

## Collection and sorting systems in Croatia

UNIJAPAPIR d.d. is a specialized enterprise for collecting, sorting and primary paper and board recycling in Croatia. This is its basic activity.

In all main centers and bigger cities Unijapapir has a well organized paper services in which 90% off all the quantity of recovered paper is collected. Since the end of the war, we try to apply the European experience in its work with secondary materials, but because of the decrease of standard the use of papers/ inhabitant is stagnant. Unijapapir has a well-formed net for collecting, sorting and primary processing of recovered paper and co-operates with firms which produce and use paper and board packaging, and with firms which convert paper and board waste.

A strong potential for collecting and converting of recovered paper (cca 4000 various containers, 100 special vehicles 180 employees, firms for sorting, automatic devices for continual pressing etc.) enables Unijapapir's high percentage of collecting and sorting paper after paper production technological needs. Today, paper is sorted in eight basic classes and eight subclasses (after the European classification of recovered paper) to become a usable material for recycling.

Collecting and recycling of recovered paper as an activity in Croatia is in an unfavourable and an exceptionally difficult situation due to the following:

- recession on world and national paper market which started in 1995 and last till today.
- national paper industry is not able to help in sorting net development
- insufficient knowledge and understanding of initiative for collecting and recycling recovered paper in local government, town and also national governments.

The price in particular classes of recovered paper doesn't cover even the expenses of collecting of recovered paper. That is the reason of decreased collecting recovered paper. This problem is decided with importation of recovered paper from European community where recovered paper is priceless or even with appropriate transport.

Defining the sources is the essential part in the program of collecting of recovered paper.

The sources of recovered paper are set in several groups as follows :

- graphic industry
- other industries
- warestores, shopping centers, markets and warehouses
- institutions, hotels and offices
- households

Graphic industry is a source in which recovered paper evolves during the production and it must be removed from the production machines to containers or press containers, or it must be pressed in bales. If possible, it is better to sort waste paper next to the producing machine immediately during the production than after when mixing different kind of paper can happen. These sources are well treated and used.

Other industries are a source in which we can find board and corrugated board packaging and wrapping paper. Collecting of waste paper in this case is performed by putting in different volumes containers. It is very important that the waste paper, board and corrugated board will not be mixed with other wastes and garbage, and it is necessary to have a responsible person on this position for paper manipulation.

Warestores, shopping centers, markets and warehouses are the final sources for waste paper, packaging and waste wrapping papers. The collecting success depends upon good organization and a developed net of deposited containers of different volumes.

Institutions, hotels and offices are sources from which the waste paper took rise in two different ways:

- archives outlay which appear once or several times a year – carting away from institutions must be directly arranged
- waste paper from offices which appear daily – collected in transport boxes made of corrugated board, which are placed in every office (it is important to have a developed net for collecting, like boxes for waste paper, containers, and special vehicle for discharging containers).

Households are the biggest sources for waste paper but also most demanded for organized collection. The most important problem is how to prevent people from throwing the waste paper to garbage.

This system demands great engagement of all participants in this activity and numerous devices and mechanical equipment which makes this kind of collecting very expensive.

New systems for collecting paper from households are introduced lately, like positioning of permanent 2 or 3 m<sup>3</sup> paper containers and opening of recycling yards where also the paper can be put away on daily basis. This system of paper collecting cannot be performed without the local governments, united control of placing and organization of emptying of the containers. This system has proved a good one, people have taken to it and the results are good.

The prices of waste paper by classes in Croatia follow the level of prices in Western Europe.

Local paper factories level the prices with transport costs which depend on the distance of the transport. The collectors of waste paper in Europe have the advantage over their Croatian colleagues because they can make up the costs of collecting through some systems so the price of raw material is used for extra gain. This is meant for the collecting of packaging paper where the expenses of collecting, sorting and primary processing are biggest and the prices don't cover the expenses of collecting. Many companies give up on collecting and there are whole regions where no one works with the collecting of waste paper.

Big recycling yards are also important for primary recycling of waste paper. These are overseen places for selective collecting of all kinds of paper from households and shops.

As a member of the OHO system Unijapir develops the recycling of cardboard packaging through direct cooperation and connects the subjects during the formation of waste packaging paper until the final accommodation. The problems in cooperation mainly appear due to the bad financial state of our economy. Due to a big volume that paper and cardboard packaging takes separate collecting is rather expensive and calls for a more economic solution – a greater size containers, press containers and continued pressing machines etc.

The bad state of our economy doesn't help with deprived stimulations for eco-projects and ecology as a whole.

There is no complete strategy for management of paper waste at this moment. There is no interest for connecting the interested subjects that work with waste paper.

The main problem for a quality management in the field of recycling of primary waste are low prices of waste paper. Better use and sanctioning of the waste law and the Rulebook on handling packaging waste by local governments is needed.

Costs for propaganda and education were cut due to paper recession.

To support the development of waste paper collecting, some old educative actions should be revived and made fit for today's conditions.