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IMPLEMENTATION OF ENVIRONMENTAL POLICY

Project of the week No 10

Rational Use of Energy Enforcement Plan

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INTRODUCTION

Gritilania is a country suffering from various environmental problems. Agriculture, industry are significant contributing to this situation. Gritilianian Government having identified the problems opted for a policy for sustainable development and introduced adequate new laws, the implementation of which has been unfortunately poor. Despite of the fact that Gritilania is a member of European Union and is subsidised by Environmental Funding other factors have played negative role to the establishment of environmental profile of the country. Thus still developing environmental policy institutions (e.g. environmental agency), environmental organisations with limited activities, social problems (e.g. unemployment), present potential for innovations as well as the lack of international support have been put as obstacles in the way for sustainable development.

Ecoplanning Ltd. has been asked by the Minister of the Environment to design a new enforcement scheme on the sector of energy. Our purpose is to enforce **Rational Use of Energy (RUE)**.

What is Rational Use of Energy?

Rational Use of Energy is energy saving, energy efficiency in Industry, transport and buildings.

The demand for energy was increasing year by year the last century, in accordance with the industrial and technological development following the development of the quality of life. Even from 60's, experts have started to worry for high consumption and talk about energy saving. During late 80's an effort to decrease the energy consumption that is called RUE has started.

At the beginning Energy Efficiency seemed to be, and actually was, an expensive way of facing up energy demands in every sector. Nevertheless during the last decade many steps have been done also in order energy efficiency to be cost efficient also. Nowadays there is the tendency for RUE to be cost efficient without complicated, sophisticated and -mainly- high cost technologies.

Why Rational Use of Energy?

World Energy Research Council reckons that the world could cut CO₂ emissions by 20-30% simply by making more efficient use of energy.

High energy consumption is one of the main pollutants. Trying to use energy with more efficient way, minimising our needs at the same time we help to the improvement of the environment by decreasing green house emissions that are responsible for the increase of the world's average temperature.

Rational Use of Energy in combination with Renewable Energy Sources and clean fossil fuels is a good and the only solution for the sustainable development without Nuclear reactors. Decreasing dramatically the energy demand in buildings industry and transport we give the opportunity to the RES to cover more than 15% of the energy consumption.

Rational Use of Energy is one of the most important issues for energy conservation in order to reduce CO₂ gases.

Advantages.

- Saving money during the operation (payback period)
- Environmental friendly
- labour opportunities through the active systems in housing. Encourage industry
- comfortable internal condition, thermal comfort, clean air.

Disadvantages

The only disadvantages are the higher construction cost and the difficult implementation. The first construction cost reimbursed from the payback period and gives benefits in long terms.

How to save Energy

New technologies with the greatest potential for energy saving are

In transport and urban infrastructure

- Technical improvements to cars
- innovative technologies to promote the use of clean and alternative fuels
- innovative systems and equipment for more efficient and cleaner urban mass transport
- Improve Traffic management
- Road infrastructure

In buildings

-Insulation is the most energy efficient and cost efficient techniques at the same time having high quality of construction in order to avoid Thermal bridges.

-Geometry of the building is also important. Compact buildings minimising the loss of energy.

-Orientation. Main living areas should be at the south and secondary like bath, storage at the north.

-Materials are important for the thermal mass of the building.

-Glass facade with low e-glasses in combination with

-shading devices in order to have enough solar heating in the winter and to prevent the sun and the overheating in the summer.

-Natural cooling techniques in order to avoid the use of the air-conditions

-Heat recovery systems in order to have good interior quality of the air energy saving at the same time.

-appropriate integration of new and renewable sources of energy in particular, solar energy applications through active and passive systems

-optimise electric equipment integrating natural lighting

In industry

-Improve industrial process control

-Improved industrial combined heat and power.

Group identification

Enforcement of RUE plan concerns a great number of actors who are involved in sectors mentioned before.

Thus RUE must be enforced to all kinds of industries, independent of :

- their size
- from small enterprises to large companies and in the various stages of their functions
- for production procedures, transportation of raw materials, products and waste management
- for maintenance.

In the case of transportation the enforcement plan will lead to a change of the attitude and action for both public and individual transportation since the whole policy aims in the reduction in the number of private cars, the promotion of public transportation and the application of new clean technology (3 way catalyst, lean burn engines etc.).

If the RUE plan is about to be followed and be effective, buildings business will be affected. Contractors and clients will be influenced since the cost of energy efficient buildings will be much higher. In addition, civil and architect engineers will be affected since their technical knowledge should be adopted to goals set by the enforcement plan. Finally, universities will be responsible for the education of engineers, according to the most recent results of their research programmes on energy efficiency.

GOALS

RUE is an affective way to achieve sustainable development, which is one of our main priorities. It is well known that natural resources are limited and preservation is a matter of global importance. Conventional technologies demand use of fossil fuels, whose life span counts for a few more decades. Decrease in consumption of energy produced with the current ways, in combination with the use of renewables ensure future development and progress through energy efficiency. In parallel to the preservation of natural resources by RUE, we are aiming to achieve reduction of health risk due to improvement of air quality since less energy consumption results into less generated energy and therefore less pollution.

Apart from the direct benefits deriving from RUE through more effective ways of energy production there are also indirect benefits of great importance such as new job opportunities. For Gritilianian society such a fact is of great significance considering the high unemployment levels. The new technologies for alternative energy production will demand additional personnel for research, manufacture and installation of them, not only temporary but in a long term dimension due to their continuous use. Through RUE we achieve one of Gritilania's main concerns, that of money saving. Although the cost of RUE technologies and methods (manufacture and installation) is considered to be very high in a long term perspective we have large financial benefits. Money saving is mainly because of lower energy consumption, but also due to the improvement of environment and the social effects. This amount of money that is saved is going to be invested for better products and services. This does not only affect internal market on grounds of quality and cost, but also contributes to the competitiveness in external market and appreciation of our efforts by EU.

How to promote RUE

Due to the government profile, coalition centre-left political parties, we should implement a programme based rather to the education, information and research and technological development than to legislation and penalties. Promotion of public participation in voluntary base and not with penalties.

-Education is the most important measure.

The RUE should be taught starting from schools in order to inform and the future citizens.

RUE has to be also basic lesson to universities and especially to Technical Universities.

Technical Chambers should inform the engineers with conferences,

-Information, communication

Network. We will create communication channels between agencies responsible for the programme and regulated community

Networks such as:

- * professional associations and federations
- * banks and financing organisations
- * research centres
- * region, town and cities
- * utility network

will be used to draw together all the main actors involved to the development and the promotion of RUE.

Information points responsible for the information and the awareness of the public about implementation of energy efficient technologies, benefits for the environment.

Media also can play an important role in order to inform the public and encourage the voluntary participation.

-Training.

Professional associations and federations, research centres will be responsible for training programmes in order to have a number of well qualified professionals informed for the latest available technologies in the RUE field.

Effective Training schemes can be in the form of conferences, seminars, workshops and other technical meetings.

-Demonstration actions

Establish Programmes in order to demonstrate how efficient and cost effective is and how affects to the quality of life and quality of the environment generally.

Demonstration projects are those designed to advance or implement innovative techniques, processes or products for which the research and development stages have, for the most part, been completed. The objective will be to prove the technical viability and economic advantages of new technologies by applying them on a sufficient large scale for the first time. Whenever appropriate, projects may be grouped into clusters so that a better synergy of resources and results can be achieved.

-financial measures

Subsides for implementation of energy efficiency with innovative technologies in all sectors in order to familiarise public with RUE and to reduce the cost of conversion towards more sustainability.

the system of financing (public investment, subsidies, local taxes) for carrying out of infrastructure works for energy conservation and the energy sources.

-RTD programme to improve energy security in the broadest sense- i.e. ensuring durable and reliable energy services at affordable costs conditions- and, recognising that a major concern today is the protection of the environment, to reduce the impact of the production and use of energy, in particular the emissions of CO₂.

Within this framework programme aims to contribute to the achievement of other important objective such as strengthening the technological basis of the energy industry - with benefits for the economy, employment and export potential, improving social and economic cohesion.

-Legislation

The existing legislation-since1988- has to be upgraded according to the new stsdads, the new technology and demands of today

-Energy tax

adoption of extensive tax reforms to be effective instruments of externalises such as environmental impact through economic activity.

A major concern when formulating these polices was that any tax should have no negative effect on competitiveness, employment or specific sensitive groups or regions.

The tax reform will be based on :

In depth evaluations of target areas

Revenues collected to guarantee the finance of environmental and social projects.

Incentives in companies investing in green technology and moving towards environmentally friendly operations.

-Set new standards

Energy efficiency standards for appliances, products and vehicles.

Efficiency standards for energy technology.

Buildings insulation standards

minimisation of methane leakage's from natural gas distribution systems.

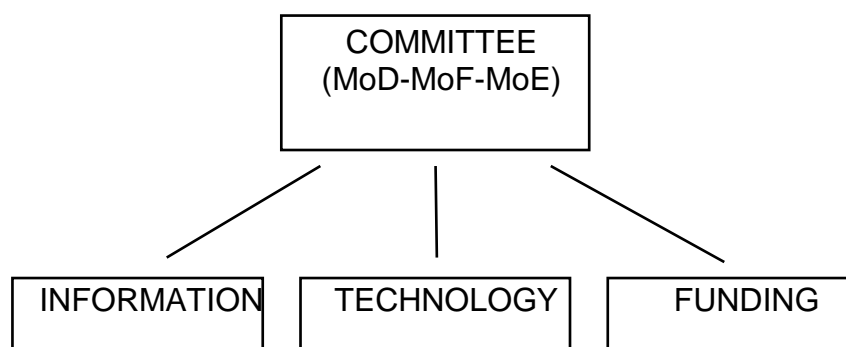
-Annual inventory

The proposed policy can be improved year by year from the elaboration and evaluation of the results given through the annual inventory.

MONITOR COMPLIANCE

A substantial subject that our group focused on is the system of monitoring whether the regulated community complies or not with the laws imposed. Additionally, reference has been done to the agencies that have undertaken the responsibility for implementing the programme.

The «tool» with which the effective monitoring will be achieved, is a committee, the members of which will be high level managers of the Ministry of Environment, Ministry of Development and Ministry of Finance. This committee will have as task to supervise the procedures and to report regularly to both Ministry of Environment and European Union for the proper or improper implementation of the programme. The areas in which the committee will act is the Information Management System, Technology and the funding of the programme.



The committee will monitor the Information procedure, especially if the reports are submitted regularly and if they describe the real situation. Thus, the responsibility will be related to the quantity and the quality of information which will be given from the public to the Information Management System Agency, from it to the Government and lastly from the Government to the EU.

It will be also important for the success of the programme to create an inventory, which will be formed by the report submitted annually. Using this

inventory we can identify the results of the programme, how effective the programme is and to correct, if required, it.

In the field of Information, the committee will also check whether the competent agencies will provide with information the regulated community. Thus, they will monitor the way with seminars and the pilot programmes are organised. The committee will also evaluate the results of the conferences, as well as will check if the information and material provided in the seminars are adequate and up-to-date.

Responsibility of the committee will be also the distribution of questionnaires to the members of the regulated community. Using this kind of information process, the opinion, knowledge, information and awareness on the RUE and the possible environmental impacts occurred due to its absence will be available. So we can have the positive and negative opinions and whether the programme is popular or not. An additional benefit of this scheme will be that people will feel taken into consideration by the government.

The committee will also monitor whether the technology available is corresponding to the technology required in order to achieve rational use of energy. The technology required will also have to be cost efficient and reliable. If these characteristics are not fulfilled, the compliance is possible not to be achieved. That is why the committee has also to be informed and aware on the new technologies in other more technologically developed countries.

The company which desires to implement a programme for RUE and needs subsidies for it, has to be monitored in the following three levels:

- a) Proposal: A proposal of what the company wants to do, with detail analysis of cost, time and targets has to be submitted to the ministry of the environment. The committee will be informed for this proposal and the way with which the programme will be funded
- b) Check: The committee will monitor the cost of the works done towards the implementation of the proposed programme in any stage of the development. This will have as objective to identify if the subsidies have been used for the implementation of the programme.
- c) Does it work? After the end of the works required, the committee will check if the new installation is properly operating and if the company can achieve the targets set in the proposal.

In the funding process the committee will have also the responsibility to monitor the committee which will be competent for the funding of the proposed programmes.

A self monitoring scheme will take place within the companies. Every company has to have the adequate facility management team which will report the committee every year, will co-ordinate the production process and will apply all the adequate management systems, in order to assist the company to achieve its goals- especially in the environment sector.

We believe that following all the above recommendations we can have a sufficient and effective way for the monitoring of the whole programme.

RESPONSES TO VIOLATIONS

Our group, taking into account the need for rational use of energy and the social and political situation of Gritilania, came up with a number of sanctions and penalties that will be imposed in the case of non compliance

with the legislation for rational use of energy. These sanctions are not strict as the whole programme is based especially on voluntary participation. Additional reasons explaining why our proposals are not so strict, are that strict sanctions can cause extremely high political cost, a number of social problems exist already because of the high level of unemployment and the capacity for modernisation is relatively poor. On the other hand Gritilania has to enter the way of development and also has to follow the European union energy policy. By doing so our country will create an environmental profile, the companies will be competitive in the Common Market and Gritilania will gain the international support and recognition.

Sanctions will be imposed to the agencies that will be responsible for communication and information of public, industries and companies in the case of poor implementation of their task. The enforcement plan that we propose in this report is depended greatly on the communication between industry and government- which some wrongly consider them as opposite sides. So the effective and very well organised operation of the communication schemes is substantial for the success of the programme. In case of poor implementation the financial allowances provided to the agency will be cut off or the government will take the responsibility from the competent agency.

Sanctions will also be imposed to the companies, especially in the industrial sector , that will have been funded from the government and will have not be implemented properly. These companies will be accountable and legal procedures will take place. An other sanction for this kind of companies will be fines equal to the amount of the subsidy plus the interest.

Every company will undertake the corresponding liability in the case in which it will not achieve the targets- reduce emissions- that have set in the yearly facility management team report. The liability will be in the form of taxes or fines, even if we believe that damages in human health can not be estimated in monetary terms.

Sanctions will be also imposed to companies-especially to construction companies and car manufactures- that will not follow, during the production process the regulations on their sectors.

Although the sanctions proposed are not strict we believe that are sufficient to discourage illegal activities and preserve the integrity of the programme.

ROLES AND RESPONSIBILITIES

In this enforcement plan a lot of responsibilities are introduced. The distribution of the roles and responsibilities is one of the most important and complicated tasks. The objective of the structure that will be followed is efficiency and flexibility. The related parties which are both governmental and non governmental, have to co-operate in a harmonious manner in all stages of the programme. These parties and their roles will be:

Governmental.

- Ministry of Finance: responsible for taxes, subsidies and tax relieves
- Ministry of Public Works: responsible for providing information about technological achievements in the construction industry

- Ministry of Development: responsible for providing information about technological achievements in the industrial sector
- Ministry of Environment: co-ordinator of the whole procedure and, after the consultation from the monitoring committee, will ask for fines and taxes to be imposed to violators.
- Local authorities: responsible for the organisation of seminars and communication channels which will provide citizens with the appropriate information about RUE and the benefits of this scheme.

Non governmental:

- Local energy agencies: which will provide information and will be responsible for RTD programmes.
- Public Power Corporation: which will also inform people about RUE with contact points and written messages to the electricity bills.
- Universities and Schools: which will educate students and pupils with the principles of RUE.
- Technical Chambers: which will organise conferences and seminars for the information and education of engineers about the RUE in buildings.
- Industrial associations: which will organise conferences and seminars for the information and education of workers and managers of every level about the application of the RUE in the industrial sector.

Communication: Establishment of a network of communication among the responsible parties (both governmental and non-governmental) in order to be more efficient and co-operate harmoniously

Conclusions.

Rational Use of Energy is an important issue for the solution of the energy problem and further to the problem of global warming.

There several problems at the implementation of the Rue due to complexity in organising and operating these networks responsible for the education, training and information of all the public sectors.

The proposed policy programme based on Research and Technological Development education programme and public participation has to be evaluated in an annual base and in all levels starting from the government which is responsible and accounting the effectiveness of the policy to the public.

The programme reformed due to the fact that the government is cohecial centre left parties and cannot afford a policy based on strictly regulations and sanctions but has to be based on the public participation.

Advantages

- Sustainable energy use through flexy long term policy constructed year by year through the annual inventories
- Development of sustainable industry
- Support new technologies, industry and commercial-exports
- Support employment

- policy friendly to the public based in voluntary base.
- Develop a reliable network
- Cost effective
- protect the natural resources

Disadvantages

- Time of the implementation
- complexity
- monitoring and preparing the inventories