "to bring about a change of mind and values: "traffic reduction" must become a household name like separate waste collection or energy saving."

The Lower Austrian initiative "I drive economically" seeks to motivate people to save fuel. 20% of the fuel currently used shall be saved, an amount equal to 20 million litres of fuel and 50,000 t of CO₂ per year in case of decent participation. ■

OUT OF THE FRYING-PAN INTO THE PETROL TANK.

Public buses in Graz run on bio diesel recovered from cooking oil used in restaurants.



COOKING CAN BE SUSTAINABLE, TOO. A substance potentially dangerous for the environment is best dealt with when it is re-used as a valuable resource: Graz, the provincial capital of Styria, has set an excellent example by collecting old cooking



Bio diesel helps reduce emissions in Graz.

oil charge-free from 250 restaurants and, with the help of the local corporations BDI (Biodiesel International) and SEEG, recycling it into renewable bio diesel. 160,000 kilos of old cooking oil per year are recycled into clean-air fuel. 56 of the more than 100 buses engaged in public transport in Graz are already running on bio diesel recovered from cooking oil, the rest of the fleet will be switched to this eco-friendly fuel until the end of next year. The advantages are obvious: apart from greatly reducing emissions, old cooking oil will not pollute the environment, nor will it end up in the city's sewerage or sewage plant. ■

BIO DIESEL BUSINESS.

- **GRAZ**
(230,000 inhabitants), Austria
- Awarded the
CLIMATE STAR IN CATEGORY 3

COSTS (since 1999):
About 60,000 euros.

PREVENTED EMISSIONS PER YEAR:
2,500 t of CO₂, 2.9 t of CO, 1.0 t of particles, 2.7 t of SO₂, 3.0 t of hydrocarbons.

POSITIVE EFFECTS: Cheaper bio diesel fuel for public transport, new jobs created for collecting and recycling, awareness of environmental issues heightened. ■

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EVERYONE GETS THEIR FIFTY.

An annual ticket and a bio diesel car shared among its citizens are Langenegg's contribution to sustainable mobility.



AN UNUSUAL IDEA. How do you convince people in a rural area to switch to means of public transport? Langenegg offers an unusual answer: the municipality bought an annual ticket valid for the Brengenzwald region, transferable to anyone who wants to use the ticket for one euro a day. The initiative's huge success prompted the municipality to buy an additional ticket.

Moreover, the municipality purchased a bio diesel car and named it Fifty. Driving



Langenegg's bio diesel car Fifty.



15,000 km a year in the eco car means a reduction of costs, pollutants and energy consumption by 50% in comparison to normal-car use.

A representation of all the municipality's buildings gives credit to those citizens who installed energy-saving equipment in their homes, such as wood-fired heating, solar power systems, or short-range heat supply. Just press a button and LEDs will flash to mark the buildings where energy-saving measures have been realized. ■

CITIZENS LAUDED FOR ENERGY-SAVING EFFORTS, ANNUAL TICKET, BIO DIESEL CAR.

■ **LANGENEKG**
(1,028 inhabitants), Austria
■ Awarded the **CLIMATE STAR IN CATEGORY 1**

COSTS: Representation with LEDs 1,100 euros, annual ticket 610 euros, the costs of the bio diesel car will be compensated if citizens drive 15,000 km a year over a period of 6 or 7 years. ■

.....
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Linköping ...



350 km of cycleways ...

I WANT TO RIDE MY BICYCLE.

The citizens of Linköping, Sweden, have discovered their enthusiasm for cycling to help reduce CO₂ emissions.

A SURVEY IN LINKÖPING CONCLUDED THAT EACH AND EVERY DAY PEOPLE USED THEIR CARS TO COVER 40,000 DISTANCES OF LESS THAN 6 KM. This result prompted the local politicians to encourage the city's citizens to travel short distances by bike.

Only three years later the politicians' vision has come true and even turned out to be a huge success. Linköping is Sweden's bicycle city of the year and its citizens will go by bike for all distances less than 6 km.

The programme relies on improved infrastructure for bikers, a pro-bike campaign and a better legal standing for all bikers. Local newspapers, radio stations, and bike clubs have informed people about road safety and the positive effects cycling has on

a person's health; bike parties including contests and historical parades were organized. Although the number of distances travelled by bike has increased by one third, the number of bike accidents in which people were injured dropped by 27%. And if travelling by bike is not an option (rainy days, heavy shopping bags), one can still use another climate-friendly means of transport: the city's 60 buses and 25 taxis run on biogas produced at a local facility. A newly built filling station allows private persons to fill up their cars with renewable biogas. ■

CYCLING CITY AND BIOGAS BUSES.

■ **LINKÖPING**
(134,000 inhabitants), Sweden
■ Awarded the **CLIMATE STAR IN CATEGORY 3**

EFFECTS: 31% of all distances are travelled by bike; 350 km of cycleways. The biogas facility (opened in 1998) produces 3,300,000 m³ of biogas per year. The district heating grid was extended to supply an additional 1,100 private homes, several schools, and businesses. ■

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... and 60 biogas powered buses help protect the environment.



" TRULY SIMPLE " .

Scientists believe that environmentally sound construction offers the greatest potential for effective climate protection.

A 90% reduction of energy costs? Compared to the 1970s incredible savings can be achieved if we insulate our homes properly and use alternative energy.

ECO-FRIENDLY CONSTRUCTION AS A PANACEA. Detached family houses or residential buildings, it doesn't matter; those who build ecologically invest into the future (e.g. the award-winning projects of Hannover and Ostfildern). Peter Streicher, university professor of thermal engineering at the University of Graz, is convinced that erecting buildings ecologically offers an enormous potential for saving energy, "We can build houses at the same costs as 30 years ago, but now they consume only one sixth to one tenth of the energy needed then. Neither traffic nor industry bear the potential for such drastic reductions."

The means to achieve reduction are truly simple: planners include the sun into their projects, use insulation materials made

from recycled wastes and ventilation systems instead of heating systems. Heat exchangers pre-heat the air using geothermal heat and extract heat from exhaust air and waste water.

A photovoltaic system provides electric power. Mr Streicher particularly emphasizes the opportunities renovation of old buildings has to offer: "Why not insulate the building and insert new windows while we are at it?"

If we provide for excellent insulation of the top floor structure in an existing building, we can save up to one third of used energy per year, while insulating the outer walls or inserting new windows will save you up to 10 litres of heating oil per year for each renovated square metre.

In Austria it is the provinces and municipalities which promote climate-friendly constructing and renovating and the sa-

ving of resources. Lower Austria financially supports sustainable new buildings. The requirements are tough: energy consumption in residential buildings must not exceed 60 kWh per square metre and year. In 2004, this limit will be lowered to 50 kWh. Municipalities have devices to support eco-friendly buildings, too: regulations may require that newly erected buildings face south. Municipalities may give financial support as an incentive (e.g. for installing solar systems or for switching to an advanced boiler).

HIGHER QUALITY OF LIFE. Compact low-rise building is the future, because it needs comparatively little space and provides strong infrastructure. Climate Star winners Hannover and Ostfildern give us the opportunity to catch a glimpse of this future: eco-friendly residential districts where everything from recreational facilities to means of public transport is easily accessible. ■



A green paradise within the city: In Hannover, 6,000 eco-friendly flats are under construction.



A MAJOR PROJECT OF GREEN ARCHITECTURE.

Ecologically responsible housing: Germany's Hannover provides for low-energy housing in a new residential district for 12,000 people.

A green paradise within the city: in Kronsberg, a part of Hannover, 6,000 eco-friendly flats are under construction. Innovations include a low-energy design for the flats, short-distance heat supply, the use of renewable energy, and an energy-saving programme. The ambitious goal: reducing CO₂ emissions by 80% and rubbish output by 50% compared to other settlements.

SUSTAINABLE ARCHITECTURE FOR THE FUTURE.

■ HANNOVER

(515,000 inhabitants), Germany

■ Awarded the

CLIMATE STAR IN CATEGORY 3

GOAL OF THE PROJECT: Reducing CO₂ emissions by 80% due to the extensive use of low-energy design, short-range heat supply through a cogeneration plant, implementation of an energy-saving programme, reducing rubbish output, saving drinking water, natural land rain water system, reduction of the number of lorry-loads by using the excavated earth on-site.

COSTS: Additional costs of about 8 to 10% for the implementation of the eco-friendly measures. ■

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A quality assurance and qualification programme makes sure that this goal is indeed achieved.

Approximately 3,000 flats, key infrastructure like nursery and primary schools and a health centre have already been built, and 2,000 jobs created. A plant supplying short-range heat, a solar power plant and a wind farm will follow soon. But green architecture means even more: rain waters are held back and emitted with the typical delay of natural land. The earth excavated during construction was used to erect two small hills to offer residents their own vantage points, noise barriers, and dry biotopes. Otherwise, 100,000 lorry-loads would have been necessary to remove the excavated earth. ■

WITHIN WALKING DISTANCE.

A historic project: the residential district of tomorrow is built in Ostfildern.

Where once US troops were stationed, now the residential district of the future is being erected. 3,500 flats for 8,000 to 10,000 residents will cover an area of 150 ha in the centre of Ostfildern, Germany. The settlement at Scharnhauser Park, how the district is called, will be constructed as a compact unit to make sure that all stops of the town's tram are within 500 m walking distance. Another important feature of the new settlement is the urban railway, which is linking Greater Stuttgart to Ostfildern since September 2000, with Scharnhauser Park as one of the stops.

Energy saving has also been high on the agenda: profiting from its south-facing position, the settlement will be largely supplied with solar energy. Erecting low-energy buildings and installing numerous solar collectors has been an integral part of



The residential district of tomorrow is built in Ostfildern.

this project. A power plant fired with wood chips will provide 80% of the energy needed for district heating in the area and will provide up to 50% of the energy demand by cogeneration. ■

THE RESIDENTIAL DISTRICT OF TOMORROW.

■ OSTFILDERN

(32,068 inhabitants), Germany

■ Awarded the

CLIMATE STAR IN CATEGORY 2

PROJECT: Realization of a new residential district for 8,000 to 10,000 people incorporating state-of-the-art techniques of construction according to ecologic principles, taking into account sociologic and aesthetic requirements. ■

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" THE HOLIDAY'S QUALITY MUST NOT SUFFER. "

Climate protection has become an issue for tourism regions, as the project of Climate Star winners Bad Hofgastein and Werfenweng shows.

The award-winning project promotes a car-free holiday – a chance for the environment, the inhabitants of the two municipalities, and their guests. Climate protection improves the quality of life. The people behind the award-winning project of Gornj Grad, Slovenia, are aware that

only a sound environment is beneficial for relaxation.

CLIMATE PROTECTION AND TOURISM. Are they compatible? Which are the crucial points? Mr Peter Zellmann, head of Vienna's Ludwig Boltzmann Institute for Leisure and Tou-

rism Research, provides answers to these questions.

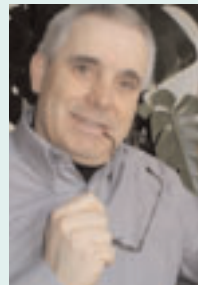
U&G: Tourism and climate protection – a contradiction in itself?

ZELLMANN: No, absolutely not. The environment is very important for people on holiday; they want clean air and clean water. Thus, a sound environment is not an additional benefit – it is a prerequisite for tourism. Climate protection means a higher quality of life for both the local population and their guests.

U&G: Will the car-free holiday serve as a model for tomorrow?

ZELLMANN: Yes and no. People on vacation love means of public transport, especially if the others use them and they themselves can drive up to the front door with their cars. Two conditions must be fulfilled to achieve that the guests switch to eco-friendly means of transport:

public transport must be tailored to the needs of the tourists and the locals must set a good example. If the locals go everywhere by car, the tourists just will not understand why they should use the bus.



Mr Peter Zellmann,
head of Vienna's Ludwig Boltzmann Institute for Leisure and Tourism Research.



Werfenweng and Bad Hofgastein offer their guests a car-free holiday – and mobility.



U&G: What does a tourist want nowadays?

ZELLMANN: Two trends have become apparent: first, a tourism region has to be multifunctional, offering its guests many different alternatives, because the traditional target groups have ceased to exist and the tourists are not that predictable anymore. Therefore even smaller regions have to learn a lot from all-inclusive clubs. Second, a new understanding of quality has developed. Guests have great expectations a region has to satisfy. But only establishing high-class hotels and restaurants would be the wrong way. Instead, co-operation between middle-range hotels and pensions and local providers of leisure time facilities is necessary. ■

CAR(E)-FREE HOLIDAYS.

Werfenweng and Bad Hofgastein, two destinations in the province of Salzburg, offer their guests car-free holidays – and mobility.

A HOST OF ALTERNATIVE VEHICLES. Ecological thinking rules: "soft" mobility and car-free tourism have boosted the number



Citizens of Werfenweng and Bad Hofgastein participate in climate protection.

of overnight stays in the Pongau region. Within this region, the hotels and pensions of Werfenweng and Bad Hofgastein united in an association promoting car-free tourism have achieved a 7.5% increase in overnight stays. Everyone who stays at one of these hotels and pensions may use eco-friendly electric cars, electric bicycles, scooters, and a charge-free shuttle bus to and from the railway station. Guests also receive vouchers for reduced admissions and can travel free of charge. The principle of ecological mobility works around the clock: Werfenweng offers a charge-free night bus, Bad Hofgastein provides a free bus-service and tourists can borrow bicycles. A mobility centre helps future

guests with booking, transfer, and information on means of transport. The service includes electronic timetables, ordering tickets, advice on mobility, and other information.

Success proved the initiative right: overnight stays at Werfenweng's and Bad Hofgastein's eco lodges are far above local average. The number of regular guests who come to Werfenweng by train has almost tripled during the last three years. Traffic equivalent to 1.2 million km driven by car and the emission of 375 t of CO₂ have been prevented. ■

CAR-FREE TOURISM, HIGH MOBILITY.

■ **WERFENWENG** (800 inhabitants) and **BAD HOFGASTEIN** (6,700), Austria

■ Awarded the **CLIMATE STAR IN CATEGORY 1**

RESULTS: Overnight stays in the two municipalities have increased considerably, the increase by far exceeds the Austrian average. In 2000/01 already 25% of regular guests came to Werfenweng (21 eco lodges) by train, in 1997/98 it were only 9%. Bad Hofgastein (22 eco lodges) has established a pedestrian precinct and initiated school projects.

SUPPORT: Austrian ministry of environment and agriculture, ministry of transport, ministry of the economy, the provincial government of Salzburg, the municipalities of Bad Hofgastein and Werfenweng and the European Union; within the EU project "Alps Mobility", the Pongau region has found 5 partners in the Italian Alps. ■

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Presentation of the new, eco-friendly electric cars.



SETTING THE COURSE FOR THE NEXT GENERATION.

Learning to save precious resources: schools teach responsibility for the environment.

ACTUALLY, LISA DOES NOT LIKE EARTH-WORMS. "Ugh!," the 8-year-old girl exclaims but at the same time the pink creatures crawling around in the compost heap capture her full attention. The teacher explains to her class how the little worms turn the remnants of our snacks, rotten apples, and kitchen leftovers into fertile earth. This helps the children understand why it is so important to close nature's cycle. "I still don't like them, but I like what they do", Lisa eventually says.

CLIMATE PROTECTION HAS BECOME A BIG ISSUE IN CLASS. And justified so, says Lower Austria's Councillor for Environment Wolfgang Sobotka: "Children experience nature with all their senses. They comprehend how things are connected and as grown-ups therefore will behave in an eco-friendly way." Children cannot keep their knowledge of the importance of climate protection and the Climate Alliance to themselves for a very long time. They are proud of what they have learned and keen to share their knowledge – even the youngest help spread knowledge in a remarkable way. "If children are convinced of the importance of separate rubbish collection and how animals like the earthworm and many others can be useful, they will also teach their parents, grandparents, and other people close to them about these things", Mr Sobotka, a former teacher himself, is convinced.

LEARNING WITH ALL SENSES. School can promote climate protection in various ways: participation in projects involving different classes, going on excursions to solar power systems, windparks or organic farms, or creating works of art with and about rubbish.

Together with experts, the schoolchildren at the Schickhardt-Gymnasium in Herrenberg, Germany, planned and constructed tomorrow's ideal home. Being economical with resources and taking into account the wishes of the residents were high on the agenda. Schoolchildren at the Lessing-Gymnasium in Norderstedt, Germany, planned and built a solar power system.

Learning for life is also a top priority of the Thessaloniki project: distinguished scientists and environmentalists come to the schools to make the youngsters aware of environmental issues. In Lower Austria, an edutainment game called Katzensprung was distributed to 750 schools to explain even to the youngest what climate protection really means. ■

A REAL-LIFE PROJECT.

The schoolchildren at the Lessing-Gymnasium in Norderstedt, Germany, planned and constructed a solar power system.

ENVIRONMENTAL EDUCATION NEED NOT BE DRY. The Lessing-Gymnasium in Norderstedt launched a special project to teach its schoolchildren courage, perseverance, and ecological knowledge: the schoolchildren were asked to participate in the planning and construction of a photovoltaic system to gather first-hand experience under realistic conditions. At first, only a small solar power system was planned, which was to provide some of the



Norderstedt: The schoolchildren's solar power plant provides green energy since April 2001.



Norderstedt's citizens engage in environmental protection.

energy required for the school's cafeteria. The project was still in the planning stage when it became clear that it was impossible to run a small solar power system economically and soon the idea to build something really big emerged.

Different working groups were concerned with technical, financial, economic, and legal questions. Specialists scouted the availability of grants and helped to attract financial contributions. The effort has worked out well: since April 2001 the solar power system feeds electricity into the town's grid. During its first 12 months, the system contributed almost 25,000 kWh and exceeded earlier projections by 4.6%. ■

PHOTOVOLTAIC SYSTEM.

■ NORDERSTEDT

(73,300 inhabitants), Germany

■ Awarded the

CLIMATE STAR IN CATEGORY 2

PROJECT: Generation of solar energy, ecological education, planning and implementing by the schoolchildren themselves, exemplary effects on the whole town, higher awareness of the importance of solar energy, including the population in accordance with Agenda 21 stipulations.

COSTS: Approximately 250,000 euros. ■

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LET THE SUNSHINE IN.

Schoolchildren at the Schickhardt-Gymnasium in Herrenberg, Germany, deal with environment-friendly architecture in practically orientated classes.

TOMORROW'S IDEAL HOME. Where shall we construct the building? Which materials should we use? How do we provide heat and water? And what about the garden? These are only a few of the problems the schoolchildren at the Schickhardt-Gymnasium deal with during their classes. Together with architects, biologists, town planners, and experts in other fields, the schoolchildren planned and constructed tomorrow's ideal home; they investigated on-site, discussed alternatives, weighed up different factors, decided on every idea's feasibility and thereby gained valuable first-hand experience.

The benefits are obvious: the schoolchildren acquire expert knowledge, practise how to manage financial resources, and see the difference between sustainable and non-sustainable decisions.

A photovoltaic system with a maximum output of 30 kWp was installed on their school's roof and went into operation this summer. The system generates about 27,000 kWh of solar energy per year and helps avoiding approximately 16 t of carbon dioxide emissions. Output, profits, and saved carbon dioxide emissions are made public on illustrated charts and by means of a data logger. About 70 citizens of Herrenberg have financed the photovoltaic system with the purchase of 100 W shares, which they rented out to the town's energy supplier for a period of 20 years. The supplier has agreed to operate the solar power plant and to pay the running costs. Depending on the type of

financing and the current market rate, the shareholders can expect a share of the profits and a yield.

The local open-air pool also profits from the climate-friendly attitude: 400 m² of solar absorber panels attached to the neighbouring stadium roof heat the pool's water. ■



Herrenberg: Schoolchildren with their model of tomorrow's ideal home.

SOLAR POWERED HOME.

■ HERRENBERG

(30,500 inhabitants), Germany

■ Awarded the

CLIMATE STAR IN CATEGORY 2

PROJECT: Virtually planning and erecting a feasible home for tomorrow taking into account sustainability criteria. Participation of the citizens, gaining experience in the use of solar energy, promoting solar energy. Climate protection, reducing CO₂ emissions, energy saving, photovoltaic system on the school's roof, solar system on stadium roof. Positive effects: 150,000 kWh of natural gas and roughly 40 t of CO₂ less per year. ■

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THE CITIZENS WILL FIX IT.

"We have to explain what climate protection really means", declares Wolfgang Mehl, head of Climate Alliance Austria.

U&G: How can municipalities encourage their citizens to engage in climate protection?

MEHL: People will only be in favour of what they understand, as the award-winning project of Greußenheim and many more have proved. We have to make people aware of the reasons why everyone has to do something for earth climate and what they get out of it. The behaviour of municipal officials is highly decisive, especially in small municipalities. If mayors themselves go by bike or on foot, the citizens will think about the reasons for this behaviour.

U&G: Where are the municipalities to start?

MEHL: They should explain the benefits of

climate-friendly behaviour to their citizens. Everyone who wants to build a house must see how much money they can save in the long run by using solar power and the proper insulating materials. Commuters must understand that public transport will spare them traffic jams, the search for parking space, and paying the ever increasing fuel prices; but most important is the fact that they keep clean the air we all are breathing.

U&G: What's the best way to get that message across?

MEHL: There is no magic formula, but many forward-looking projects target this problem. The municipalities' newsletters play an important role, but we can do more.

Local schools and organizations should undertake projects promoting climate protection. Many of the submitted projects already included this important aspect. The people behind Langeneegg's project came up with the brilliant idea of installing a representation of all the municipality's buildings – just press a button and LEDs will flash to mark the buildings where energy-saving measures have been realized. ■

SLOWING DOWN THE GREENHOUSE EFFECT.

Alternative energy galore: the citizens of Greußenheim, Germany, are targeting climate change with a host of projects.

In Greußenheim, it is the citizens who call the environmental shots. They participate in workshops, informal citizens' meetings and various other events, and edit pro-eco publications to express their very own ideas about how the greenhouse effect could be slowed down. These activities have been inspired by Agenda 21, the United Nations environmental programme adopted at the Rio conference in 1992, which encourages municipalities to assume responsibility for sustainable development. Many ideas were translated into a host of workable projects centred on climate protection and alternative energy.

70 ha of intensive farming land were turned into a Streuobstwiese, a natural meadow where citizens cultivate fruit trees in a traditional way; as a result, the drinking water's nitrate content has been reduced by 50%.

The new Eselsweg settlement is served by a central heating plant, which operates on cold-pressed vegetable oils and has replaced oil-operated heating. That vegeta-



It is vital to show schoolchildren the importance of climate protection.



Bio diesel and solar power for a healthy climate.

ble oils (rape-seed oil) are also used in private cars guarantees stable incomes for the local farmers who provide them. More innovations include photovoltaic systems for private homes and a heating system operating on wood chips, which supplies nine public buildings and even more homes with heat and warm water. As a consequence, the demand for heating oil has been reduced by 70,000 litres per year. ■

ALTERNATIVE ENERGY MIX.

■ GREUSSENHEIM

(1,700 inhabitants), Germany

■ Awarded the
CLIMATE STAR IN CATEGORY 1

PROJECTS: Heating power plant (vegetable oils), wood chips heating system, solar power systems, photovoltaics, geothermal heat systems, low-energy buildings, cars fuelled with vegetable oil, water reserve with nature trail, ecologically sound village planning. ■

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THE BEST ADDRESS FOR CLIMATE PROTECTION:

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(many interesting links to various organizations)

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■ MAG WOLFGANG SOBOTKA

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■ ENVIRONMENT OFFICE LOWER AUSTRIA

Tel: +43-2742/22 633,
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■ "DIE UMWELTBERATUNG" ASSOCIATION OF AUSTRIAN ENVIRONMENTAL COUNSELLING CENTRES

A-1140 Wien, Linzerstraße 16/3. Stock,
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■ "DIE UMWELTBERATUNG" LOWER AUSTRIA

A-3100 St. Pölten,
Wiener Straße 54, Stiege A,
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■ PLATFORM FOR INNOVATIVE ENERGY TECHNOLOGIES

(An initiative of the Federal Ministry of Traffic where plenty of valuable information for experts in enterprises, education and research, and for planners is provided.)
Internet: www.energytech.at

■ EUROPEAN CLIMATE CHANGE PROGRAMME

Internet: <http://europa.eu.int/comm/environment/climat/eccp.htm>

■ ACCC, AUSTRIAN COUNCIL ON CLIMATE CHANGE

Internet: <http://www.accc.gv.at> – This site provides links to international organizations and Research Centres

■ AUSTRIAN ENERGY AGENCY

Internet: www.eva.wsr.ac.at

■ AUSTRIAN SOCIETY FOR ENVIRONMENT AND TECHNOLOGY

Internet: www.oegut.at ■



CLIMATE PROTECTION THROUGHOUT EUROPE.

*103 cities, towns and municipalities
submitted their projects for the Climate Star.*



CLIMATE ALLIANCE
KLIMA-BÜNDNIS
ALIANZA DEL CLIMA

■ KATEGORIE 1 – (BIS 10.000 EW.):

Aspach (D)
Bad Hofgastein (A)
Bellusco (I)
Bruck/Leitha (A)
Cutigliano (I)
Ebensee (A)
Ebreichsdorf (A)
Eschenau (A)
Feldkirch (A)
Gaspoltshofen (A)
Geesthacht (D)
Gleisdorf (A)
Globasnitz (A)
Gornji Grad (SLO)
Greußenheim (D)
Griesheim (D)
Grimmenstein (A)
Gurk (A)
Herrenberg (D)
Hirschberg (D)
Illnau-Effretikon (CH)
Kirchberg/Pielach (A)
Kremsmünster (A)
Kristianstad (S)
Lautzen (D)
Rural District Rybnik (PL)
Langenegg (A)
Lecco (I)
Lembach (A)
Lienz (A)
Luxembourg (L)
Lucerne (CH)
Mäder (A)
Mandelbachtal (D)
Markt-Hartmannsdorf (A)
Merzig (D)

Mörfelden – Walldorf (D)
Oederan (D)
Roeser (L)
Schamebeck (D)
Uhdlingen-Mühlhofer (D)
Unterrabnitz-
Schwendgraber (A)
Weiz (A)
Werfenweng (A)
Winsko (PL)
Wolfurt (A)
Wolkersdorf (A)
Ziersdorf (A)
Zwischenwasser (A)

■ KATEGORIE 2 – (10.000 – 100.000 EW.):

Altötting (D)
Amstetten (A)
Ansfelden (A)
Aquin, Jeremie (Haiti)
Baden (A)
Delmenhorst (D)
Dillingen – Saar (D)
Ditzingen (D)
Donauschingen (D)
Ebersbach Fils (D)
Einbeck (D)
Emden (D)
Engen (Hegau) (D)
Ettlingen (D)
Galway (IRL)
Garbsen (D)
Herdecke (D)
Hollabrunn (A)
Illich-Graffenstaden (F)
Norderstedt (D)
Nürtingen (D)

Ostfildern (D)
Portomaggiore Ferrara (I)
Rybnik (PL)
Rydultowy Municipality (PL)
Saalfelden (A)
Schenkenfelden (A)
Schwaz (A)
Somma Lombardo (I)
Springe/Deister (D)
St. Nikolai (A)
St. Pölten (A)
Tulln (A)
Tuttlingen (D)
Villach (A)
Waidhofen on Ybbs (A)
Wolfurt (A)
Wolkersdorf (A)
Würselen (D)

■ KATEGORIE 3 – (ÜBER 100.000 EW.):

AG Dusseldorf, Cologne,
Münster (D)
Albertslund (DK)
Barcelona (E)
Basel (Kanton) (CH)
Berlin (D)
Bern (E)
Bristol (GB)
Brussel (B)
Buckinghamshire (GB)
Calw (D)
Dublin (IRL)
District Elbe-Elster (D)
District Emsland (D)
Erlangen (D)
Frankfurt on Main (D)
Freiburg i. Breisgau (D)

Fürstfeldbruck (D)
Göteborg (S)
Graz (A)
Grenobloise (F)
Hagen (D)
Hamburg (D)
Hannover (D)
Heidelberg (D)
District of Kassel (D)
Leicester (GB)
Lille (F)
Linköping (S)
Linz (A)
Mainz (D)
Malmö (S)
Modena (I)
Mühlheim on Ruhr (D)
Munich (D)
Münster (D)
Bundesland
Province of
Upper Austria (A)
Oslo (N)
Ostholstein (D)
Parma (I)
Potsdam (D)
Reggio Emilia (I)
Remscheid (D)
Rheinisch-Bergischer
Kreis (D)
Saarbrücken (D)
Salzburg (A)
Southampton (GB)
Stuttgart (D)
Thessaloniki (GR)
Vienna (A)
Wolfsburg (D)
Wuppertal (D)

