

Promoting Sustainable consumption in Cities
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Eco-products and Secondary Raw Materials

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1. Eco-products and recycled products : two pillars of sustainable management of resources

The issue of the growing production of waste is not new. The consequences on the environment of landfilling and incineration of waste are on the heart of debates for long. A complementary issue is the role of prevention at source and recycling in the conservation of natural resources. This issue is at the core of the new debate around European project of Integrated Product Policy.

Population growth and current patterns of economic development translate into increasing demands on environmental resources. According to the Wuppertal Institutes, nowadays, the material consumption in the industrialized parts of the world has reached a level of 50-80 tons of total material requirement per capita per year. There is a growing evidence that we may moving beyond the carrying capacities of the environment on a number of fronts.

Even though we cannot determine where the ecological limits to global economic and population growths are, it is evident that the material consumption rate in industrialised countries is buffered by global eco-systems only because the majority of the global population still remain far below figures in industrialised countries. For example, the same Wuppertal Institute estimates the total material requirement for Vietnam to 2-5 tons per capita per year. In the same line, the United Nation Program for the environment (PNUE) published end 1999 a set of articles on sustainable consumption. The figures gathered in table 1 below are taken from this publication. They illustrate that industrialized countries (approx. 15% of the world population) are responsible for more than 70% of the world consumption. A fifth of the population (living in countries with higher incomes) consumes 60% of the world energy and 2/3 of the world electricity, possesses 90% of cars and 3/4 of telephones. The PNUE estimates that a child born in an industrialized country will consume more during his life that 30 to 50 children born at the same time in a developing country.

Item	Year	World	Industr. Countr.	Develop Countr.	Sub-Sah. Africa	Arab States	East Asia	Southeast Asia & Pacific	South Asia	Latin Am & Car
Meat (1000K of tonnes)	1970	87	57	29	3	2	8	3	3	10
	1995	199	95	103	6	5	53	8	8	23
Cereals (1000K of tonnes)	1970	473	91	382	27	20	142	41	112	33
	1995	866	160	706	56	49	236	82	212	57
Total energy (1000K of tonnes of oil equiv.)	1975	5575	4338	1237	139	67	407	102	180	306
	1994	8504	5611	2893	241	287	1019	296	457	531
Electricity (1000000K of Kwatt-hours)	1980	6286	5026	1260	147	98	390	73	161	364
	1995	12.875	9300	3575	255	327	1284	278	576	772
Gasoline (1000K of tonnes)	1980	551	455	96	10	12	11	8	6	48
	1995	771	582	188	15	27	38	19	13	72
Cars (1000K)	1975	249	228	21	3	2	0,5	2	2	12
	1993	456	390	65	5	10	7	7	6	27

The natural strive of developing countries to become industrialised should naturally result in a steep increase of global material consumption in the future. This is the rationale for the call for a dramatic reduction of material throughput (dematerialisation) in the rich countries. These should lead the way to innovation towards more energy/material efficient ways of development.

More than one planet

Some authors have tried to assess the sustainability of one's lifestyle or even particular purchases and compare them to a level which would guarantee sustainability for the whole world. What the system essentially does is to calculate the area of land one would need in order to balance out the negative ecological impact our lifestyle has on nature. For example, you calculate the area of forest you would need to absorb the amount of Carbon dioxide you produce by driving so and so many miles per annum with your car or by flying to America. The results can then be compared. While for a sustainable level of economic activity every person on Earth would have 1.7 hectares (17'000m²) available, the average British person uses 4.8 hectares (2.8 times too much), the average US-American 8.6 hectares (5 times too much), the average German 4.9 hectares (that is 2.9 times too much) whereas the average Indian uses 0.8 hectares (roughly half of what they 'could'). These calculations give us an indication of the factor by which we have to reduce our "ecological footprint" in order to become sustainable.

From Toward Dematerialisation : The Path of Ethical and Ecological Consumption by Rolf Jucker, <http://www.onweb.org/features/new/dematerial/dematerial.html>

2. Strategies and instruments for dematerialisation

Dematerialisation is closely linked with improving products efficiency and saving material resources. It entails actions at every stage of the production and consumption chain from resource savings in material extraction, improved eco-design of products and technological innovations in the production process to more environmentally conscious consumption patterns and recycling of waste.

It thus requires the involvement and the co-ordination of all the actors of the production and the consumption chain and notably of :

- Public authorities (from international to local authorities)
- industry
- consumers
- NGO's

3. The role of local and regional authorities

Local and regional authorities are central drivers of changes in resource management notably since :

- they have influence on the legal, economic and voluntary instruments of resource and waste management.

Local and regional notably control the collection and sorting of municipal waste, they have tax-levying powers, and may thus have a decisive impact on economic conditions under which different processes of recycling and waste disposal are carried out. They may also play an active role in the development or market for recyclable materials through public procurement thanks to their great purchasing power.

- they are key actors of dialogue with citizens and are main drivers of cultural evolution.

As the closest public actors with local population, they have a major role to play in launching debates around societal issues. As far as waste is concerned, the public consultation process which goes with planning is a specific opportunity for authorities to organise questionnaires, meetings with neighbourhood committees and round tables. During these, local people and experts debate on the best balance between various waste management options and prevention and recycling initiatives.

Incentive instruments available to local and regional are numerous. In a market economy, economic instruments have a special role to play. However, their scope is limited at the local and regional level. In a globalised economy, we still miss instruments which reward material productivity as much as labour productivity.

We will focus in this article on the challenges relating to the citizens proximity and we will describe some strategies and initiatives developed at the local level to increase awareness around sustainable consumption.

4. Some local and regional initiatives to promote dematerialisation

These strategies are generally oriented to consumer behaviour and try to bring positive changes either to the citizens lifestyle, to their consumption patterns or to the waste management practices all in view to decrease waste production and to increase resource efficiency.

4.1. Strategies addressing the lifestyle

The transition from products to services and the promotion of new services

When producers provide services instead of products this increase their involvement with the product in its use phase, rather than just providing that product to the consumer. Buying and selling are replaced into different property rights options like producer take-back and leasing and pooling arrangements. Value is not created by creating a product with a certain value added but by the function that is provided by the producer, the product is just a means of delivering that function. The development of a functional economy is based upon the notion that providing a function is how to meet the consumer need, rather than providing a product per se. This strategy notably leads to :

- The extension of the producer responsibility. Producers and retailers ensure the take-back of products for repair, resale or recycling.
- Changes in property transfer of products which leads to the development of leasing, renting, sharing and pooling.
- the promotion of repair and second-hand shops

These systems already apply locally for various products such as tools, furniture, electric and electronic equipments, nappies, computers, baby goods, caravans, magazines,

The City of Milton-Keynes for example has calculated that disposable nappies represent about 6% of the volume of households waste. Consequently, the city launched in 1999, a campaign to promote a privately operated nappy-washing service.

In Munich, from 1991 on, returnable tableware had been imposed for nearly all large scale events. This helped to change major Munich events like the Oktoberfest, the Christmas Market, the Auer-Dult Fair and the Munich City Marathon. Even sports and music events held in the Olympic stadium are now on returnable drinking cups made from plastic material. For smaller events, the city rents out multi-way tableware and two mobile dishwashers at a moderate charge. After some hesitation on the part of organisers, attitudes began to change and most now support this initiative. School food services have replaced single-use cans and bottles with reusable containers.

Besides, this initiatives, the idea came in 1994 to compile a brochure providing a list of addresses of repair shops in Munich. This was followed-up by the "Repairwork-day" organised for the first time in 1997. On this day, the citizens were able to bring their broken households utensils to have them repaired by experts free of charge. The surprising result was that more than two third of the household utensils could be restored by minor repairwork.

In March 1999, the Municipal Department 22 (Environmental Protection) of Vienna , in collaboration with the Municipal Department 48, launched the first exchange platform for second-hand goods on the Internet. Go to <http://service.wien.gv.at/wab/> to exchange, sell, buy or give away second-hand goods. The service comprises four "markets": second-hand goods, compost, teddy bears and information. The information market provides online versions of the repair guide, guide to renting and waste disposal manual. The second-hand exchange is open to private users as well as to commercial operations, second-hand dealers and landscape gardeners.

The promotion of "cultural" economy

Nowadays, only a small fraction of consumption in wealthy nations is actually for basic survival, most is for pleasure and to express one's standing in society. The *municipality of Vienna for instance has addressed the challenge of how dematerialising "pleasure"*. It has, for Christmas, widely disseminated *a list of 48 immaterial gifts for Christmas such as vouchers for a massage, a cinema-card, a dinner, an entry ticket for a concert or a stay in a thalassotherapy centre.*

The promotion of new technologies.

Electric and electronic appliance have a special position in the debates around dematerialisation and eco-efficiency : technological innovation in the electric and electronic equipment sector accelerates changes in product composition and the replacement of old products with new products. This is the reason why waste from Electrical and Electronic Equipment (WEEE) is the fastest growing waste stream containing a large number of dangerous substances.

On the other hand, the development of e-technologies can bring opportunities in the field of dematerialisation and economy of material resources with the increasing recourse to telecommuting, tele-shopping, teleconferences, e-mails, e-books and the services offered by the Internet. Will the technical progresses and development of the information society, the miniaturization, ... contribute to dematerialization or on the contrary will the unrestrained race to progress, the reduction of the lifespan of the products lead to an increased waste production ?

The discussion is far from closed. However, telecommuting appears a quite rather interesting way towards dematerialisation. The Ministry of Environment in Finland for instance has estimated that 450.000 workers (about 20% of the population) could potentially become telecommuters and thus perform all or a part of their job outside the workplace. If all of them worked one day a week

at home, it would reduce car travel by about 216 million kilometres and thus reduce by 1% emissions of carbon dioxide and other pollutants from privately owned motor vehicles in Finland.

As far as waste is concerned, e-books may represent a solution to the tremendous wastage of paper represented by all those documents which are read once and immediately thrown in the dustbin.

4.2. Strategies addressing the consumption patterns

It is acknowledged that consumers can contribute by their choice and consumption behaviour to dematerialisation. With the increasing awareness of the environmental stress, consumers are more and more conscious of the environmental consequences of their current lifestyle. The main issue is to provide them with sufficient information on the performances of the products they buy in order to help them to consciously orientate their choice and to create a demand sufficient to prompt producers to adapt their range of products.

Eco-labels are a very helpful tool to provide essential information on the environmental characteristics of products but beyond eco-labels, it is crucial to develop the necessary communication strategies which lead to lasting changes in consumers habits and behavior. This represents a fundamental but particularly challenging issue of sustainable development. It implies a profound rethinking of the most common daily choices and represents a cultural challenge to the urban society. Indeed, every single initiative in prevention at source rarely leads to spectacular results in waste reduction or savings of materials but it leads to the creation of a new frame of mind where consumers wonder and raise questions on the environmental and societal consequences of their everyday actions. This implies intensive and long term communication campaigns.

The Municipal Department 48 of Vienna for instance has for some years been waging an all-out campaign in Vienna to promote strategies of how to avoid waste by the joint efforts of all participants. The campaign consists of an abundance of information material, which is disseminated in a number of ways. Thus garbage trucks double as advertising space; large hoardings are rented to promote the idea; public transport vehicles, special supplements and adverts in newspapers and magazines transport the message, the broadcasting and TV media are co-opted to support the effort; and brochures and leaflets on the subject are distributed free of charge.

"Forty-eight ideas of how to avoid waste" provides elementary information on the subject. "Garbage-free satchels" informs pupils, parents and teachers of the problem. Volumes 1 and 2 of the "Vienna guide to repairing things", the two volumes of the "Vienna guide to renting", the "Vienna guide to second-hand shops" and its supplement, the "Guide to refilling services" list all relevant companies in Vienna, together with the requisite details such as prices, shop hours, etc. The guide series also opens up new opportunities for businesses in Vienna.

The Waste Telephone Line is the first-line contact point for the population to get quick answers to all waste problems. To reinforce the message, the Municipal Department 48 is adding personal contacts: two waste information vans cover the territory of the City on daily tours, where waste consultants provide free advice to companies and private households in Vienna. In 2000, altogether 175,000 consultations were given. Regional focal schemes such as "district waste days" are well accepted by the population, as is the Municipal Department's Internet homepage at www.wien.at/ma48. Information is also disseminated at schools and kindergarten facilities. Schemes are offered by the Municipal Department 48 for specific target groups, such as a Kasperltheater (the Viennese version of a Punch and Judy show) which deals with the subject of waste in free performances.

In Brussels, a partnership between the Brussels authorities (IBGE) and consumers associations (CRIOC), inaugurated in March 1999, comes within the framework of the waste prevention plan of the Brussels Capital Region. The observatory spreads reliable information about labelling and products so that consumers can "buy smart and throw less away". Besides an information centre about labels, Brussels has from now on a research and information centre for sustainable consumption. It notably carries out surveys among consumers, analyses of stand trolleys... First

realisation in May 1999: about 50.000 copies of a general explanation folder for the general public have been distributed, explaining the most frequent logos and label or those to promote.

Besides, as in many other cities, Brussels has developed a campaign which addresses those who wish to receive no more advertisements and/or free magazines and who previously threw them directly in the dustbin. The sticker allows each one to choose, between the free press and advertisements, what he does not wish to receive. In Brussels for instance, it has been proposed for the first time in April 99 and since 17% households adopted him. If the 48% population that are not interested by free advertising (according to a survey by an independent consultant) affixed the sticker, up to 10.000 tons of paper waste could be avoided. This represents about 25 kg/mailbox/year. This campaign was launched in partnership with the retail sector which committed itself to respect the citizens choice.

4.3. Strategies addressing waste management

Waste represents a loss of valuable resources, many of which are scarce and could be recovered and recycled. Recycling waste which cannot be prevented helps reduce society's demand for virgin raw materials.

Through a survey carried out among nearly 40 European cities, ACRR has shown in 2000, that the situation is evolving in municipal waste management. As well in northern as in southern Europe, some cities already reach significant results in selective collection of dry and wet municipal waste. Some of them nearly achieve to reduce by 50% the amount of waste to be disposed of.

These municipalities could not have reached those encouraging results without having developed intensive communication campaigns towards citizens. Without participation quantity and quality of recyclable materials are poor. Thus, whereas in the old model it was in the citizen's interest to participate to waste collection, today it is both in the citizen's and in the authorities' interest to ensure these new policies succeed.

Besides, improvement in quantity and quality of selectively collected waste, information campaigns on recycling change the citizens perception of the role they may play in sustainable development. Experience gained from the implementation of legislation on packaging waste demonstrates that necessary information to improve performances of selective collection also increases awareness among citizens about the environmental and economic dimension of the waste issue.

Citizens are largely satisfied with selective collection and are glad to participate in a citizen commitment useful for the community. Surveys notably in France, show that citizens, living in municipalities with selective collection schemes, feel personally more concerned than before by the quality of environment and think that this concern is shared by others. More aware of environmental problems than before, sorters are also more confident in the usefulness of specific actions for the improvement of environment.

But besides, information to citizens, some municipalities have also developed initiatives towards industries :

Based on a parliamentary resolution to avoid waste, the replacement of the local waste incineration plant in Basel was decided with a reduced capacity (200.000 tons instead of a needed capacity estimated to 320.000 tons/year). The introduction of refuse disposal charges, improved sorting and a modified packaging policy in commerce allowed to reduce the household waste by about 40%. Nevertheless, the political decree made it necessary to develop a waste minimisation programme for trade and industry in the canton of Basel (actually, more than 60% of the municipal solid waste is due to activities in trade, administration and manufacture in Basel). Subsequently a three-stage waste minimisation programme was defined, starting in 1997 with waste management audits and followed by cooperative agreements between the authorities and companies.

200 companies out of the 10.000 firms identified were selected according to criteria such as the annual amount of MSW produced, the waste tonnage during the recent years and the overall recycling quota. The audits performed with the companies allowed evaluating the current status of waste management, recording the collection logistics and assessing the organisation of the company. Solutions for a better waste management were identified and agreed upon with companies. Finally, the effectiveness of the measures agreed upon were checked by a verification procedure which showed that a great deal of agreements have been achieved so far. Between 1992 and 2000, measures taken in Basel allowed to reduce by 30% (from 117.000 to 89.000 tons) the amount of municipal waste to be disposed of .

In Munich, the city employs six consultants for industrial waste who assist the companies to handle and dispose of different kinds of industrial waste. They operate via a hot-line for companies, by visiting and consulting them and publishing info-folders about new laws or tips. They also organise special environmental sessions for companies.

Conclusion

Decoupling waste production from economic growth is a particularly challenging issue. It is not only a question of waste management, it is also a question of sustainability in terms of resources use and in terms of equitable access to these resources.

Local and regional authorities, as the closest actors to citizens, have a major role to play in promoting a more sustainable way of living. Some municipalities have taken up the challenge and have launched initiatives which raise the questioning and feed the debate with the citizens around sustainability. These initiatives mainly concern consumer behaviour. They not only focus on waste management options and the promotion of recycling, they also address consumption patterns and current lifestyle. They call into question our relations with products, culture and technology.

The effectiveness of these initiatives is not always confirmed and, in some cases, side effects may exceed the environmental benefits. However, in our opinion, the central point is not there. It is a question of raising the awareness, promoting the questioning, feeding the debate around the consequences of our current patterns of consumption and ways of living. It is also a question of promoting the dialogue with citizens around our expectations for the world of tomorrow and of keeping citizens involved in societal choices.