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POSTAL OPERATIONS AND ENVIRONMENTAL PROTECTION

ABSTRACT

Increased awareness of the problems related to environmental protection and numerous activities undertaken in this field represent one of the basic characteristics of the present. The Universal Postal Union – UPU, has also become aware of the threat to our environment and the need for urgent measures in environmental protection. Not only do they understand the need to act, but are also aware that they have the possibility of significantly contributing to the preservation of the environment. The paper presents the activities that UPU has undertaken or is undertaking with the aim of reducing the environmental pollution, as well as some practical experiences of the developed postal administrations in applying the system of environmental protection management in the postal technological processes.

KEY WORDS

post, postal operations, environmental protection

1. INTRODUCTION

The social environmental awareness and the improvement of the quality of living embedded in the international conventions and the national regulations is gaining in significance both in the public and the economic lives of people. The environmental problems are the problems of a global character and a number of measures and activities related to their solution have been planned and carried out under the umbrella of international organisations. At the UN Conference on Environment and Development, held in Rio de Janeiro in 1992, under the promotion title AGENDA 21, the governments of the member countries have agreed on the plan and program giving incentive to the new industrial strategies under the title “cleaner production” with the task of reducing the volume of waste and environmental pollution. Conse-

quently, the economic subjects, as the biggest possible factors of the negative impact on the environment, within the framework of solving the problem of their economic survival, solve also the problem of their own impact on the environment.

Just as the postal service tends to follow all the positive trends in the field of technological innovations, thus also, through the Universal Postal Union, it has taken active part in environmental protection. Among other things, a resolution on the Strategy of Environmental Protection in postal operations was brought at the 1994 Congress of the UPU members held in Seoul, and it requires from every postal administration and other UPU bodies to take active part in environmental protection within their own scope of work in compliance with the general development of their respective environment. This resolution is included in the program of environmental protection implemented under the auspices of the United Nations (United Nations Environment Programme – UNEP).

The UPU highest operational body, the Postal Operations Council – POC, brought the decision on developing a study that will serve as a starting point of the UPU Environmental Protection Strategy. Under the auspices of its International Bureau – IB, a preliminary study was organised under the title “Postal Operations and Environmental Protection”. The leading UPU members were involved in carrying out the study. This study became the basis for the strategy of environmental protection in postal operations. After having completed the study, and after having sent the summary with the most important highlights to all UPU members three international symposia on the topic “The Post and the Environment” have been organised under the auspices of UPU.

Further steps undertaken by UPU with the aim of regulating the environmental protection included the acceptance of the so-called Beijing Declaration on

Environmental Protection at the 1999 World Postal Beijing Congress. It determines the procedures that should be implemented by postal administrations in order to reduce the pollution, maximise the use of environmentally friendly products and save energy. A manual has also been published under the title: "The Post and the Environment – Operational Guide".

2. POSTAL OPERATIONS AND ENVIRONMENTAL PROTECTION

2.1. Study "Postal Operations and Environmental Protection"

By participating in the generally accepted flows of environmental protection on our planet, the Universal Postal Union has developed a study "Postal Operations and Environmental Protection", which is, as already mentioned in the introduction, the basis for upgrading the environmental protection strategy within the postal operations.

The basic starting point in the environmental protection is based on the good intentions of every UPU member to:

- participate actively in improving the environmental protection in compliance with the general social development,
- co-operate closely with the government bodies, non-governmental organisations, producers, users, and all the others who could contribute to the environmental protection,
- increase environmental awareness of the employees through education,
- bring and apply the regulations and rules of behaviour that will be environmentally friendly,
- take into consideration all the possible elements of environmental protection when making plans, investment decisions, projects, already in the initial phase itself,
- insist when negotiating with the producers / suppliers of products that will be used in postal technological processes, that these products are not environmentally harmful (either in the production phase, or during usage, or as waste),
- issue postage stamps covering the topics of ecology,
- share its experiences in environmental protection with other postal companies.

The Study was managed by the post companies in the U.S.A., Great Britain, Germany and Sweden. The Study itself is divided into three sections, i.e. four sub-studies:

1. Energy sources used in postal operations:
 - Conventional sources of energy (Great Britain),
 - Alternative sources of energy (U.S.A.),

2. Disposal of waste and recycling thereof (Germany),
3. Use of the environmentally friendly products (Sweden).

The countries responsible for the topics have supplied also, as part of these sub-studies, the responses given by the UPU members on the issues of environmental protection in their societies.

The sub-study "Conventional Sources of Energy" is very important since the energy sources belong to the most infamous environmental polluters, and they should be avoided or their harmful impact reduced. Thus, postal administrations are, among other things, advised to replace wherever possible the harmful energy sources of heating by those that are not harmful or are less so (e.g. gas or electricity instead of petroleum products). Since road vehicles have been accused of being the greatest environmental polluters in postal operations, i.e. their petrol and diesel exhaust gases, the postal administrations are advised to:

- insure maximum compliance with the regulations that can reduce exhaust gases, through training and control of driving staff,
- efficiently check and maintain the quality of vehicles,
- use those fuels that have really been planned for a certain vehicle,
- take out of service those vehicles that do not comply with the regulations on environmental protection,
- when purchasing new vehicles, to select those with technical performance and aerodynamics which reduce fuel consumption, etc.

The section of the Study "Alternative Sources of Energy" presents their possible application in postal service. Since it has been estimated that the motor pool of postal companies is the greatest environmental polluter, the US mail was entrusted with the task of analysing the possibility to apply alternative energy sources, i.e. vehicles using such propulsion.

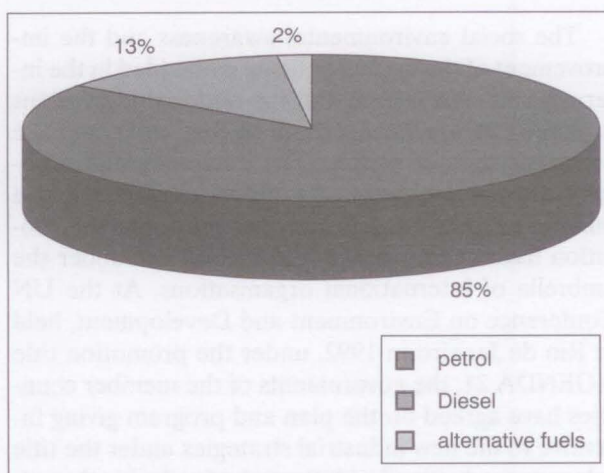


Figure 1 - Fuels for mail vehicles in the U.S.A.

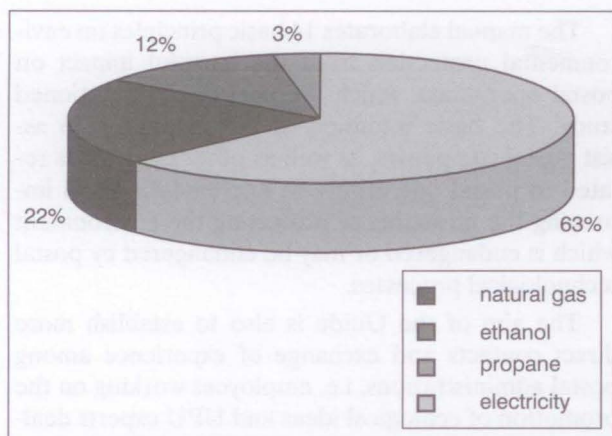


Figure 2 - Alternative fuels used for US mail vehicles

They recorded the current state of the motor pool within the US post offices and the fuel consumption (Figures 1 and 2), and based on their own experiences they gave certain suggestions on the use of vehicles using alternative sources of energy. Thus, they advise the postal administrations to take into consideration when planning to purchase new vehicles, for the start, as a possible option, the purchase of vehicles using alternative fuels. They advise the postal administrations that already use such vehicles to monitor the operation of those vehicles in practice, and to make the collected information available to those postal administrations that are in the process of making decisions on the purchase of new vehicles.

Postal administrations should form a consultant body that would provide the producers of such vehicles with the suggestions based on experiences from practice. They should also co-operate with the producers in testing their prototype vehicles.

The topic "*Waste Disposal and Recycling*" was elaborated by the representatives of German Post. The sub-study encompasses the problems of gathering, storing, disposal and recycling of waste generated by postal operations.

In the process, they have used the experiences from the postal service and the experiences from other activities that are of interest for the postal service. Based on this knowledge, a number of recommendations has been given, which can improve the environmental protection during technological processes in postal service.

Special attention has been paid to the products, i.e. recycling of products made of paper (stamps, envelopes, postcards, parcels, documents, etc.), since these are mostly included in these processes. The suggestion is for the UPU International Bureau to develop instructions in order to avoid the use of products that result in harmful waste, such as e.g. fluorescent and halogen lights. The International Bureau should also make a list of recyclable products, and a list of those products that could replace the harmful ones.

It has been recommended to monitor the behaviour of recycled products in practice, in order to determine their advantages and drawbacks, i.e. how to establish which of the recycled products comply with the standards of postal technology.

Briefly, the recommendation is to use products which:

- do not generate waste,
- generate waste that is not harmful for the environment,
- generate recyclable waste.

Swedish mail has elaborated the part of the Study under the title "*Use of the Environmentally Friendly Products*". This section of the Study focuses on the recommendation to use environmentally friendly products for the construction of new postal facilities or the reconstruction of the existing ones, and for the equipment of these facilities. The recommendation is accompanied also by the specification of the products that do not pollute the environment or do pollute the environment but to a lesser extent.

The Study highlights the use of recyclable products, and emphasises the rejection of the use of chemicals and materials that are included in the United Nations "black list" regarding ecology. Thus, e.g. the use of rechargeable batteries not containing Cadmium is recommended. Considering electronic equipment, the recommendation is to buy devices which save energy and do not pollute the environment either during service or as waste.

Since reduced energy consumption represents one of the essential elements of environmental protection, the suggestion is to analyse the current consumption and to design a plan of possible savings based on the question: are all the current consumers necessary and to which extent?

Part of this sub-study is the Annex in the form of questions that we ask ourselves and that may help postal administrations to consider the ecological aspects of their decisions in the decision-making process. The questions are:

1. Are there products made of recyclable materials among the products that we have to purchase?
2. Do we have enough knowledge about the existence and the possibilities of alternative products that cause less pollution to air, water and soil, so that we could make environmentally more favourable decisions when purchasing equipment?
3. Are we familiar with the UN list which contains a list of materials that should be banned from usage?
4. Have we required from the product suppliers the guarantee that their products do not contain any prohibited materials?
5. Before making decisions on purchase, have we consulted any environmental experts?

6. Have we required the product suppliers to provide proof on how and in compliance to which regulations they protect the environment?
7. Have we informed the product suppliers about our internal regulations on environmental protection?

The Study includes, as a special but common topic the *proposals on the methods of promoting the idea on environmental protection*. The postal administrations are advised to take part in permanent promotional activities that are going on in the whole world, and under the patronage of the United Nations.

As one of the aspects of their contribution to spreading ecological habits, they should e.g. publish stamps showing topics from ecology. Based on such stamps, postal administrations should organise gatherings with young people thus at the same time developing interest for philately and raising the awareness of the need for environmental protection. Such gatherings would include lectures, i.e. exhibitions of postage stamps accompanied by texts, under the supervision of experts for philately and ecology.

Consequently, the postal administrations have been advised to organise in co-operation with schools contests inviting the best drawings on ecological topics, and presenting the drawings on special occasional stamps. This method of animation through education is one of the most significant contributions to raising awareness in the future generations about the needs to protect the environment.

Postal administrations should also assume the obligation to inform their employees about the needs to protect the environment, both in the working and in their own personal living environment.

Postal administrations should stimulate in various ways founding of the societies and give support to the work of those societies in their environments whose Constitutions contain the obligation of protecting the nature (e.g. ecological and mountaineering clubs).

As one of the promotional activities, UPU is advised to determine one day during the year such as e.g. the "International Day on Environmental Protection in Postal Operations" accompanied by special events and actions (postage stamps, stamps/seals, envelopes, etc.).

UPU should organise seminars for those postal employees, who will spread in their environments the idea of environmental protection and who will be trained in such a way as to give in turn similar seminars in their companies.

2.2. "The Post and the Environment" - Operational Guide

The follow-up of the UPU main Study on Environmental Protection is the manual "The Post and the Environment - Operational Guide".

The manual elaborates 14 basic principles on environmental protection from the harmful impact on postal operations, which are part of the mentioned study. The basic intention of the manual is to assist postal companies, as well as other companies related to postal operations, in implementing and improving the measures of protecting the environment which is endangered or may be endangered by postal technological processes.

The aim of the Guide is also to establish more direct contacts and exchange of experience among postal administrations, i.e. employees working on the promotion of ecological ideas and UPU experts dealing with the environmental issues. The purpose of the Guide is not to prescribe readymade solutions, but only to assist in the identification of the main ecological problems and indication of some possible solutions.

The most important part of the Guide is certainly the elaboration of the 14 key principles regarding environmental protection against the negative influence of the postal operations:

1. establishing of communication among postal companies on environmental issues;
2. use of products and services in postal technology which are in compliance with the environmental protection;
3. reduction of harmful exhaust gases and liquids from postal vehicles;
4. saving of energy in postal technology;
5. adequate disposal of postal waste and subsequent recycling;
6. reduction of the dust in the air in postal premises;
7. stimulation of ecological awareness of postal workers;
8. reduction of noise in postal premises;
9. including the savings into the investment costs due to the application of the environmental protection measures.
10. taking special care about the environmental protection while carrying out the basic postal services (letters and parcels);
11. use of alternative fuels;
12. relation to water;
13. use of "green" material in civil engineering
14. development and monitoring of the plans of actions in environmental protection.

The work on the manual does not end with its publication. It only means that it is then available for publication of new and feasible ideas that might be provided by other UPU members.

3. POSTAL EXPERIENCES IN ENVIRONMENTAL PROTECTION

The size, number of employees, number of post offices, the facility for motorcycles and other vehicles indicate the significant influence of the post on the environment. This fact and the position of post in the society prove the obligation to insure good and safe life and work to the users and their own employees. Therefore, it is interesting to note which activities the postal administrations undertake in order to protect the environment. These activities include:

- use of recycled paper and easily recyclable paper, not only for the office work but also for the production of postcards, envelopes, parcel boxes, etc. Postal administration of Japan motivates the users by a reduced price for the purchase of postcards made of recycled material;
- in the production of postage stamps easily biodegradable paper is used, and adhesives that do not contain lead or any other heavy metal, and are water degradable;
- substitutions and replacements in technological processes, e.g. replacing plastic and wooden pallets by cardboard ones (USA);
- building of "green" post offices by using environmentally friendly materials to maximise energy utilisation;
- greater use of public urban traffic vehicles (Denmark);
- use of environmentally friendly fuels;
- usage of renewable energy;
- use of alternative sources of energy, e.g. use of electric cars in urban transport (Sweden, Finland, Japan);
- adopting the waste management policy (disposal and preparation for recycling, especially regarding "heavy" waste such as oil, antifreeze, batteries, rubber, plastic, etc.);
- constant informing of the professional and general public about the activities related to environmental protection. The US postal administration does this by means of various publications and annual reports printed on recycled paper;
- co-operation with business users, sales and direct marketing organisers through post, being advised on the method of reducing the number of postal items the users do not want to receive, and by introducing higher precision in address lists, thus reducing waste.

3.1. Experiences of Australia Post

As the biggest and geographically most dispersed organisation in Australia, the Australia Post has un-

derstood the need for consistent and comprehensive approach to the preservation of nature, reflected in its numerous activities. The Australia Post is one of the first Australian service companies that successfully implement environmental protection management systems. Not only has this approach resulted in the reduction of the generation of the so-called greenhouse gases, but these activities have also resulted in significant operational savings.

The initiatives undertaken by the Australia Post in order to reduce the release of greenhouse gases into the atmosphere includes the replacement of the obsolete 8500 computer units by new ones that have the option of working in "energy-save mode", replacement of classical electric bulbs by energy-saving ones, installation of time-limited switches for switching the air-conditioning systems on and off, and others. All this contributes to major reduction in operational costs.

The Australia Post has initiated as many as 37 actions in order to reduce the release of gases, out of which 21 are being reanalysed. In this way the post joined the program of environmental protection entitled the "Greenhouse Challenge" initiated by the Australian government. The objective of this project is to stimulate companies and organisations to reduce the release of greenhouse gases by improving the efficiency of using energy and improvements in production. Such approach has resulted from the desire to combine production and environmental protection.

The Australia Post employs 30,000 employees on full time and 6,000 workers with part-time employment, and it is the seventh biggest corporation in Australia. It can really affect the environment by its method of operation, and by promoting its best practical experiences, i.e. their presentation to the wider community.

The first step was to adopt the common policy on environmental protection that obliged the corporation to assume reasonable care in managing its activities in order to avoid or minimise air, water and soil pollution.

The Australia Post has managed to include environmental protection in its investments and the development strategy, purchase of goods and services. In the purchasing policy the priority is given to environmentally aware suppliers, and the less environmentally harmful products are preferred.

Furthermore, the postal policy of environmental protection has obliged the workers to use all the possibilities of material recycling. As part of this policy the Post has committed itself to hold legally responsible all the suppliers for any violation of regulations made in delivery of goods or services to and from the Australia Post.

Once this operational framework had been developed, it was necessary to insure that all the staff and all the suppliers were aware of the new policy related to environmental protection. In this respect instructions for managers were published and sent to all the centres. The instructions contained specific information on applying the postal system in environmental protection management and the "step-by-step" orientation to check the risk for the environment in every postal centre. These instructions are accompanied by a booklet entitled "Environmental protection – my role", which was presented to every worker. The instructions were developed in order to raise general awareness about the environmental protection and insure the guidelines for the management in postal centres. The fact is that although the majority of employees is aware of environmental protection and want to give their contribution, most of them forget that when at work.

Since the Australia Post covers the whole Australian territory, this circumstance has strengthened the independence and self-assessment in identification, estimation, management and reporting about the risks for the environment and the protection programs. These estimates are supported by specially created databases, which allow identification of the "high-risk" area. The centres designated as "higher risk" centres, were also provided with the information system for environmental protection in order to simplify the documentation and management of business activities in the environmentally responsible manner.

The database and feedback information from postal centres help in the measurement of effects and impact of these ecological initiatives. The final results have shown numerous savings. For example, by simple introduction of energy-efficient operations on PCs, they have achieved a saving of AU\$ 450,000 annually, and the CO₂ emission was reduced by about 4,500 tons. By introducing the thermostats with time switches that automatically switch the lights and air-conditioning systems on and off when the premises are not used, about AU\$ 46,000 have been saved annually and the CO₂ emission was reduced by about 400 tons.

The transport department of the Australia Post was the most efficient in giving incentive to the activities on reducing the greenhouse gases and implementing the "Greenhouse Challenge" program. The work of this department represents the greatest challenge for the Australia Post regarding environmental pollution.

With 39 million kilograms of cargo annually, distributed by means of special cargo services and domestic passenger flights, the Australia Post is the biggest user of the international air cargo traffic. It uses also the services of 3,000 national haul carriers, and owns the fourth biggest motor pool in the country.

Certainly, washing of 10,500 vehicles every week or ride of 6,800 motorcycles have an immediate and potentially significant impact on the environment. Therefore, the transport department of the Australia Post has actively used the new and current technology in order to reduce the harmful impact on the environment, and that with great success. Today, the postal motor pool is very close to the "green" pool, much closer than any other Australian carrier.

Among numerous activities undertaken by this department in the past several years is also the replacement of the motor pool exclusively by vehicles using Diesel fuel. This simple initiative has resulted in 10-percent reduction of greenhouse gases, which means 18,000 tons of CO₂ less. Good management of motor pool, correct policy, and keeping in pace with the new technology are also very important in reducing the greenhouse gases.

The Australia Post started also to replace the existing trucks by trailer trucks, in order to provide expansion of the load space for transporting mail between the states in one-way transport and thus to reduce the generation of greenhouse gases per tone of postal items. This could save about 28,600 litres of Diesel fuel annually and reduce the presence of CO₂ by about 2,144 tons. (3)

The Australia Post is also in the early phase of studying natural gas as the alternative to the traditional source of fuel. For annual maintenance of postal motor pool, a total of 227,000 litres of oil and 73,900 oil filters are used. With improvements in maintenance this consumption should be reduced and intervals in servicing of cars, trucks and truck trailers could be doubled.

The Australian government has graded highly the efforts of the Australia Post for the achievements in the field of environmental protection, and the Australia Post was awarded a very distinguished award – prize.

3.2. Postal Experiences with Environmentally-friendly Vehicles

Since environmental protection is becoming a growing requirement for all, regardless of the fact whether it concerns an individual or a big company, the postal service is also investing all the efforts to take part in these trends. The Universal Postal Union (UPU), entrusted by the United Nations Organisation to expand and implement the idea on environmental protection in the scope of its activities, provides its members with recommendations and instructions on developing and applying ecology in postal technological processes.

According to the UPU Study on environmental protection, the highest rate of environmental pollu-

tion in postal operations is to blame on the vehicles using conventional fuels (petrol, Diesel). There is no doubt that these energy sources are actual environmental polluters, but it is also a fact that there is a great number of vehicles using these fuels so that the postal vehicles have a low share in this type of pollution. However, this is no reason for the postal services not to contribute within the framework of their possibilities to the reduction of this type of environmental pollution.

It was found that exhaust gases are generated during combustion in vehicles using conventional fuels, and that these gases have harmful impact on the Earth atmosphere (this primarily refers to carbon dioxide). Therefore, the tendency on the one hand is to reduce the emission of these gases (lower level of protection), and on the other hand, the work was intensified on searching for alternative fuels (higher level of protection). By improving vehicles the emission of harmful exhaust gases would be reduced (it should be noted that the emission of harmful gases can only be reduced, rather than completely eliminated). However, long-term solution to the problem should be based on vehicles using alternative sources of energy. It is, namely, unthinkable today to ban completely from traffic the vehicles using conventional fuels, and this situation will continue until acceptable alternative fuels are found, which, apart the ecological segment, can replace the conventional ones regarding also all the other essential characteristics. Consequently, the research and development of alternative fuels, i.e. vehicles using this type of propulsion, represent the only way that leads toward a higher level of environmental protection.

Parallel with the long-term work on the development of alternative fuels, automotive industry, under the pressure of the ecologically-minded public, is increasingly investing into the studies which are aimed at reducing the negative effects of the exhaust gases. They are forced to do this by the legislation bodies in the countries that do take care of the environment. The legislators in those countries make efforts to make every such improvement accepted as soon as possible, either as an obligation (legal regulations) or by stimulation (tax relieves).

Especially great attention to the ecological characteristics of vehicles is paid by the European Community. Its members adopt year by year ever stricter regulations on the protection of nature, and the emphasised ones are those that aim at the reduction of exhaust gases. Whereas, e.g. several years ago these regulations were obligatory only for the vehicles that had yet to be produced, lately these refer also to vehicles already participating in traffic.

The simplest solution in order to reduce the exhaust gases consists in the reduction of usage of those

energy sources that pollute the environment. If, within this solution, the possibility of restricting the number of vehicles in traffic is rejected as being unrealistic, then the reduction in fuel consumption can be achieved in several ways:

- by optimising the vehicle routes (primarily regarding transport companies, that can reduce the fuel consumption even up to 25% based on the support of information technology),
- by better vehicle maintenance,
- by improving the aerodynamic characteristics of vehicles,
- by additional study and stimulation of the motorists to comply with those driving rules that reduce fuel consumption, etc.

In order to start reducing the harmful effect of vehicles using conventional fuels, the basic thing is for the manufacturers and the owners of such vehicles to become aware of the facts that:

- the combustion products of these fuels have negative impact on the environment, and
- everyone can contribute to environmental protection against harmful exhaust gases.

The more the general public accepts such thinking, the better the results in reducing harmful effect of exhaust gases generated by the vehicles using conventional fuels.

Today, all the manufacturers of vehicles using conventional fuels are giving their best in producing vehicles that consume minimum amounts of such fuels i.e. that emit minimal quantities of harmful gases. Positive results of these efforts have become inevitable factors in advertising such vehicles since they undoubtedly result in an increase in the sales of such vehicles. Unfortunately, as it very often happens, the automotive industry carries things too far, informing the public of very favourable results achieved in laboratory testing conditions, whereas much worse results are obtained in actual traffic conditions (especially in urban traffic).

3.2.1. Experiences of the British Royal Mail

The British Royal Mail is the leading one among the UPU members regarding its efforts and results in reducing the consumption of conventional fuels by their new vehicles. They have developed for the needs of UPU, due to their long-term experience, an elaborate about the methods of reducing the harmful effect of conventional fuels on the environment that can be adopted also by other postal companies. They suggest solutions for short-, mid- and long-term periods of time.

In the solutions that can be applied over the short-term period, the emphasis is on the reduction of exhaust gases from their existing vehicles. This refers especially to carbon dioxide (CO₂) and nitrogen ox-

ides (NO_x). With this aim the British Royal Mail has started to co-operate with several well-known vehicle manufacturers (Volkswagen, Ford, DAF, Renault). The result of this co-operation are the "green" vehicles, as they are called (Figure 3). They feature improved aerodynamic properties, strong catalytic converters, and they use special high-quality engine oil. Special clutches have been designed for these vehicles, controlled by means of an installed microprocessor, and they react automatically to the variations in vehicle speed. The testing results showed that such vehicles reduce fuel consumption in urban traffic by about 14 percent and in out-of-town traffic by 18 percent. Besides, the "greens" generate less noise than the usual vehicles of the same category.



Figure 3 - "Green" truck of the British Royal Mail

The mid-term period plans the use of vehicles using:

- Diesel fuels with very low percentage of sulphur,
- alternative plant-based fuels,
- alternative fuels based on natural gas.

At the moment, the vehicles using Diesel fuel with very low percentage of sulphur are being tested. In urban traffic such vehicles reduce the emission of carbon dioxide by about 11 percent, of nitrogen oxides by about 9 percent and of other harmful substances by about 14 percent.(5)

The solutions that will be studied in the long-term period include those that refer to electrically propelled vehicles and hybrid vehicles. Hybrid vehicles are those that can use two types of energy sources. One would be used for urban traffic (most probably the electricity) and the other for out-of-town driving (most probably Diesel with low content of sulphur).

3.2.2. Experiences of German Post

Under the auspices of the European Community, and within the framework of the "THERMIE" project, in co-operation with some postal companies, the German Post participates actively in searching for solutions that will satisfy both the ecological require-

ments as well as the transport needs of the postal technology.

After having carried out certain analyses, the German Post came to the conclusion that, considering both mentioned requirements, the best solution would be to use electric vehicles. The German Post is studying the operation of two types of vehicles: vehicles of 400 kg capacity and vehicles of up to 1,500 kg capacity. The vehicle was named "PostMobil" (Figure 4).



Figure 4 - Electric car "PostMobil" of the German Post

It is well known that the sources of energy propelling electric vehicles are storage-batteries. The basic problem of all electrically propelled vehicles and the reason why they have not been generally accepted yet is the insufficient capacity of batteries and the need for long hours of charging the empty batteries. Therefore, the German Post focused on solving the problem of charging stations, i.e. replacement of discharged batteries. In order to solve the problem of those stations (their number and locations), three important data have to be taken into consideration:

- number of kilometres that a vehicle can travel with one battery charging,
- number of kilometres that a vehicle can travel during working hours,
- number of electrically propelled vehicles.

Correct charging of discharged batteries takes several hours. Since waiting for the batteries to recharge would not be acceptable during working hours, they should be charged only when the vehicle is not in service. Such a solution is satisfactory only if the battery lasts for the whole working time. However, according to the current battery capacities and the average needs to use vehicles, it is obvious that one charging is not

enough. In the desire to solve this problem, the battery producers have managed to produce battery charging devices that can charge a battery in less than 30 minutes. However, such charging has a negative effect on the life-cycle of batteries. Moreover, the price of one fast battery charger is about US\$ 30,000.

Due to the mentioned reasons, the German post opted for a less expensive solution that is based on the replacement of discharged batteries by the pre-charged ones. Since batteries used by PotMobil have small wheels, the whole process of replacing them does not take more than 5 to 10 minutes. The charged batteries can propel a vehicle up to 300 km.

Knowing the planned routes of all the electric vehicles, their number and capacity of batteries, the German Post has constructed a system of battery replacement/charging stations, thus insuring mobility of all the vehicles during their working hours. One station can service about 50 vehicles a day.

4. CONCLUSION

Today, when environmental protection has become a necessary obligation for all of us, and can no longer be described as a quixotic phenomenon, it is certain that the UPU environmental program contributes significantly to the development of ecological awareness. Since there is usually a gap between good ideas and intentions on one side and concrete actions on the other, the environmental program intended for all the UPU members, including HP (the Croatian Post), explicitly emphasises that those who do not have any efficient activities will remain useless and therefore it is concrete actions that are required. Naturally, one should stick to actual conditions, and understand and accept one's own current possibilities in environmental protection and realise those recommendations that are acceptable in one's own environment.

It is also clear that a certain period of time is needed from acceptance to the realisation of any new idea. However, the fact is that, no matter how long this period is, if one wants to reach a target, then one should start moving towards it.

Since ecological products at the moment tend to be more expensive than the non-ecological ones, their use is often, due to financial reasons possible only in the economically more developed environments. However, in these environments the process of including alternative environmentally-friendly products in the postal operations is a slow one, so that even in the U.S.A. only two percent of postal vehicles use alternative fuels. However, energy saving, and this is one of the essential factors of environmental protection, is an approach that is feasible in all the environments.

Certainly, HP (Croatian Post) can also contribute significantly within the framework of its own possibili-

ties to the environmental protection in Croatia. In the quoted "14 principles" there are items which can be partially or fully successfully realised even within HP. Special emphasis is on the possibility of HP providing much in the promotion of environmental ideas, especially among the young.

And finally let repeat the most beautiful and profound and always true environmental statement that has somehow become the credo of ecology, and that was made by the Chief Seattle in his speech delivered to President Franklin Pierce:

"We have not inherited clean and healthy nature from the previous generations to waste it, but as such we have merely borrowed it from the future generations with the obligation of returning it back"

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SAŽETAK

POŠTANSKA DJELATNOST I ZAŠTITA OKOLIŠA

Povećana svijest o problemima zaštite životne sredine i brojne aktivnosti koje se čine na tom području jedna je od temeljnih značajki današnjice. I Svjetska poštanska udruga – UPU shvaća prijetnju našem okolišu i potrebu za hitnim poduzimanjem određenih akcija na očuvanju okoliša. Ne samo da shvaća potrebu djelovanja već je svjesna da ima i mogućnosti značajno pridonijeti očuvanju okoliša.

U članku su prikazane aktivnosti koje je UPU poduzela ili pak poduzima u cilju smanjenja zagađenja okoliša, kao i neka praktična iskustva razvijenih poštanskih uprava u primjeni sustava upravljanja zaštitom okoliša u poštanskim tehnološkim procesima.

KLJUČNE RIJEČI

pošta, poštanska djelatnost, zaštita okoliša

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