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PREP

PROMOTION OF RESOURCE  
EFFICIENCY PROJECTS

## ENERGY IN SCHOOLS

### ENERGY EDUCATION AND PROJECTS FOR REDUCING ENERGY DEMAND IN SCHOOLS

II. ISSUE 2006



# WISIONS

SUSTAINABLE DEVELOPMENT IS POSSIBLE

**WISIONS** is an initiative of the Wuppertal Institute for Climate, Environment and Energy, carried out with the support of the Swiss-based foundation Pro-Evolution, to foster practical and sustainable energy projects.

Sustainable development is possible. Numerous innovative and valuable contributions from different countries, fields and institutions have shown that an appropriate reconciliation of economic, ecological and social factors is not unrealistic utopia. We have made a promising start, but the greatest challenge still facing us in the 21st century is to learn how to use the world's resources more efficiently and in an ecologically sound and socially balanced way.

Progress is being made; however, fourteen years after the UN Conference on Environment and Development in Rio de Janeiro, many people, especially in developing countries, still lack access to resources, clean technologies, and education. At the same time, people's level of resource consumption and means of production remains unsustainable.

To meet global challenges like climate change, water scarcity and poverty, it is necessary to foster projects of potential strategic global importance by supporting them so that they can be implemented locally. Examples of good practice need to be actively promoted to a wider audience.

**WISIONS** promotes good practice in resource efficiency through its publication of relevant successful projects in its Promotion of Resource Efficiency Projects: **PREP**

**WISIONS** also provides consulting and support to ensure the potential seen in visions of renewable energy and energy efficiency can become mature projects through its Sustainable Energy Project Support: **SEPS**



Photo: PhotoCase.com

# ENERGY IN SCHOOLS

## ENERGY EDUCATION AND PROJECTS FOR REDUCING ENERGY DEMAND IN SCHOOLS

The effects of energy use are global. All sectors of society have important roles to play in ensuring that energy is managed more efficiently. As school buildings usually have great potential for improving energy efficiency and school children can benefit from increased knowledge of how to use energy efficiently, schools are a promising location for addressing energy savings.

Schools usually have a high level of energy consumption due to their considerable heating requirements and high electricity usage for lighting and equipment. Investment in building and technology, as well as more conscious user behaviour, can lead to considerable energy savings. Therefore, schools are ideal teaching grounds for the implementation of energy efficiency and renewable energy projects.

In addition to energy efficiency projects many renewable energy projects – mostly solar energy – also exist within schools. Such solar systems at schools do not only provide clean and renewable energy but offer exciting hands-on educational opportunities for students.

The implementation of energy projects can be linked to investment opportunities for teachers, parents and students. Some projects, for example, combine renewable energy and energy efficiency with the offer of an attractive "green capital investment" for everybody.

Practical application requires theoretical knowledge. Therefore, energy education in schools, in particular addressing the topics of energy efficiency and renewable energy, is of great importance. Students become more aware of energy-related problems and of how they can



Photo: PhotoCase.com

contribute to the changes needed to move towards more sustainable energy use. Energy education enhances awareness not only among children but also among teachers, parents and the community.

In this brochure, **WISIONS** focuses on the significance of innovative strategies for saving energy in schools, including two types of projects: energy education projects and those that focus on sustainable energy technologies. **WISIONS** presents projects from India, France, Germany and Uganda that have been successfully implemented, with the intention of further promoting the particular approaches used by these projects. Using a key number of internationally accepted criteria, the main consideration for the selection of the projects was energy and resource efficiency, but social aspects such as the inclusion of pupils, teachers and parents were also of relevance. The assessment of the projects also included the consideration of regional factors acknowledging different needs and potentials.

All projects that fulfilled **WISIONS** application criteria were independently reviewed, and five of them, with the potential to make a significant impact on global energy and resource efficiency, are published in the following pages. **WISIONS** is pleased to present

good practice examples from ambitious projects which have been successfully implemented on different continents. All of these projects are appropriate within their local context and have been developed to a level which meets **WISIONS** selection criteria. Although uniquely designed for a particular setting and problem, the projects presented can be adapted to different situations or can provide valuable information from their implementation phase. Links to the illustrated good practice examples shown in the brochure, as well as a couple of other issue-related good practice projects, are available on [www.wisions.net](http://www.wisions.net).



Photo: PhotoCase.com

The selected projects are not intended to represent the only possible courses of action to take in the area of energy saving in schools but they do demonstrate promising approaches.

# BEACON — BUILDING ENERGY AWARENESS ON CONSERVATION

CHANGING LIFESTYLE TOWARDS A MORE SUSTAINABLE USE OF ENERGY

**Location:**

Delhi, India

**Project's Aim:**

Motivating students to adopt a sensible use of energy

**Technical Answer:**

National curriculum on energy conservation and a series of events and competitions



Photo: TERI

Recognising the importance of raising awareness among school children and teachers about the need to use energy responsibly, TERI implemented this project. The project focuses on two specific areas: the development of a national curriculum on energy conservation and its efficient use, and the implementation of a series of events and competitions with the aim of raising awareness and developing an understanding of energy-related issues.

At the pilot stage, 30 elite schools in Delhi were selected as the target group. The reason behind this choice was that this segment of society is the major energy consumer; in contrast, there is the poorer section of society that utilises energy only for its basic sustenance.

The aim of the project is to motivate young students to adopt a sensible use of energy sources and to impart knowledge about energy wastage in homes and industries. Various reference materials, such as brochures, leaflets, and booklets support the campaign. The

emphasis is on lifestyle change and, as a result, the students learn to minimise energy wastage.

## BENEFITS

Once the students become aware of energy-related issues they also automatically become conscious of energy conservation. This will pave the way for the efficient use of energy and, therefore, have a definite impact on the environment. Behavioural changes can be seen already, such as schools opting for energy audits, the development of energy mapping plans of the area and the organisation of talks and other awareness raising activities.

## SUSTAINABILITY

The actual working time with the schools was around 8–9 months as schools close down for the summer break and are also not receptive to such activities during examination time. Through the creation of energy clubs, around 3000 students were directly involved. Schools also undertook parallel activities through their assemblies and school curricula, reaching out to the entire school community. In this way the project helped to raise awareness of the issues among 30,000 students. Parent teacher associations and related communities were indirect beneficiaries of the project.

The programmes that were carried out to raise awareness and develop receptiveness to the issues ensured that all target groups will be motivated to continue with the activities and changes that were introduced. Recommendations for alterations to the national curriculum have been submitted to the relevant department. Specific guidance will provide teachers with the necessary tools for teaching energy-related issues in an effective and practical way.



Photo: TERI

## METHODOLOGY

30 elite schools were identified and then individually approached and encouraged to participate in the project. A panel of experts (external and internal) from the field of energy, with the emphasis on energy conservation, was identified to act as advisers and give an overall direction to the project. This panel included people from the National Council for Education and Research Training, the Energy Sector and schools. Regular meetings were held to discuss all the activities that were to be undertaken and implemented.

## FINANCIAL ISSUES

The Bureau of Energy Efficiency, Govt. of India supported the project, providing finance of around USD 27,000. The major part of this budget was used for the preparation of the resource materials, the training modules and the curriculum.

## OBSTACLES

1. As it was a pilot energy education project, the mobilisation of schools was time consuming. Taking school holidays into account, only around 8-9 months were left for the actual project implementation.
2. The project target was 30 schools. There was a continuous demand from other schools to be included in the project.
3. Lesson plans were developed in consultation with teachers. Orientation at regular intervals was needed with them to maintain a standard pattern for lesson plans.

## REPLICABILITY

The project has evolved into a model capable for replication across many different societies and in diverse geographical locations. There are already many organisations and institutions, who were not directly targeted by the project, that are using the material developed. Learning about the programme is also being projected at various academic levels.

The proposed actions on the reduction of energy consumption are cost effective and, therefore, will benefit the target group.



Photo: TERI

## CONTACT



**TERI – The Energy and Resources Institute**

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# FAMOS — MOBILE SOLAR WORKSHOP

COMBINING TEACHING WITH PRACTICAL LESSONS  
ON THE BENEFITS OF RENEWABLE ENERGY

## Location:

Germany

## Project's Aim:

Supporting schools  
in integrating  
sustainable energy  
into lessons

## Technical Answer:

Mobile  
teaching unit



Photo: Rolf Behringer

famos aims to provide professional educational support for schools to integrate the topics of renewable energy, energy efficiency and energy saving measures into lessons. Most of the time, teachers work to a very tight schedule during the school year, so it is difficult for them to find time to study renewable energy technologies and to develop lesson plans. Therefore, the "mobile solar workshop" was readily appreciated and accepted by the schools.

The project trailer is equipped with basic materials and media for lessons and school projects related to topics of "renewable energy".

Workshop activities can be adopted according to the individual class level. Slides, videos, power point presentations and experiments support the individual needs of the students. A balance between theory and practice enables the students to learn through practical experience and to develop their knowledge with support from appropriate media.

## BENEFITS

The project is a positive example of clean energy production and encourages energy users to consider renewable energy as a valid option for both the present and the future.

Students are receptive to the subject and interested in the topic, but are also inspired by the way renewable energy is presented. They work in focused groups and do their own practical experiments with renewable energy, e.g. by setting up a small solar home system with authentic and functioning components, cooking with solar cookers, and lots more. Students become "experts" and give full explanations of what they have learned. Role-plays can intensify the learning process and give lessons in social skills at the same time.

## SUSTAINABILITY

During the workshops, students can use a bicycle generator to experience the work required to produce 60 Watts continuously. After that, it is easier for them to understand why energy should not be wasted, while still recognising that it is comfortable to have energy.

In this project technology is important, but at the same time educational aspects are very central, because one aim of famos is to teach the general principals of renewable energy technology through practical experience and social learning methods.



Photo: Rolf Behringer



Photo: Rolf Behringer

## TECHNOLOGY/METHODOLOGY

The concept of famos is balanced between theory and practice. No previous knowledge is needed to implement a famos project into a curriculum (from Grade 5 onwards) and the actual knowledge levels of a given class can be taken into consideration. famos projects can be implemented in short instalments during a day or as a class project over several days. The projects cover renewable energy topics such as photovoltaic involving several experiments, solar thermal systems like solar hot water or solar cookers, hydrogen by an experimental kit with photovoltaic, as well as discussions and teamwork about energy saving, energy efficiency and future scenarios.

## FINANCIAL ISSUES

The project started by using a van, which reflects the 'mobile' concept. However, costs for maintenance, petrol and insurance were too high and therefore not

cost-efficient in the long term. In view of this, the van was replaced by a trailer in order to reduce running costs to a minimum. Maintenance and new equipment is financed mainly by rental fees and sponsorship. The school or company that is hiring the "mobile solar workshop" pays the trainers direct.

In the year 2000, the value of the trailer, equipment and materials was around EUR 25,000. Hundreds of voluntary hours were spent on planning, developing and maintaining the system. Because the schools have to pay the trainers who run the project, plus a rental fee for the trailer, it is possible to operate the "mobile solar workshop" cost effectively.

At this stage famos belongs to f.a.s.t. e.V. and is supported by ISES (International Solar Energy Society) and the City of Freiburg (Germany).

## OBSTACLES

This project is definitely not a low investment scenario, because of the equipment

that is needed. In many areas renewable energy is already, or is becoming, more and more attractive, so environmental associations, local utilities or governments are willing to invest money in awareness raising and teaching activities.

Once the concept was developed, the main obstacle was to finance the van (or the trailer since the year 2000) and the equipment to put the idea into practice. The Förderverein für angewandte Solartechnik (Lörrach) put this concept into practice and is the owner of the mobile solar unit. Sponsorship and many hours of voluntary work helped the project to succeed.

## REPLICABILITY

The project has already been replicated several times in different countries. The basic idea of having a mobile teaching unit is very effective, because it saves money that would otherwise need to be invested by schools in order to teach in a similar way. Each "mobile solar teaching unit" can be constructed and developed according to local needs and the personal profile of the experts.

## CONTACT



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## FROM THE HEART OF THE HEDGE TO HEATING THE SCHOOL

REPLACING THREE GAS BOILERS WITH ONE WOOD BOILER

### Location:

Quelaines, Mayenne,  
Pays de Loire, France

### Project's Aim:

Replacing the existing gas boilers with a more sustainable energy system

### Technical Answer:

Implementation of a wood boiler



Photo: Ecole Ste Marie – All actors

Ecole Sainte Marie de Quelaines is a small, rural private school with 82 children. The school is managed by a board of parents who played a significant role in the renovation of the school building and in the decision to replace the existing gas boilers with a wood based heating system. The idea of implementing a wood boiler was raised by some of the parents who are farmers, as they had no use for the wood they pruned from their hedges.

Three gas boilers, one fixed in each classroom, used to heat the school. Those gas boilers were replaced by a single wood boiler, which is fuelled by small pieces of wood. The wood used by the boiler is waste wood, provided by parents and other farmers, wood professionals and groups or public services that are in charge of maintaining natural spaces.

It would have been possible, and easy, to carry out such a project without involving the pupils. However,

the school's ethos is to educate the children to become citizens who respect their environment; therefore the children were involved from the outset in considering the pros and cons of the different choices and in understanding the reasons for the decisions taken.

### BENEFITS

The new heating device works faultlessly, the classrooms are well heated, the thermostats work according to the seasons and the clocks allows for the regulation of the temperature in each classroom according to the timetable. Moreover, the wood costs are 8 times lower than the gas costs.

By changing the heating device, the school is now saving 35 tonnes of CO<sub>2</sub> annually.



## SUSTAINABILITY

The school is teaching a responsible use of resources. Therefore, every year the school concentrates on a certain topic, such as "Vegetables" or "Energy". In 2004 the school's topic of the year was "Building". The parents and pupils were closely involved in the building of the boiler room. The schoolteachers worked very hard to make the pupils aware of all the factors that played an important part in the building. The topic was used as an educational tool for teaching Maths and French, early learning games and arts.

The boiler is a proven example of a sustainable operation, as the wood consumption in the region is far lower than its wood production. There is, therefore, no drain on the local resources.

## TECHNOLOGY/ METHODOLOGY

An average sized powerful boiler (30 KW) is heating a surface of 600 sqm. The procurement of wood has been developed upstream with CUMA, which is a farming equipment cooperative. CUMA unionises farmers and helps them invest in new high-performing machines.

## FINANCIAL ISSUES

The total investment amounts to EUR 63,055. The school received subsidies of EUR 30,300 from ADEME and the regional general council. The annual wood consumption is about 27 tonnes and the corresponding costs are EUR 1,480. The wood costs are 8 times lower than the gas costs were, because the wood is almost free. The only thing the school has to pay for is the shredding of wood.



Photo: Ecole Ste Marie – The artistic face of the chimney

The annual financial savings are EUR 8,270, as the annual cost of gas consumption was EUR 9,750. In terms of these savings, it will take 4 years to pay for the wood boiler.

## OBSTACLES

Difficulties to overcome included obtaining information, explaining the technical side of the plan to the owner, the administrators and the educational team, studying the feasibility, convincing the banks, mobilising the architect who had never worked on such a project before and working with the plumber.

## REPLICABILITY

This project can easily be replicated: the installation is fairly straightforward and the building costs can be controlled. A subsidy was granted by the regional council who approved of the initiative and who asked, in return, that people should be allowed to visit the wood boiler room. Many people are interested in this way of heating and have visited the school: representatives from neighbouring towns and from other regions, interested parties from educational centres, farmers, wood boiler contractors and plumbers, and foreigners.

As a result, other boilers have been installed in the region: one for a 15 house estate, one in an educational centre and a further one to heat a swimming pool in Chateau-Gontier.

## CONTACT

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# WAGGA WAGGA PRIMARY SCHOOL

## CONSTRUCTION OF A BIOGAS PLANT OPERATING WITH COW DUNG

### Location:

Bwizibwera, Mbarara District, Uganda

### Project's Aim:

Implementing a sustainable, reliable and renewable energy system

### Technical Answer:

Construction of a biogas plant



Photo: Wagga Wagga Primary School – Classroom blocks

Wagga Wagga Primary School, a rural school in Mbarara District, Uganda, used to prepare the food for the children with three traditional cooking stoves of which the source of energy was firewood. That was not only inefficient but also very expensive – especially when taking into account the high costs of firewood in the area (about USD 10 per cu.m). These circumstances led to the conception of the project which had, as its main aim, the implementation of a sustainable, reliable and renewable energy system. The decision was taken to construct a biogas plant and, following the project's conception in September 2004, the construction of the biogas plant commenced in October 2005, after the excavation of the pit (16m in diameter by 4m deep) was completed. Now a biogas plant with a capacity of 50cu.m is used to prepare the food.

### BENEFITS

Cooking with traditional stoves required a large amount of firewood. Collecting the firewood took a lot of time and, additionally, led to deforestation and environmental degradation. There was also high indoor pollution in the kitchen which had a significant

negative health impact on the workers. By replacing the traditional stoves with a biogas plant, those problems were eradicated.

As well as the environmental and health benefits, the project resulted in several other benefits:

- Organic manure is provided to farms around the school – as the school farm and garden cannot use all the manure – thereby reducing the use of chemical fertilisers and increasing crop yields.
- The project created employment for the people who collected the cow dung during the initial charging of the digester. The school also employed 3 people to handle the operation of the plant.
- Revenue was generated for the people selling the cow dung (the price of which increased) during the initial charging of the digester.

### SUSTAINABILITY

The use of firewood and the three inefficient cooking stoves were exhausting the school's resources and degrading the general environment. About 200cu.m of firewood was used during each school year. This

fuel has now been replaced by cow dung that is not only far cheaper but also more readily available and less harmful to the environment. The school has a constant supply of cow dung from the school farm that is about 4km away.

The use of the biogas plant has resulted in savings equivalent to 130cu.m of firewood per school year (the cost of one 2 tonne truck of firewood is 3 times more expensive than the cost for the same amount of cow dung). The cow dung for topping up the digester (one truck per week) is collected from the school farm using the school truck.

## TECHNOLOGY

The construction of the biogas plant was carried out in 3 phases:

- 1) Excavation of the pit (16m diameter by 4m deep), followed by the purchase of local materials and the production of special equipment for the construction of the biogas plant.



Photo: Wagga Wagga Primary School – Assembly on 31 January 2005

- 2) Construction of the biogas plant and collection of the cow dung. The cow dung (30,000kg) for the initial charging of the digester was provided by the communities local to the school and collected using the school truck.
- 3) The third phase involved the installation of a piping system, charging of the mixed cow dung into the digester, training of local operators (3 employees of the school) and the commissioning of the biogas plant.

## FINANCIAL ISSUES

The total project costs were USD 3,500. The result is an annual saving of USD 1,300 when compared to the cost of firewood. This gives a simple pay back period of almost 3 years.

The project received funding of USD 2,000 from Horizont3000, an Austrian Development Organisation. There was also strong support from the local government in the area in terms of rallying people to supply cow dung for the project. School fees and contributions from the school directors supplemented the funding.

## OBSTACLES

The most difficult obstacles that the project had to overcome included raising the necessary finance, collecting and charging the 30 tonnes of cow dung and identifying a contractor to construct the biogas plant. Careful selection of the contractor, using the school's truck to transport the construction materials, water and cow dung and effective supervision during the construction and the operation of the biogas plant formed the basis for the successful implementation of the project.



Photo: Wagga Wagga Primary School – Biogas during construction

## REPLICABILITY

The project is easy to replicate and, particularly in the project's immediate vicinity, there is great potential for more biogas plants to be used by schools and residents. The geographical advantages of the location include readily available cow dung, cheap construction materials and labour, and low investment costs compared to other sources of energy such as electricity and firewood. Other developers in the area have already shown interest and a slaughterhouse has initiated plans to construct its own biogas plant.

## CONTACT



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## SOLAR & SAVE

### RENEWABLE ENERGY AND ENERGY EFFICIENCY FOR SCHOOLS THROUGH CITIZEN CONTRACTING

**Location:**

Germany

**Project's Aim:**

Renovation of schools without the need for expenditure by local authorities

**Technical Answer:**

Citizen contracting



Photo: solar+spar contract GmbH – Willibrord High School

The aim of the Solar&Save project is to demonstrate that the high energy efficiency potential within state schools can be economically developed. However, the budgetary situation of many local authorities, as well as an administrative structure that – to some extent – provides a negative incentive for authorities to act, contribute to the reasons why many public properties suffer from the need for renovation. The consequence is an increasing lack of modernisation and an accumulation of equipment in bad repair, which can be seen in many local authority schools today.

A model had to be found that was attractive for the public and could be achieved without the local authority budget bearing additional costs. The Solar&Save idea was born: its principle is to allocate the predicted energy cost savings as investment for the installation of large photovoltaic plants.

A characteristic of the project is that solar and energy efficiency measures are transformed into "green investment" opportunities, available to the

public. Interested individuals can invest a minimum of EUR 500 and, in return, benefit from the companies' potential financial success.

Pilot Solar&Save projects were run in four schools in Engelskirchen, Emmerich/Rhine, Gelsenkirchen and Cologne. The necessary steps towards energy efficiency at the Aggertal High School in Engelskirchen and at the Willibrord High School in Emmerich/Rhine have already been completed. Since summer 2005, the solar power systems in Gelsenkirchen (at Bergerfeld comprehensive school) and in Cologne (at the European school) have been operating. The energy efficiency measures are still in the process of implementation.

### BENEFITS

By implementing the intended measures, participating schools' electricity consumption can be reduced by about 50% and energy consumption for heating can be reduced by between 14% and 32%. This also results

in a considerable reduction of CO<sub>2</sub> emissions. Taken collectively, the Solar&Save projects are responsible for around a 3,000,000 kg reduction in CO<sub>2</sub> emissions.

The realisation of Solar&Save projects leads to a classic win-win situation for participating parties: the schools, which are local authority property, benefit from dynamic renovation without denting the local authority budget; conditions for learning are improved by the new flicker-free lighting; pupils and teachers, as well as parents, learn about the importance of careful usage of energy and water resources.

In the annual accounts, saved kilowatt-hours are multiplied by current energy prices. Project participation can, therefore, be seen as reinsurance for shareholders against rising energy prices. Rising energy prices lead to an accordingly higher profit.

## SUSTAINABILITY

After completing all intended solar and energy efficiency measures at the four schools, a total investment of more than EUR 3 million will have been made. In this way the projects make a significant impact on the local and regional economy and contribute to higher employment levels. The costs for gas and oil will be replaced by the costs for production and installation of efficiency technologies.

## TECHNOLOGY

In the project, sustainable technologies are used in the following six areas: pollution free photovoltaic power plants; energy efficient lighting systems in school rooms; pump reorganisation and improvement of the heating cycles as well as automatic control engineering; reorganisation of the ventilation; devel-



Photo: solar+spar contract GmbH – Aggertal High School

opment of further economic potential for energy efficiency; measures for water saving.

## FINANCIAL ISSUES

The cost-benefit ratio of the four Solar&Save projects can be assessed as being very good. Taking all costs into consideration, the incomes achieved (= saved energy costs) and the investment led to a positive result and an attractive return of the assigned capital. The savings achieved by all four Solar&Save projects are so high that the return on investment is between 5% and 8%. In addition, schools and local authorities are sharing in the economic success.

For the first phase of planning and implementation, the Solar&Save project received support from the "North Rhine-Westphalian Ministry for Economy, Medium-Sized Businesses and Energy". The costs for realising the four Solar&Save projects were exclusively financed by citizen capital.

The Solar&Save project is a master project of the "North Rhine-Westphalian State Initiative on future Energies". The individual projects received financial subsidies from the "North Rhine-Westphalian support programme for energy efficiency and clean energy" (REN) for the installation of the solar panels.

## OBSTACLES

The biggest obstacle that had to be overcome in this project was to convince local authorities of the advantages offered by the Solar&Save project. Many discussions with various local government departments and councils took place prior to the commencement of the projects. This is not surprising because the project idea was completely new and much persuasion was necessary.

Once the first successful project at the Aggertal High School in the city of Engelskirchen was underway and could serve as an example, the situation became easier: convincing the decision-makers became much more straightforward.

## REPLICABILITY

The concept of Solar&Save projects can only be implemented at large schools with high energy consumption and an accordingly high energy cost saving potential. The minimum value for annual energy cost savings is about EUR 40,000. A basic condition for successful project implementation is a good database as well as close collaboration with local partners.

## CONTACT



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## NEXT PREP TOPIC: CORPORATE ENERGY AND MATERIAL EFFICIENCY

The forthcoming PREP brochure will follow the same objectives, namely to collect, evaluate and promote good practice examples, and will highlight the issue of 'Corporate Energy and Material Efficiency'.

### BACKGROUND

An efficient use of energy and of material is not only an environmental issue, but also a basic corporate goal. The optimal organisation of the use of production factors such as raw materials and supplies is a central aspect of business efficiency – independent of the environmental engagement of a company.

Faced with rising energy prices and the limited availability of energy resources, corporate energy efficiency strategies are becoming more and more important. The first step has been taken in many industrialised countries, as industrial energy demand has started to decline due to more efficient processes and modified structures. However, the full technical potential for increasing energy efficiency has not yet been exploited and this potential is still to be explored in relation to business options. Studies show that up to 50% of current energy use can be saved without affecting performance.

Scarcity of resources does not only apply for energy resources such as oil or gas, but is also relevant for material resources such as important metals like copper or zinc. Internationally, the use of materials is high; for example the use of materials in industrial countries is currently between around 31 to 74 tonnes per capita per year. As future access to such resources will become more difficult, the efficient use of materials has to be seen as an important factor with regards to competition and innovation.

As an efficient use of energy and materials is a basic corporate goal, many good practice examples already exist. However, energy efficiency and material efficiency are generally treated as separate entities, with little effort made to find common ground between the two.

This is regrettable, since energy efficiency and material efficiency are often highly complementary and their integration can provide synergies that

broaden the scope of their application and give more effective results – both on an environmental and on an economic level.

WISIONS is searching for good practice examples in corporate energy and material efficiency and invites the submission of success stories.



Photo: PhotoCase.com

# SEPS — SUSTAINABLE ENERGY PROJECT SUPPORT

Realistic concepts and visions of effective sustainable energy projects do exist, but the much needed implementation sometimes fails. **SEPS** — the related field of action that **WISIONS** undertakes in addition to **PREP** — aims to bridge this gap.

The key objective of **SEPS** is to identify projects with the real potential to be of strategic importance in the renewable and efficient use of energy. By providing technical and other forms of support, **SEPS** seeks to overcome existing barriers and will help clean and efficient energy become commonplace.

The most promising renewable and energy efficiency concepts are selected using transparent analysis based on internationally recognised criteria. The selection process is carried out via an annual call for applications. Once a project is selected, **SEPS** can provide additional guidance and support, for example:

- potential financial support to assist with project implementation
- practical expert advice and knowledge transfer for effective implementation
- promotion to relevant institutions, decision makers and scientists
- publication on [www.wisions.net](http://www.wisions.net)

## BACKGROUND

Energy is essential, whether for cooking, lighting, or industrial application. However, people have yet to learn how best to use natural resources. Sustainable development depends on the efficient use of resources, and specifically on the widespread use of clean and renewable energy.

The widespread use of fossil fuels threatens climate and health because of dangerous emissions, leading to high



Photo: Lumin Kumar Shestra — Solar cookers in Nepal

social and economic costs. In addition, there are still more than 2 billion people today who do not have access to sufficient energy.

As the global population rises and an unequal distribution of wealth continues to be maintained within the world economy, the challenges will also increase. This will particularly be the case if we simply continue with, or copy, conventional approaches.

Therefore intelligent, sustainable energy projects of strategic global importance need to be implemented and promoted.



Photo: Jignesh Jadav (IRADE) — Womens self-help group meeting in India

## CRITERIA FOR OBTAINING SEPS SUPPORT

**SEPS** has a set of criteria used in selecting appropriate sustainable projects and relevant forms of support. The following 5 criteria are obligatory:

- technical viability of the project
- economic feasibility
- local and global environmental benefits
- marketability and replication possibilities
- implementation strategy

## ADDITIONAL CRITERIA

As the goal of sustainable development requires an integrated approach, additional criteria are also applicable:

- social aspects
- inclusion of local population/structures
- employment potential
- cooperation with other stakeholders

## SO FAR ...

In the first and second **SEPS** round we received a substantial number of applications from around the world — over 150 — which met the necessary criteria. The project proposals demonstrated a wide range of ideas: from the use of solar energy for food conservation in developing countries to energy efficient lighting in Europe. So far, fifteen projects have been selected for financial support and another three for other forms of support. In order to contribute to the implementation of more innovative projects, **WISIONS** makes an annual call each Spring for **SEPS** applications.

Further information about **SEPS** can be found on [www.wisions.net/pages/SEPS.htm](http://www.wisions.net/pages/SEPS.htm)

## CONTACT US:

More information about **WISIONS**, application criteria for **PREP** and **SEPS**, as well as prior **PREP**-issues are available at:

[www.wisions.net](http://www.wisions.net)

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