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The Point at Issue of the EPR Discussion at OECD

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Introduction

A discussion regarding **Extended Producer Responsibility** (hereinafter, EPR) is presently in progress within the OECD communityⁱ. After going through the workshop in May of 1999, an OECD Guidance Manual for the member nations is expected to be published within the same year. The OECD, in several cases, has had specific influence on the environmental policies of the member nations in the past. The air pollution regulations and PRTR (Pollutant Release and Transfer Registers) are such examples. As for Japan, being influenced by discussions at and sometimes by recommendations of OECD, reinforcement of regulations concerning air pollution was implemented in May of 1996 (enforcement in April of 1997), and a study on PRTR including the possibility of legislation is now in progress. From this aspect, it is highly possible that the EPR discussion at OECD will bear great influence on Japan's waste policies. Due to this, a concern is rapidly rising in Japan, and discussions are being enhanced in both the government (Ministry of Health and Welfare, Ministry of International Trade and Industry and The Environmental Agency) and the private sectors (Japanese Federation of Economic Organizations - Keidanren - and the industries concerned).

Apart from the above, a Law for Recycling Containers and Packaging (commonly known as the Package Recycling Law, enforced in April, 1997), and, the Specified Household Appliances Recycling Law (Electrical and Electronics Equipment Recycling Law, enforcement of which will be in the year 2001) has already been adopted in Japan. The Recycling Law is based on a same policy principle regarding packaging waste, which started in Germany in 1991 and later spread throughout Europe. The latter law is one of the first of its kind in the world. Elements of EPR policy principle have been reflected in these laws. Though EPR is itself a innovative policy tool toward reducing municipal waste at the minimum social cost, it should be noted that there are evidences to show that, in Japan, they may not necessarily be adopted as a result of thorough discussions. Also, the discussion at OECD itself indicates some confusion. The best example, in my view, would be the misunderstanding on the relationship between PPP (Polluter Pays Principle) and EPR, together with the confusion on "who should pay".

This paper reviews the arguments concerning the above points mainly based on the Phase 2 report (OECD 1998a), and hopes, by influencing the discussion in Japan and OECD now in progress, to contribute to the founding of the most desirable waste policy.

1. Details of the Discussion at OECD and the Urgency of the Issue

The EPR Discussion on municipal wasteⁱⁱ (general waste) at OECD started in 1994. The study consists of the following three phases:

Phase 1 (1994 to 1995)

Review of legal and administrative approaches in OECD member nations and the development of initial policy options in implementing EPR.

Phase 2 (1996 to 1997)

Analysis of the economic efficiency and environmental effectiveness of various approaches to EPR

Phase 3 (1998 to 1999)

Examination of EPR approaches and issues through a series of multi-stakeholder workshops

As shown above, discussions are now in the final stage. If Japan has any input to the OECD discussions, it must be done effectively within the next few months. This paper's author reported at the workshop in May of 1998, and has consistently attended the meetings of OECD Joint Session of Trade and Environment Expert (recently renamed as the Joint Working Party on Trade and Environment). The author believes that many European countries are now leaning towards approving EPR along the line of OECD discussions (i.e. that ultimate responsibility lies in the final producer) and that the U.S.A., in addition to differing slightly on the definition of "producer", seems to accept EPR as one of the policies dealing with waste ⁱⁱⁱ. Whereas, debate in Japan focuses on whether or not to share responsibility among the parties concerned, including local governments, and on how the newly assumed responsibility be borne by the producers and/or the consumers. (i.e. whether cost should be internalized into the product price at time of sale, or have the consumer pay at the discharge stage). However, the issue here is not only that there is no common concept of EPR between Europe, U.S.A. and Japan, but also that there is slight confusion within each country concerning the EPR concept. This paper, will focus on this point, and consider what should be a desirable waste policy.

Also, from a different viewpoint, there are three possible methods for implementing EPR: through compulsory measures (by legislation), through negotiations between the government and industry and unilateral voluntary commitments. According to reports by OECD, a difference in the views surrounding this point is noticeable between U.S.A. and Europe. In contradiction to Europe's experience that voluntary measures are ineffective ^{iv}, the U.S.A. asserts voluntary measures are useful ^v.

2. What is EPR?

As mentioned earlier, the discussion at OECD is currently in Phase 3, and is in a stage where opinions are being collected from various sectors concerned through the Workshops^{vi}. Therefore there is a possibility that the content will change in the future^{vii}, but the paper here would like to discuss the contents of EPR based on the Phase 2 report (*OECD* [1998a]) published in May of 1998.

EPR is one kind of an economic instrument to solve the general (municipal) waste issue. In short, it is the **privatization of general waste treatment**^{viii}, aimed at environmental conservation and then promotion of economic efficiency. The term,

waste treatment, used here points at collection, sorting, re-use, recycling, incineration, and landfill disposal. The term “privatization” in this context refers to the transfer of general waste treatment responsibility (financial responsibility, not necessarily physical responsibility) from the local government to private parties (who are directly involved in the life cycle chain of the product in question)^{ix}. Many EPR systems set a specific target for the recycling rate, however, this is a tool to induce incentive for recycling, and is not an objective. This is because of the possibility that a high recycling rate may actually cause a loss of social efficiency (this point is clearly recognized in the Dutch Covenant system, which involves negotiations between the Netherlands' government and industry, however, the nuance of *OECD* [1998a] is slightly different). Furthermore, since the treatment responsibility of industrial (or hazardous) waste in most countries including Japan is borne by the discharging industry, thus making it a “non-target” under the OECD EPR system. However, with regards to automobile and construction waste material, although it does not meet condition in the EPR aims listed below, there could be an argument that treatment responsibility should be allocated to the most appropriate party among the production and the retail/distribution in order to attain low cost environmental protection (and below) through economic incentives.

EPR aims are as follows.

By making the waste treatment cost tangible (by cost internalization or by having the consumers pay), change the product selection behavior to an environmental-friendly style (environmental effect).

By utilizing incentives due to privatization, to attempt to further promote prevention of waste generation and recycling, hence reducing the environmental burden of the products' entire lifecycle (environmental effect).

Through privatization incentives, minimize the social costs of waste treatment (economic efficiency effect).

Although EPR is originally designed as an environmental policy, we should be alert to the possibility that, as in above, even if there are no effects on environmental improvement, there can be improvements in social welfare^x.

To keep up with the seriously growing waste issue year after year, various policies including direct and indirect regulations are being advocated. Just to mention several of those. They are; fees for garbage collection aimed at reducing wastes, product charge aimed at resource conservation and the establishment of a recycled goods market, deposit refund system for improvement of collection rates, tax levied on virgin raw material serving both the promotion of a recycled raw material market and resource conservation, a compulsory recycled content ratio, tradeable discharge permits (recycle point system), green purchasing by the government, tax levied upon disposal sites on reclaimed land, reinforcement of the environmental legal liability, and so forth. In Japan, some of these have already been carried out, as in the case of the recycling law (a law regarding the promotion of the utilization of recycled resources), and by the local government ordinances. However, in all the above cases, these policies assume the existence of conventional ways of general waste treatment by local government (the deposit refund system is different from other policies in that it does not depend on local governments, and, it does not include the idea of privatization of the obligations of the

local governments). Therefore, it excludes and of the EPR aims stated above. With this in mind, EPR is an extremely unique and valuable policy.

Let us refer now to Figure 1 for clarification. This figure describes the physical and monetary flow in product life cycles. In the past, products became the wastes and came under the responsibility of the local government at the time of discharge by consumers. The local government would then collect and sort the waste, part of which was re-used or recycled (in the case of Japan's general waste, the recycling rate^{xi} extends only to about 9%), and either incinerate or landfill the remainder. If an ideal EPR is adopted, the responsibility will be transferred 100% to the private sector (producer). In the Figure 1, it will become the responsibility of the producer after the PRO and Waste Manager stages. By way of a supplementary precaution, as in the case of France, the private body (producer) has the choice, at its own expense, to consign a part of its own treatment responsibility transferred to the local government (in this case, it will appear as though it be conventional treatment by the local government). The statement in *OECD* [1998a] makes the point, "The essence of EPR is who pays for, not who physically operates, the waste management system" (page 5).

As explained above, the EPR is an extremely valuable policy. However, *OECD* [1998a] further argues that the ultimate responsibility will fall on the final producer in conformance with PPP (Polluter Pays Principle). This implies that the final producers deemed to be polluters. It also argues that, without paying enough attention to *who* can contribute to the creation of products with environmentally friendly life cycles, final producers should assume ultimate responsibility. When it reaches this point, one cannot help but think of the confusion in the *OECD* argument (please refer to 3. below). In addition, economic analysis on the outcome of cost internalization is lacking. Furthermore, the internalization of external diseconomies (*internalize externalities --- in the price of products*) relating to the environment is mentioned in the concepts of EPR (*OECD* [1998a], page 8). Indeed, where general waste causes environmental pollution it is possible to ensure the internalization of the environment's externality (reflected in product prices). However, without physical pollution occurring, it should not be called as "internalization of externalities" to reflect the cost of waste treatment into products price (for example, to increase one-way bottled drinks' price) due to privatization. Treatment cost simply has not been reflected into the price because local government, and not the producer, bears the waste treatment responsibility^{xii}.

Let us get back to the subject of privatization. In *OECD* [1998a], the following is stated (page 5):

This OECD project on EPR---takes a focused look at ways to minimize the municipal waste stream by reducing or ending the traditional local-government subsidy, while transferring substantial or complete financial responsibility to private sector enterprises for managing their products also at the post-consumer phase. (emphasis added by author)

According to *OECD* discussion, the EPR will reduce or end the traditional subsidy by local government. To end the subsidy means to transfer all of the waste treatment responsibility to the private sector and to reduce the subsidy means to transfer a part of the local government's affairs to the private sector, as in the case of Japan's Packaging Recycling Law. In the latter case, both the local government and the private sector

(producer) will share the responsibility ^{xiii}. From the discussion held so far at OECD, to end subsidies would probably be the most desirable option. However, taking political, economic and cultural factors into consideration, as a sort of transition measure, shared responsibility between local government and private sectors can also be deemed as qualified as a variation of EPR.

At this point, I would like to give a supplementary reason why OECD looks upon the conventional method as a subsidy by the local government. Let's take a look at a specific example. Let us say that there is a drink in a reusable container and a drink in a plastic container (economically and technically difficult to recycle), both of contents cost ¥100, with a waste treatment cost of ¥10 for the first container, and ¥50 for the latter. In the current situation, the cleaning cost of the reusable container is borne by the producer (distributor included), on the other hand, the cost of a one-way container is borne by the local government. In this case, the price of the first one would be ¥110, and the latter would be ¥100. In other words, it would be equivalent to the local government providing a ¥50 subsidy to the producer using the plastic container ^{xiv}. As a result, the sales of the plastic container would exceed the appropriate level and result in damage to the optimum distribution of resources ^{xv}.

3. PPP and EPR (Is the Producer the Polluter?)

In the discussion at *OECD*, it seems that the grounds of transferring the responsibility of waste treatment from the local government to the producer are based on Polluter Pays Principle (PPP) ^{xvi}. The word "PPP", the author believes, is being used in the same meaning as the one appeared in the OECD "Guiding Principle concerning International Economic Aspects of Environmental Policies" adopted in 1972 ^{xvii}. The concept of PPP was introduced with the view to internalize cost of pollution prevention (external diseconomies) in order to assure fair international competition. This principle states that the polluter (the source of external diseconomies) pays the pollution prevention cost. As an example, let us suppose that corporations of the same business in competition exist in country A and country B, and in both countries, the pollution regulations have been reinforced. In country A, the corporation bears the cost of pollution, and in country B, it is covered by a subsidy from the government. This will lead to a disadvantage in international competitiveness for the corporation in country A. So as to avoid such disadvantages, the "Polluter Pays Principle" was introduced, having the corporation in country B (the polluter) also pay the costs involved. The important point here is that it is always the "polluter" that pays.

Coming back to EPR, the OECD [1998a] describes the shifting of responsibility to the producer, on the grounds of PPP, as the essence of EPR. However, this is the same as describing the producer as "polluter". Is the producer actually the polluter? The introduction of EPR thinking in the general waste field started from packaging and extended to home appliances, and is now at the stage of influencing electronic equipment. Indeed, packaging is manufactured (or used for their own product) by the corporations. However, it is the consumers that ask for them. As an example,

the minimal effect when department stores call upon the usage of plain wrappings during the holiday gift season is an issue on the consumer's side. In the case of home appliances, it is the consumer who enjoys utility by purchasing and using those goods. In economic terms, producer surplus and consumer surplus are accrued in accordance with the market price of the products, therefore, by the sales and purchasing of the product concerned, both the producer and the consumer gain benefit. This means that the producer and the consumer stand on equal ground, and does not lead to the idea that producers are polluters. Moreover, it is not true that all wastes pollute the environment. Therefore, to describe the producer as the polluter is itself a false claim. If used anyway, it will cause repulsion of the producers, and result in increasing political uncertainty in introducing EPR policy. If cooperation from the producers is to be obtained, PPP should rather be considered separately from EPR.

4. Cost Internalization vs. Consumer-Pay-at-Discharge Scheme

The OECD[1998a] indicates that the producer should bear the responsibility for waste treatment, and further, these costs will not be paid by the consumers at the discharge stage, but should be internalized into the products price at the time of sales. The report cites the Packaging Waste Ordinances in France and Germany as examples. The reasons for the OECD view are that cost internalization would be simpler administratively (therefore the cost being low), and that the payment by the consumer at time of discharge induces illegal dumping ^{xviii}.

In the development of the discussions above, the OECD assumes that the final burden will be levied 100% on the consumers, even if cost is internalized into the prices of the products ^{xix}. Let us examine this point from an economic point of view (the following discussion owes greatly to Hosoda E. [1999]). The conclusions are:

- 1) *The internalized cost will be shared by both the producers and the consumers, provided that portion will depend on the price elasticity of supply and demand.*
- 2) *Regardless of the scheme (whether cost is internalized into the product price or consumers pay at the discharge stage), the net burden will be borne by both the producer and the consumer, and moreover, the portion of burden between the producer and the consumer in both cases are the same.*

4.1 The Cost Burdening to Producers and Consumers in the case of cost internalization

First, I would like to explain point 1) above. Please refer to Figure 2. With regard to a product, let us suppose that equilibrium is attained at the intersection of the demand curve (straight line) D and the supply curve

(straight line) S , i.e. Price p^* and Quantity q^* . In this case, the consumer surplus would be p_1ap^* , and the producer surplus would be p_2ap^* . Next, let us suppose that EPR has been introduced, and that the waste treatment cost has been internalized into the product price (in this paper term "treatment" includes collection, transportation, sorting, recycling, incineration and final disposal of wastes). If the price is increased by bc , the supply curve shifts to S' , and the demand becomes equal at point b . The price would be p' , and the quantity would be q' . In this case, the consumer surplus would be p_1bp' , and the producer surplus would be $p'bp_0$. Angles of $p_0p'b$ and $p_0p''c$ are both right-angled, angles of $p'bp_0$ and $p''cp_2$ are equal, and since straight-line $p'b = p''c$, triangles $p'bp_0$ and $p''cp_2$ are congruent. From the above, the reduction portion of the consumer surplus would be $p'bab^*$, and the reduction portion of the producer surplus would be p^*acp'' . These areas show net burdens by the producer and the consumer as a result of internalizing the cost into the price (strictly speaking, the consumer burden would be rectangle p^*dbp' , and the producer burden would be p^*dcp'' , and the area of triangle abc is called as dead weight loss. However, we will not go into detail here). By studying the figure, you can tell that the net burden of the producer and the consumer are almost equal. This ratio would change depending on the price elasticity of the supply and demand. Please refer now to Figure 3. The only difference with Figure 2 is that the price elasticity of demand is smaller. In Figure 3, both the producer and the consumer assume burden, however, the consumer's burden is much bigger. As to price elasticity of supply, similar fashion will be applied. From the above, the following can be introduced. That is, if the market is perfect,

The smaller the price elasticity of demand is, the greater is the increase in the ratio of the waste treatment burden shifting to the consumer. Contrary-wise, the larger the price elasticity of demand, the greater is the increase in the ratio shifted to the producer.

The smaller the price elasticity of supply is, the bigger becomes producer's burden. On the other hand, the larger the price elasticity of supply is, the easier it is to shift the burden to consumer.

4.2 Cost Internalization vs. Consumer-Pay-at-Discharge Scheme

Next, let us consider the case in which the consumer pays the waste treatment costs at the time of discharge. Please refer to Figure 4. This figure is a copy of Figure 2, striking off S' and newly adding demand curve (straight line) D' . Figure 4 assumes that the consumer pays the waste treatment costs at the time of discharge. Though it depends on the length of the time lag between the purchasing point and the discharge point, if it is supposed that the time lag is short, to pay treatment fees at time of discharge will mean the same, for consumer, as a rise in product prices equivalent to the treatment cost portion. Therefore, the demand curve will shift down. It will shift down in the same height of S and S' in Figure 2 (this is because the increased price, bc , in Figure 2, and the discharge fee for

consumer, bc , in Figure 4 are equal to one another). In this case, the equilibrium point moves from a to c , and the price and the quantity become p'' and q' respectively. The reduction portion of the consumer surplus is triangle $p_1ap^* - p_2cp''$, the reduction portion of the producer surplus is $p^*ap_3 - p''cp_3 = p^*acp''$, and this equals the reduction portion of the producer surplus in Figure 2. Next, due to the same reasoning as in 1.1, triangles p_1bp' and p_2cp'' are congruent. Therefore, the reduction portion of the consumer surplus, $p_1ap^* - p_2cp''$ would be equal to trapezoid $p'bab^*$, and this would be equal to the reduction portion of the consumer surplus in Figure 2. From the above, the following can be said:

If the time lag between the purchasing and the discharge period is short, even if the scheme is different (either to internalize the waste treatment costs to the product price, or to have consumer pay at the time of discharge), net burden by the producer or the consumer remain unchanged.

In the case where the time lag is long, as in durable consumer goods, situation may varies depending to what extent consumer, at the time of purchase, take into consideration of the discharge fees they will have to pay at time of discharge. If the consumer does not pay attention to the discharge fees very much, the demand curve will not shift downward that much, and will only be between D and D' (the case will depend on whether the discharge fees are announced in advance, and whether or not there are elements of uncertainty). In this case, the reduction portion of both the producer and the consumer surpluses will be smaller than that of cost internalization scheme. This will mean that, for both the producer and the consumer, the consumer payment at the time of discharge would be easier to accept. However, the opposite may also be possible. In other words, there could be a case in which the consumer will face higher discharge fees than what they anticipated. However, if the discharge fees actually become lower due to rapid technological innovation, the payment amount at the time of discharge may well be at a level that the consumers anticipated. From a policy point of view, this holds an important meaning.

One of the focuses in Japan's EPR discussions is whether or not to internalize treatment costs to the product prices. Some producers oppose this, because, under the cost internalization scheme, the price hike would be difficult due to keen competition, and as a result, the producers will eventually bear the cost. However, under these circumstances, the result would be the same even if the payment obligations were borne by the consumers at the time of discharge. Let me explain using a figure again. Please refer to Figure 5.

Figure 5 describes the case where the elasticity of demand is extremely high. In this situation, a small rise in prices would greatly reduce the demand. The assertion by the producers mentioned above that a price hike would be difficult point to this situation. In these situations, when the bc portion of the waste treatment costs are added to the product price, the

supply curve shifts from S to S' , and along with it, the price rises to p' and the sales quantity drops to q' . In this case, the reduction portion of the producer surplus is p^*acp'' and the reduction portion of the consumer surplus is $p'bab^*$. In other words, the larger the price elasticity of the demand is, higher the ratio of the reduction portion of the producer surplus will become, however, the burden of the price hike (although the ratio is small) will also be borne by the consumer. What will happen if it is a scheme where the consumer pays the treatment costs at the time of discharge as some producers in the same market try to assert? There would be no difference in the results. Please refer to Figure 5 again. In this case, if the time lag is short, the demand curve will shift to D' , and the price and the sales quantity will drop to p'' and q' respectively. Explanations have already been made in the comparison of Figure 2 and Figure 4. Namely, reduction portion of the producer and the consumer surplus is the same as in the case of cost internalization. In other words, in a situation where a price hike is difficult (situation where the demand curve is close to horizontal), even if the consumer pays at the time of discharge, the demand will drop sharply, and the producer's position will not differ from the case of a price add-on. This would be the case theoretically and may apply in the case of packaging waste. In reality, however, this may not be the case due to the existence of time lag. For durable consumer goods such as home appliances, it will take a long period of time between the purchase and the discharge. As mentioned earlier, under the consumer paying scheme, the demand curve will not shift downward to the extent of D' , but most probably stop somewhere between D and D' . If technological innovation progresses, as also mentioned earlier, this will be beneficial since the reduction ratio of both the producer and the consumer surpluses will become smaller. From the above, careful attention should be paid to the level of the shift in the demand curve. It will be affected by such factors as the characteristic of the product, dissemination of information on the discharge fees, and the outlook on technical innovations.

There are other elements in which consideration will have to be made regarding whether or not to internalize the cost. As mentioned earlier, the reasons that the OECD asserts the cost internalization scheme are because it is administratively easy and low-cost, and that consumer-pay-at-discharge scheme would induce illegal dumping. Japan's Recycling Law of Specified Home Appliances that will take effect in 2001 has adopted the consumer-pay-at-discharge scheme (consumers would pay total amount of the cost needed for recycling and the cost of collection and transportation to the retailers at the time of discharge). From the viewpoint that the treatment cost at the time of discharge cannot be decided in advance regarding durable consumer goods, and that as the operation of a deposit system would be costly, this can be considered as an appropriate choice. However, taking into consideration that the recycling costs differ in every home appliance manufacturer, and further, the collection and transportation costs differ by location, the operation of this scheme will probably be quite costly. Impressions from the OECD's EPR Workshops were that especially in

Europe, illegal dumping and free-riders are major issues. Japan, through experience, will have to ascertain if that will also be the case in its own country. On the other hand, as a benefit of the consumer-pay-at-discharge scheme, by providing incentives to purchase environmentally friendly products and restraining waste by having consumers be aware of the waste discharge cost, an educational effect can be expected.

The issue on the scheme itself, on whether to internalize the cost into product prices or have the consumers pay at the time of discharge, should be decided after a thorough consideration of elements such as the theory, the characteristics of the concerned products, the domestic situation, the possibility of illegal dumping and the political feasibility.

4.3 Issue on Scheme Designing

The discussion so far is based on the assumption that the waste treatment cost is already widely known. This may not be the case with the deposit system. However, even in this case, it is necessary to know the accurate amount at the time of settlement. Moreover, in the case of the consumer-pay-at-discharge scheme, the treatment cost must be clear at that time. There is an interesting study paying attention to these points.

In *Hosoda E.* [1998], it examines from a theoretical aspect the following four systems, and proves that the results from them are all the same: cost internalization, consumer-pay-at-discharge, putting the responsibility of waste treatment on the producer and leave what to do to corporations' initiatives, and, to levy an income tax and use it as a subsidy for waste treatment and environmentally-friendly products. As a result, since all systems, except the method entrusting it to the market, involve enormous information costs (to know an accurate waste treatment cost is difficult), Hosoda concludes that the best choice is to leave it to the market (corporations' initiatives). This study has many hints and suggestions in regard to policy implications.

5. Necessity of Lowering Local Tax

5.1 Necessity of Lowering Local Tax (the point missing in the EPR Discussion in Japan)

The purpose of EPR, as stated earlier, is to control waste generation as well as minimizing social costs of waste treatment. Simply shifting the treatment responsibility to the private sector (producer) would only add the cost on to the whole society, even if the private sector operates an efficient system. In other words, the cost to the whole society increases. In order to prevent this from happening, the private sector will have to operate more efficiently than the local government. Also, the cost of waste treatment of the local government will have to be returned in the form of reduced local tax (since local governments will no longer assumes responsibility). Only in this case, does the economic welfare of society as a whole increase through the privatization^{xx}. In *OECD* [1998a], there is a statement of the same aim:

To avoid double charging, a local authority should reduce or credit any fees or taxes for conventional waste disposal paid to it by citizen consumers--and by responsible producers that now under EPR will take back or collect and recycle products in the place of the local authority. (Page 32)

Below, I would like to focus on this point.

5.2 What does efficiency improvement by privatization mean to producers and consumers?

As mentioned above, if "the waste treatment cost by privatization will become smaller than the waste treatment cost by local governments", and the concerned local tax is reduced in the full amount, it will accomplish the purpose as a whole. However, this will not be enough. From the aspect of fairness, the following would be desirable for both the producer and the consumer (if the producer is considered as a polluter, there is no need to respect the viewpoints of the producer, however, the author does not think this is valid. This is an important point).

Producer's burden by privatization < Corporate Local Tax
Consumer's burden by privatization < Residents Local Tax

Let me show you a specific example. Let us suppose that local tax charged in the past on producers and consumers were 100 respectively (total 200). If the total cost drops to 170 through privatization, and if the amount newly assumed by the producer and the consumer drops below 100 respectively (total 170), and, if the local tax reduction becomes 100 each for the producer and the consumer, then this will benefit all parties concerned. In what way would this be possible? It will depend on the price elasticity of the demand and supply curves of the concerned product (refer to section 4. above), and, will also depend on the ratio of local tax borne by the producer and the consumer (Strictly speaking, there are several kinds of producers - parts manufacturers, assembly manufacturers, distributors, and so forth - the position of each one must be looked upon individually. However, in this paper, they will all be classified as producers.). As stated earlier, the larger the price elasticity of demand, or the smaller the price elasticity of supply is, the larger will be the burden on the producer by the privatization process. On the other hand, the contribution ratio to local tax of the producer and the consumer will differ in every local government (situations in locations where many enterprises exist, and in locations where a few exist will be drastically different). However, since national policy-making can not take each difference in every local government into consideration, it will probably have to be based on a national average. However that may be, since the relationship between the nation and local tax is complicated, it will not be a simple task to determine the contribution ratio of the producer and the consumer in the country's local tax. As it is natural that this ratio will be decided without relating to the price elasticity of both demand and supply, we can deem the ratio as given here. In this sense, whether or not both the producer and the consumer will accomplish a Win/Win situation will greatly depend on the slope (elasticity) of

both curves. Theoretically this will affect greatly the political feasibility of EPR. Nevertheless, knowing the demand and supply curves of the product concerned in order to achieve this, although necessary, will not be easy.

5.3 The possibility of local tax cut

Practically speaking, to meet a local tax cut that would satisfy both the producer and the consumer (including the fact that there is not enough information) would be quite difficult. Therefore, we will leave this point aside for a moment, and reconsider from the viewpoint of society-wide efficiency. I have already stated the minimum conditions that the costs of privatization should be below the costs of the local government, and, that the concerned local tax portion should be deducted. In the real world, is this possible to achieve?

In the current situation, I will have to say that it is quite difficult. The newspapers have reported the financial crisis of Tokyo and Kanagawa local governments. Under the current economic situation in Japan, it can be easily predicted that many local governments are suffering from a financial deficit. Regardless of the logic, many local governments probably do not have any room for a tax deduction. If this being the situation, although considerations will have to be made on its effect on environmental improvements, introducing EPR may not be considered as favorable for society.

In discussing this, there is one more point that I would like to mention. The point is, to begin with, that whether or not the waste treatment costs of local governments are accurately calculated, whether or not waste treatment by local government is losing money, and, whether the treatment is done efficiently with no room for further improvements. The author has not yet investigated this point, but, thinks that many local governments do not actually have an accurate grip on the figures. Although EPR is an extremely valuable environmental policy, it is only one of the choices, and decisions must be made after comparison with other policy measures. In this sense, to accurately grasp the actual conditions of the waste treatment costs of local governments is indispensable. We should expect that each local government will take the opportunity offered by the EPR discussions of OECD, to perform re-inspections and announce the results.

6. Netherlands' Packaging Waste and EPR

To repeat, EPR is one type of various environmental and economic policies regarding waste^{xxi}. Therefore, the decision to introduce EPR must be made by continuous comparison with other policies. A good reference point on this would be the Covenants between the central/local governments and the industries adopted widely not only on the waste issue but also in other environmental policies in Netherlands. In this paper, the contents of the Covenant regarding packaging waste which took effect in June 1991 (hereinafter, simply called Covenant) will be compared with EPR (the contents of the Covenant and its results are from OECD [1998c]).

As stated in 2 of this paper, EPR remains an EPR when the responsibility of waste treatment transfers from the local governments to the private sector (producers). Complete implementation points at the complete transfer of the treatment responsibility of the concerned waste to the private sector (i.e. Packaging Waste Ordinance of France

and Germany ^{xxii}). Partial implementation means that the local government and the private sector will share the responsibility (i.e. Packaging Recycling Law of Japan). In comparison, in the Netherlands' Covenant, the take-back is carried out mainly through existing channels. Take back services of glass, PET bottles, cardboard, paper, and others are implemented by local governments. For containers and trays, the enterprises operate take-back utilizing the deposit system. This system which assumes the waste treatment by local governments is different from the essence of EPR as OECD sees it, however, in OECD [1998c], this is regarded as one example of EPR policy ^{xxiii}. This is, perhaps, difficult to understand

6.1 The Summary of the Covenant

Moving on, let's, summarize the Covenant outline.

First, as a goal for the year 2000, the following targets have been announced.

- 1) Reduction of the total amount of packaging to the 1986 level, and if possible, a further 10% reduction.
- 2) Promotion of reusable packaging, with a target of 60% recycling of the packaging disposed, and prohibition of packaging disposal in landfills.

It also includes the following elements not found in other Covenants:

- 1) the concept of chain responsibility
- 2) the application of LCA (Life Cycle Analysis)
- 3) the application of MEA (Market Economic Analysis)

From the above, chain responsibility means to share the responsibility of the bad influences on the environment of production and consumption among the parties concerned (including the government) in the chain of the product. It is worthy to note that the term consumption is used here, as the OECD report states that the producer is the polluter. LCA means the total analysis of the influence of a product on the environment at every stage from designing the product to its discharge. MEA adds further studies from the views of cost effectiveness regarding each environmental-friendly option produced from the results of LCA. The point to be paid attention to here is that the economic burden must not center on a single actor of the product chain, and that MEA investigates each economic influence on all parties concerned such as the packaging manufacturer, the content manufacturer, distributor, and importers. The reason for this is to seek for an efficient solution by dispersing the high cost of waste treatment. In the OECD studies, although it approves the sharing of the responsibility among the parties concerned, it states that the final responsibility should be with the final producer. Therefore, the two are irreconcilable on this point.

The Covenant is concluded after the signing of the agreement by the government and FPE (Foundation of Packaging for the Environment). Although joining the Covenant is voluntary, there would be legal obligations to the agreement once joined. If the goal cannot be met, one must take responsibility under civil law. There is also a threat to enterprises that do not join that if they do not take enough individual measures, there will be legal measures taken against them.

On the LCA aspect, the effects of the Covenant require evaluation from the viewpoint of environmental improvement, influence on competitiveness, resource efficiency, and the innovative improvements of the product and its manufacturing process. The *OECD* [1998c] tries to practice these evaluations. Now, let us look how well Covenant worked. The first general goal of the Covenant, that the amount of new packaging supplied to the market must fall below the base year level of 1986 by the year 2000, has already been met as of 1995. With regards to the recycling rate, paper and cardboard industries promised figures above the rate set by the Covenant, and met its goal. Specifically, the goal was to meet 80% recycling rate in glass and 60% in paper and cardboard. Table 1 describes the transition of the amount of packaging waste generation by type after the Covenant became effective. As you can tell from this table, the target figures of packaging waste reduction in 1994 have been met, with the exception of plastics.

As above, judging from the data currently available, Netherlands' method seems to be functioning quite well. Even in *OECD* [1998a], the evaluation states "This--- approach has worked remarkably well in the Netherlands----". Needless to say, to apply this method to durable consumer goods will have unpredictable results. Moreover, the state of affairs of the Netherlands may have to be taken into consideration. Furthermore, in Germany's Packaging Waste Ordinance, that completely privatized waste treatment in the form closest to the ideals that *OECD* asserts, the steady rise of the recycle obligation rate, the transition of plastic packaging to paper, and progress in treatment technology have all been reported (*OECD* [1998b], pp. 26-28). Therefore it is natural to say that it is still too early to apply the Netherlands method to other countries and products just as it is. However, as above, it can be said that the methods of waste reduction are diverse. Each country, accepting EPR as one of its effective options, will have to seek for the best method in view of their respective conditions, the characteristics of the concerned products and the efficiency of the local government etc. The criteria are, among others, environmental improvement, social welfare and equity.

7. Who should bear the responsibility

The author recognizes various advantages with regard to the concept of EPR. It is innovative to utilize reduction incentives by privatization. However, the further assertion that shifting the responsibility to the (final) producer is favorable under the "Polluter Pays Principle" cannot possibly be agreed to. Since the Polluter Pays Principle has already been discussed in the previous section, I would like to discuss the point focusing on "Who should bear the responsibility". There is only one criterion in judging this, which is "To serve the purpose the best, who should bear the responsibility". Although the parties concerned here would be the producers and the consumers (in some cases, local governments may also be a party concerned), the producers can be classified into raw material manufacturers, parts manufacturers, final producing and assembly manufacturers, and distributors including wholesalers, retailers, and importers. To be the most effective in waste control, who should bear the responsibility within these actors. In other words, on whom can the incentive be demonstrated, should be the criteria. Generally, this would be the (final) producer who carries the potential for technological innovations. However, this may not be the

case with the concerned products (in the Packaging Waste Ordinance of Germany, both the producer and the distributors are held responsible for the waste treatment, however, the retailers among the distributors were held responsible for the collection of packaging. This became too much of a burden on the retailers, and through negotiation with the producers, the establishment of a company contracted for collection, discretion, and recycling operations, called DSD, took place). The important thing here is to identify the party(ies) that is the most influential in product design, sorting, recycling, incineration and disposal, and let the party assume responsibility. This, describing it in another way, is paying attention to the controllability. Similar aims are asserted in *OECD* [1998b] and *Lifset R. and Lombardi D.R.* [1997] ^{xxiv}.

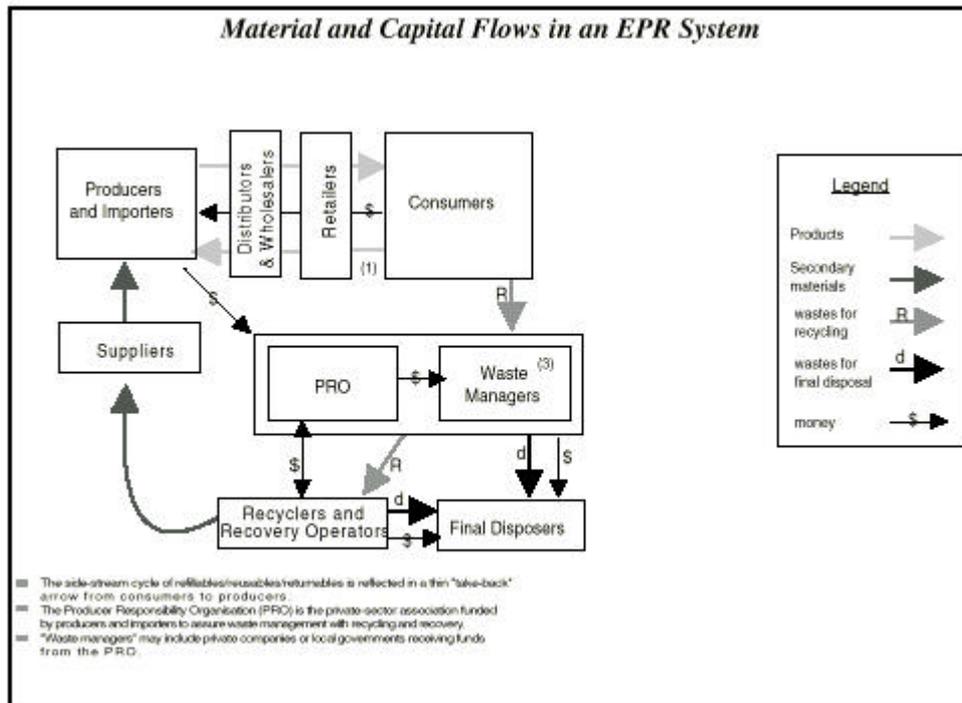
On top of that, a revision of the system should take place in an open, transparent manner, by considering such things as the possibility of the earlier mentioned tax reduction and the political feasibility. The revision should also compare and study policy instruments other than EPR in the light of such aspects as environmental improvements, cost effectiveness, and technological developments. Even if EPR is to be adopted in Japan, ample discussions of the pros and cons on how to introduce it, i.e. whether by regulation or by voluntary agreement will have to be made.

5 Reflections of the Discussions at OECD

Based on the discussions above, the following points should be reflected on at the OECD Workshop in May this year, and on the compilation of the Guidance Manual.

- 1) Clarification of EPR's position, as one of the waste policies, as well as clarification that the responsible body to be the party most fitting to the purpose (controllability).
- 2) Stop using the term "PPP" in relation to EPR discussions.
- 3) relating to 2, the title used at the workshop in Washington last December, "Extended and Shared Responsibility for Products" is better, and not EPR (Extended Producer Responsibility).
- 4) If the set of conditions (perfect competition, no time-lag) are provided, the fact that the net burden by the producer or the consumer remain unchanged in either case as cost internalization into product price or the consumer-pay-at-discharge method should be clarified. On top of that, in comparing those two schemes; operational costs, illegal dumping, consumer education, and required information volume should be taken into account.
- 5) In implementing EPR, the difference in the characteristics of the product concerned must be considered in full. Moreover, careful attention should be paid on whether to introduce it by regulation or voluntarily. Each country should choose the form most suitable for their country's situation.
- 6) In considering EPR, the welfare of society will decrease unless a local tax reduction takes place. With this regard, the efficiency of the local government (whether the local tax is used effectively or not) should be taken into consideration.

Figure 1



Source: OECD 1998(a)

Table 1

Table 3 - Total Amount of Packaging Generated in the Netherlands (1991-1994)

in kilotonnes

Material	Plastics	Paper/cardboard	Glass (disposable)	Ferrous metals	Aluminium	Total
Year						
1991	645	1 688	558	263	46	3 201
1992	647	1 658	523	325	49	3 202
1993	538	1 500	504	201	18	2 761
1994	613	1 415	463	189	19	2 699
Goals 1994	<645	<1 688	<558	<263	<46	<3 201

Source: National Institute of Public Health and the Environment, *Analyse Verpakkingsafval 1994*, report nr. 776201021, p. 8.

Source: OECD 1998(c)

Figure 2 Cost burdening to Producers and Consumers (Case 1)
 (Waste treatment cost is internalized into price of goods)

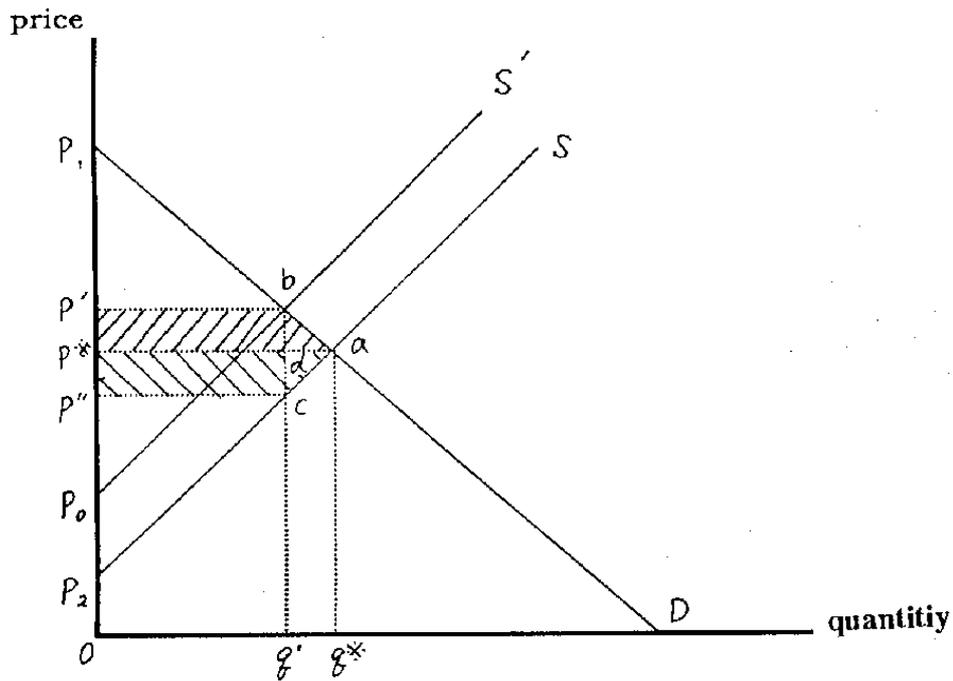


Figure 3 Cost burdening to Producers and Consumers (Case 2)
 (Waste treatment cost is internalized into price of goods)

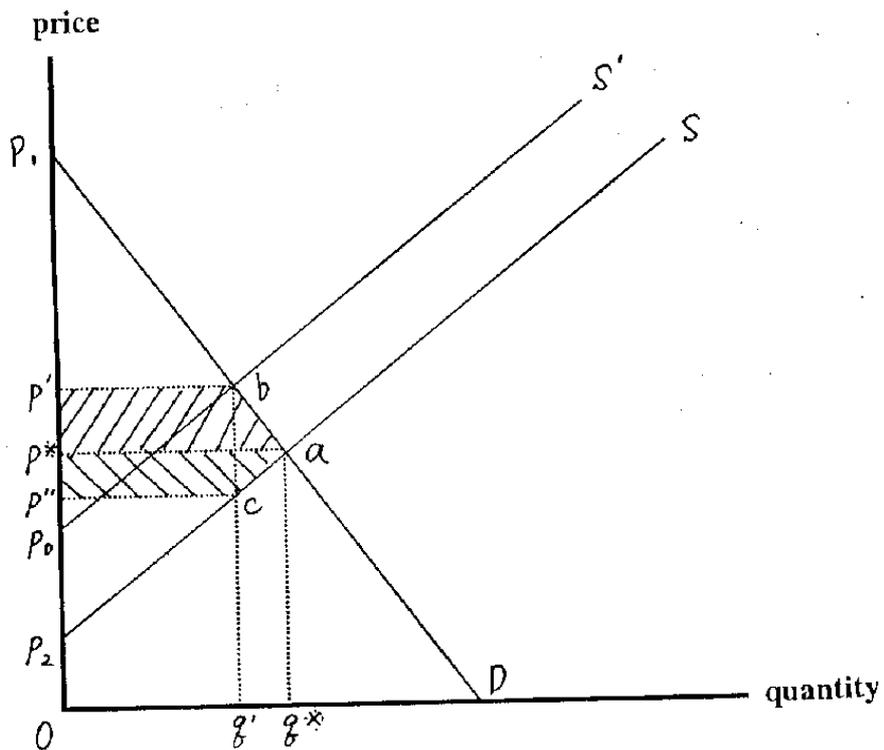


Figure 4 Cost burdening to Producers and Consumers (Case 1)
 (Consumers pay waste treatment fees at time of discharge)

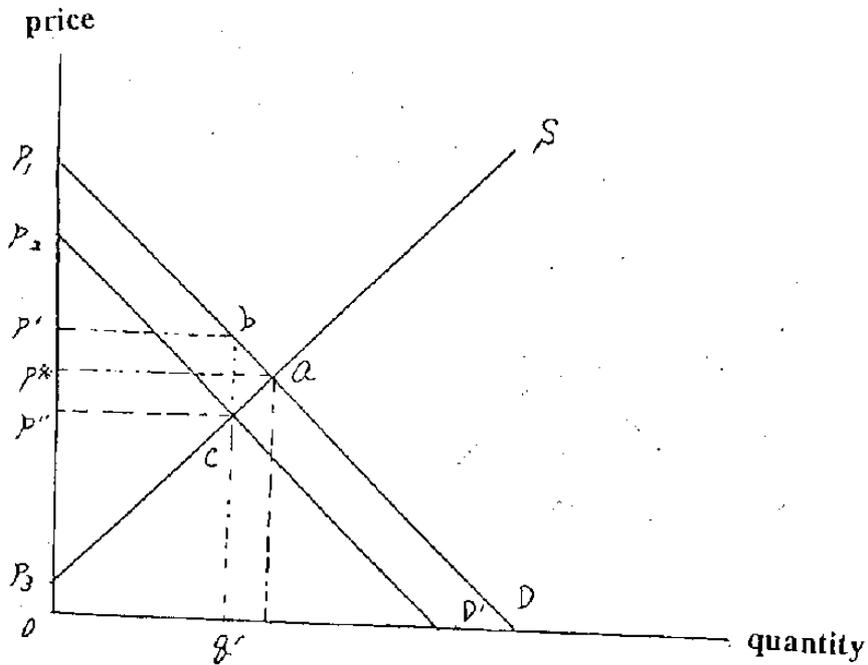
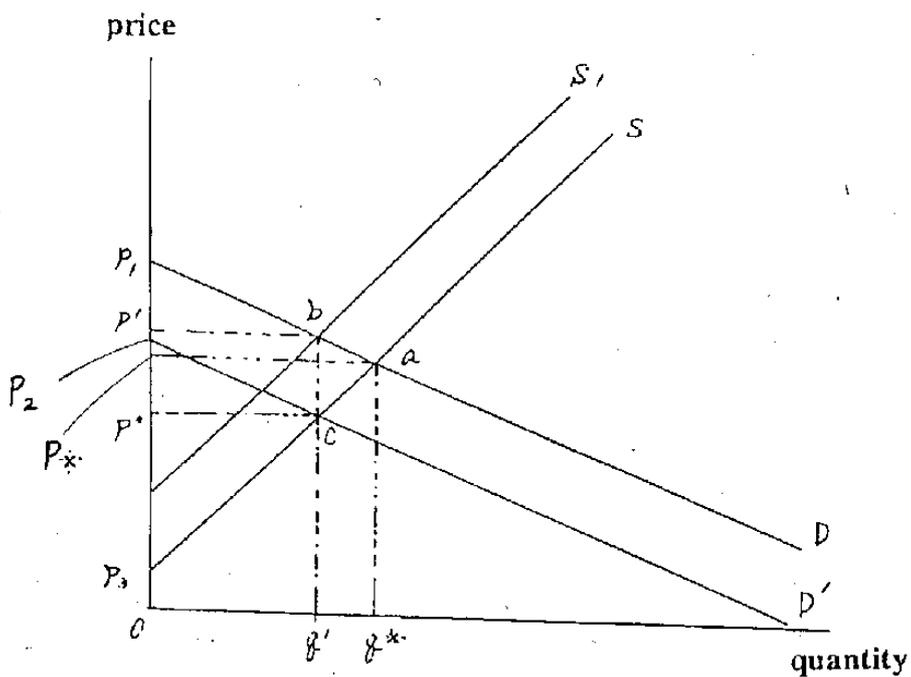


Figure 5 Cost burdening to Producers and Consumers (Case 2)
 (Consumers pay waste treatment fees at time of discharge)



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i The term "responsibility" used here points at the treatment (collection, sorting, recycling, incineration and disposal) responsibility of municipal waste, and does not have any relationship with legal liabilities.

ii The Municipal Wastes at OECD includes not only the household wastes, but also wide range of waste such as the waste from offices, businesses, and hospitals where the local governments hold responsibility.

iii Europe has not decided EPR as the only policy, however, the nuance is strong.

iv Refer to *OECD* [1998a], pp13-14.

v *Lindsay C.* [1998] is a paper presented at the OECD Workshop in December 1998. As one of the three purposes stated in this paper, it states that "*to urge the OECD to consider voluntary product responsibility approaches as a legitimate alternative to producer responsibility mandates*" (page 1).

vi Japan's presenters at the three Workshops in the past are as follows. First Workshop (December 1997, Ottawa) - none, Second Workshop (May 1998, Helsinki) - the author, Third Workshop (December 1998, Washington D.C.) - Mr. M. Shoji (Senior Managing Director of Kajima Corporation and chairman of Keidanren's Waste sub-committee), Dr. M. Tanaka, Director, Department of Waste Management Engineering, National Institute of Public Health, and, Mr. T. Kitaba, Deputy Director of Office of Recycling, Ministry of Health and Welfare.

vii There is a description - "*The findings reflected in this report are not the final word on extended and shared producer responsibility*" on page 9 of *OECD* [1998a].

viii Also in *OECD* [1998a], there are several occasions in which it uses the term "*privatize*" or "*privatization*" (i.e. pp. 9, 16, 48).

ix In *OECD* [1998a], there is the following statement - "*---This would in principle be done by shifting costs from the taxpayers to final producers for internalization into product pricing --- EPR provides producers with incentives to reduce operational costs for which they have now become responsible as their products reach the post-consumer phase*".

x In most cases, additional costs are needed on many environmental policies, and an important point depends on how to implement the policy with minimum costs. The peculiarity of EPR, however, is the point that there is the possibility of the cost being a minus to a society by implementing it (Due to the fact that, in general, private sectors are more efficient than local governments and that there should be visible incentives for cost reduction on the part of private sectors).

xi Recycling rate is the (recycled volume in weight by the local government + mass collection volume by the residents) ÷ (the total volume of treated waste + mass collection volume by the residents). Figure in Japan in 1995 is 9.9%

$(2,782 + 2403) \div (49,899 + 2403)$. Unit 1,000 ton

xii According to *The New Palgrave, A Dictionary of Economics*, edited by J. Eatwell et. al. Macmillan, 1987, external (dis)economies is described as "imply as a rule that market prices in a competitive market economy will not reflect marginal social costs of production. Hence, a market failure arises, meaning that the market economy cannot attain a state of efficiency on its own" (p. 261). On the contrary, waste treatment operated by the responsibility of the local government itself is not the cause of environmental pollution. The reason why the production of one-way bottles become excessive is not because of the competitive market, but because the cost of waste treatment is not reflected under the local government responsibility scheme. This is a different concept from the concept of external diseconomies.

xiii There is a commotion on the OECD paper regarding the term "share". For example, this term is being used in the title of *OECD* [1998a], quoted from on several occasions in this paper. However, in the OECD paper presented at the Joint Session of Trade and Environment Experts held six months later in December of 1998, the term "shared" has been deleted from the title. On the other hand, the title of the 3rd EPR Workshop held only a day later in Washington D.C was "*Extended and Shared Responsibility for Product*". Not only the term "shared" was used, but also "*producer responsibility*" was altered to "*responsibility on products*". This point seemed to be reflected by strong intentions from U.S.A., nevertheless, such being the case each time regarding the concepts of EPR, the situation that opinions within OECD and between member nations are not always consistent is worthy of note.

Furthermore, the term "shared" is used as the responsibility shared between local governments and producers at times, however on other occasions; it is also used as the sharing between the producer and the consumer, or at times, the sharing between the producer and the distributor.

xiv Strictly speaking, the subsidy is not ¥50. After comparison between the amount of the portion of the local tax paid by the producer that contributes to waste treatment and the actual cost of the waste treatment by the local government, if the latter was larger, then this will be the subsidy.

xv Please refer to *Tanaka M.* [1998] regarding this point.

xvi As in, "*Many OECD countries --- in accordance with the Polluter Pays Principle (PPP) --- are taking measures to expand private sector (corporate) responsibility ----. This approach of Extended Producer Responsibility (EPR) ---*" (page 2), and, "*When properly undertaken, EPR's strength lies in ---- the Polluter Pays Principle*" (page 5).

xvii According to OECD Guiding Principles concerning international economic aspects of environmental policies adopted in 1972, the Polluter Pays Principle is a principle "to be used for allocating costs of pollution prevention and control measures to encourage rational use of scarce environmental resources and to avoid distortions in the international trade and investment". It further continues as, "This principle means that the polluter should bear the expenses of carrying out the above-mentioned measures decided by public authorities to ensure that the environment is in an acceptable state. In other words, the costs of these measures should be reflected in the cost of goods and services which cause pollution in production and/or consumption". OECD Guiding Principles Concerning International Economic Aspects of Environmental Policies.

xviii It states, "*to assess the fee at the point of original sale is administratively the most simple and effective way.*" and, "*To impose a separate fee at the time of disposal, as some producers have urged, may provide an incentive to consumers to engage in fee evasion.*" *OECD* [1998a], page 25. Furthermore, it could be gathered from this statement that producers in every country assert the consumer-pay-at-discharge scheme.

xix Regardless of whether cost is internalized in the price or the conventional treatment by local governments, it states that "*it is inescapable that costs are always passed on or back to the consumer/taxpayer, who inevitably pays for waste management.*" (*OECD* [1998a], p. 29).

xx In a more strict sense, in order to evaluate whether social welfare actually increased or not, it is necessary to take into consideration the environmental improvements with the introduction of EPR. However, we do not go further into it in this paper.

xxi This point seemed to be confirmed at the 3rd OECD Workshop regarding EPR held in Washington D.C. in December 1998. For example, in the *WORKSHOP SUMMARY* distributed on the final day, descriptions such as "*EPR is one tool to meet environmental goals*" and "*EPR is not a single uniform approach (one size does not fit all)*" can be found.

xxii The local government physically collect and sort waste in France, however, this is being done on behalf of the producer who assume responsibility, and, is being paid for this portion.

xxiii "*The Packaging Covenant was chosen for this case study, as it is one particular approach in use in an OECD country which has implemented EPR through a combination of waste prevention, product and material re-use goals, and product policy measures.*" *OECD* [1998c], p. 7. If abided by this view, it will be able to be called EPR even if the producer's responsibility does not involve waste treatment. It states the reason why the Netherlands' method working is because of special situations in highly environmental conscious Netherlands where although a small country, the population density is high. The following statement can be found in *OECD* [1998a], p.17.

"In another approach, illustrated by the Dutch packaging system, while private sector makes no monetary

contribution directly to the municipalities, participants may nonetheless internalize some costs directly. ----- This partial approach has worked remarkably well in the Netherlands, a small nation with a large population that enjoys a high level of social consensus. But where the local authority continues to finance waste management fully, with no specific, identifiable financial contribution from the private sector, it is not clear that the Polluter Pays Principle has been applied to waste management as it might otherwise be."

^{xxiv} *"Ideally, the assignment of responsible parties in an EPR system reflects the relative influence of and/or control over the life-cycle environmental impacts of the product system." OECD[1998b] and "The choice of producer in an EPR regime should therefore be the group of entities that have the greatest leverage over both the upstream (design) and downstream (recovery) aspects of EPR." Lifset R. and Lombardi D.R. [1997].*