

Environmental Cooperation in Challenging for the Empowering of Rural Farmers and Market Retailers

— Realization of Regional Organic Waste Utilization and Minimization System —

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Abstract: A NGO level partnership project between Japan and Indonesia is introduced. It was initiated three years ago with the purpose of reducing organic wastes in the city of Jakarta. Then we found the importance to empower the farmers and retailers in order to develop social system to reduce the amount of waste from fruit and vegetable. We prepared a guideline for them and tried to disseminating. But we soon found that it is difficult to change the habit or custom of farmers and retailers in the actual social system. Consequently, we decided to begin with working on high school students through education. It is aimed at nurturing of the farmers and retailers who are acquired with know-how to produce added value fruits and vegetables as well as compost and at the same time motivated and responsible to take part in creation of their improved society with reduced disparity in terms of economy as well as accessibility to resources, information etc.

1. A background and the purpose

It can be observed that the approach on development policy has shifted from the macroscopic viewpoint such as "poverty alleviation by the growth in the gross product," or "the eradication of hunger by the increase of food production" to the microscopic viewpoint of putting importance on "the constant improvement of the well being of the entire population on the basis of its full participation in the process of development and a fair distribution of the benefit therefrom¹" and of "the Comprehensive Development

Framework (CDF)²", which is a comprehensive approach that balances macroeconomic policies with sound social, structural, and human policies. When it comes to "the wellbeing of the people", a microscopic approach, which needs to be based on their own needs and experiences, is needed and indispensable. It also can be said that importance should be put on encouraging and empowering the people in their efforts to develop themselves to be a motivated individual and on their efforts to develop procedures and mechanisms which enable them to participate in policy-making and decision-making process.

In Indonesia, about 70% of the population resides in villages, but it is expected that the scarcity of agricultural land and a decline in farming income will continue to force many farmers to leave their villages to live in cities³. It is also reported that Indonesia continues to face increased disparity within its economy, even within the agricultural sector between those who own vast lands and those who do not, in terms of their accessibility to

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management resources, technology, information and financial assistance.

In this paper, an organic waste problem in the city of Jakarta is introduced and the reason why we took the approach to working on high school students through education to cope with the waste problem is discussed taking the social situation in Indonesia as is mentioned above into consideration.

2. Organic Waste Problems in Jakarta

2-1 Source of Organic Waste in Jakarta

This cooperation project is initiated with the aim to reduce organic wastes in the city of Jakarta which is about 70% of the total 25,000 m³ of solid waste daily generated in the city⁴.

Most of the basic needs for food consisting of carbohydrates, vegetables, fruits, proteins (eggs, meat or fish) as well as milk in Jakarta are transported or imported from elsewhere, mainly from the hinterland and other agricultural areas in the country. Since Jakarta only produce between 5 to 20% of these foods, almost 80 to 95% of these variety of foods have to be obtained from elsewhere⁵. Vegetable for Jakarta are transported from various agricultural areas around Jakarta, from West, Central and East Java, from South Sumatera, Lampung, Padang and Medan. Some are also imported from abroad such as garlic, soybean, cucumber, cauliflower, etc., although some efforts have been developed to grow these imported vegetables in some vegetable growing sites, i.e. in Lembang, Bandung and Sukabumi. Fruits are also provided from various fruit producing areas, mainly from Bogor, Yogyakarta, Malang, Pontianak, Medan, etc. Some fruits such as apple, citrus, durian, dates, kiwi, almonds, strawberry, etc., are imported from Japan, Thailand, China, Australia, Middle East, USA etc. There is one big central market in Kramat Jati, East Jakarta with about 5,000 traders and retailers of vegetable, fruits, carbohydrates (rice, cassava, potato, etc.), spices (garlic, pepper, etc.) as well as some small shops selling kitchen, table and various household utensils. The central market is the main supplier of 152 retail markets located in Jakarta. The central market and the retail markets are the major sources of wasted organic resources in Jakarta.

2-2 Management of Wasted Resources in Jakarta

At present Jakarta is producing almost 25,000 m³ of waste a day and there is an urgent need to approach this problem repressively or curatively for the cleaner city. The traders and retailers also should take care of their own clean environment. The waste from the market is administered by the market officials who collect the retribution from the traders and retailers. They are responsible to organize the deposition of wastes through the cleaning service office, although the task is contracted out to the cleaning service companies. The final deposition of these wastes collected is the responsibility of the cleaning service in cooperation with the office of the local district administration.

Jakarta has hundreds of temporary deposition of wastes, on which waste from homes, hotels, offices, and markets are deposited temporarily. The final waste deposition is located in Bantar Gebang in Bekasi District. Originally Bantar Gebang is planned as a sanitary landfill for the use of agricultural purpose when finished. On the contrary the meaning of deposition, which is originally meant as management or arrangement of the accumulation of things, is known in Indonesian as *tempat pembuangan sampah sementara* (TPS) and *tempat pembuangan sampah akhir* (TPA) which mean as *temporary trash throwing site* and *final trash throwing site*. After being seriously protested by the residents living nearby Bantar Gebang, the officials of Bekasi District urged the Jakarta Municipality to close this final deposition site. Alternative plans have not yet seen so far.

Years ago it was planned to overcome Jakarta waste problem by using incinerator. However, this was discontinued with the economic reasons and it may create other problems by exhausting emission to the dirty atmosphere of Jakarta. In Tangerang, west of Jakarta, there are composting efforts by the cattle fattening business. The cattle dung and the wasted fodder are composted for sales. Household waste from the real estate Bumi Serpong Damai is collected and processed as compost. The Mekar Sari Fruit Garden in Bogor District has collected the falling leaves to be composted and the composts are utilized to grow fruit seedlings in plastic bags, namely mango, citrus, chilli, etc. There are other

small composting industries in Jakarta who are offering several brands of composts such as *Kompos EM4 Bokashi*, *Fine Compost*, *Kompos Bumi Serpong Damai*, *Kompos Mekar Sari Fruit Garden*, etc.

3. Development of Cooperation Project

3-1 Conceptual Flow of Improved Vegetables and Fruits Material

As a matter of fact, it is difficult for the farmers to sell their vegetables and fruits directly to the market or to the consumers. They are approached by a so-called *stock-traders* and *collectors* (or *tengkulak*) who directly collect vegetables and fruits from the farm. They buy the whole products including their waste and paying 90% of the real price, with an understanding that the 10% of the products included in it are considered as wastes. The stock traders select the first quality of the products to be sold to or through the supermarkets. While the second quality of vegetables and fruits

shall be sent to the central market or retail market. Consequently the wasted resources will be left in the farmer's village.

This waste is spread all over the village, and the small farmers with 0.1 – 0.5 ha of land are unable to effectively composting their own waste. In Pacet village near Jakarta, collectively under the guidance of the existing cooperative farm leader, they are making a cooperative effort to produce consumable products such as juice, crackers, dried fruits, etc., and a composting effort of the waste mixed with cattle dung.

We prepared a textbook and a guideline for farmers referring to the experience of Pacet village to manufacture the still consumable vegetables and fruits, followed by composting the non-consumable organic wastes. We approached farmers and held workshops in order to motivate them to begin the activities shown in the textbook. This model of improved vegetables and fruits flow is shown in Fig. 1.

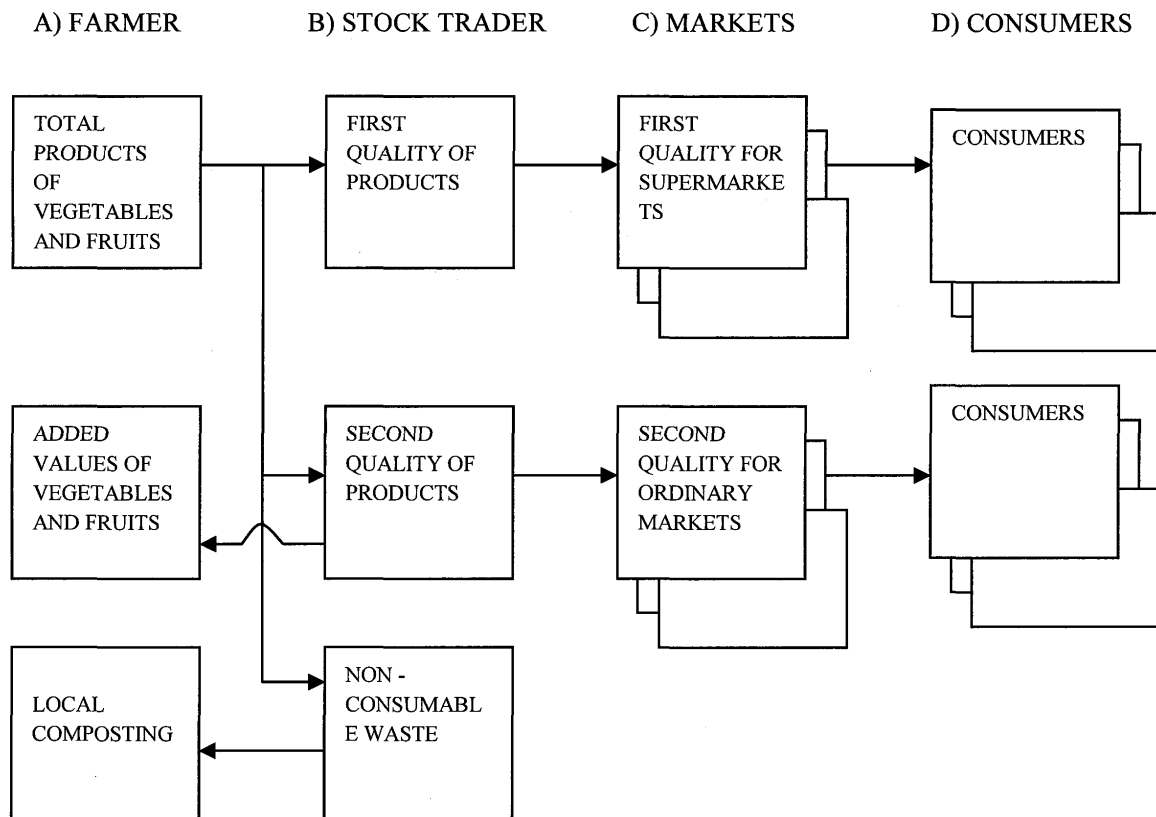


Fig. 1. Model of the vegetable and fruit chains from the farming village (A) to the consumer (D), through stock traders (B), and the markets (C).

Another key generator of waste is the ordinary markets namely the central as well as the retail markets. This is due to the fact that vegetables and fruits sent to these markets are considered as the second quality (see Fig. 2). In addition, there occurs some additional degradation of the quality of

these vegetables and fruits during the transportation. In reality the retailers select vegetables and fruits for sale and by so doing they are wasting the low quality of vegetables and fruits that can still be consumed and a certain amount of non-consumable waste that can be composted.

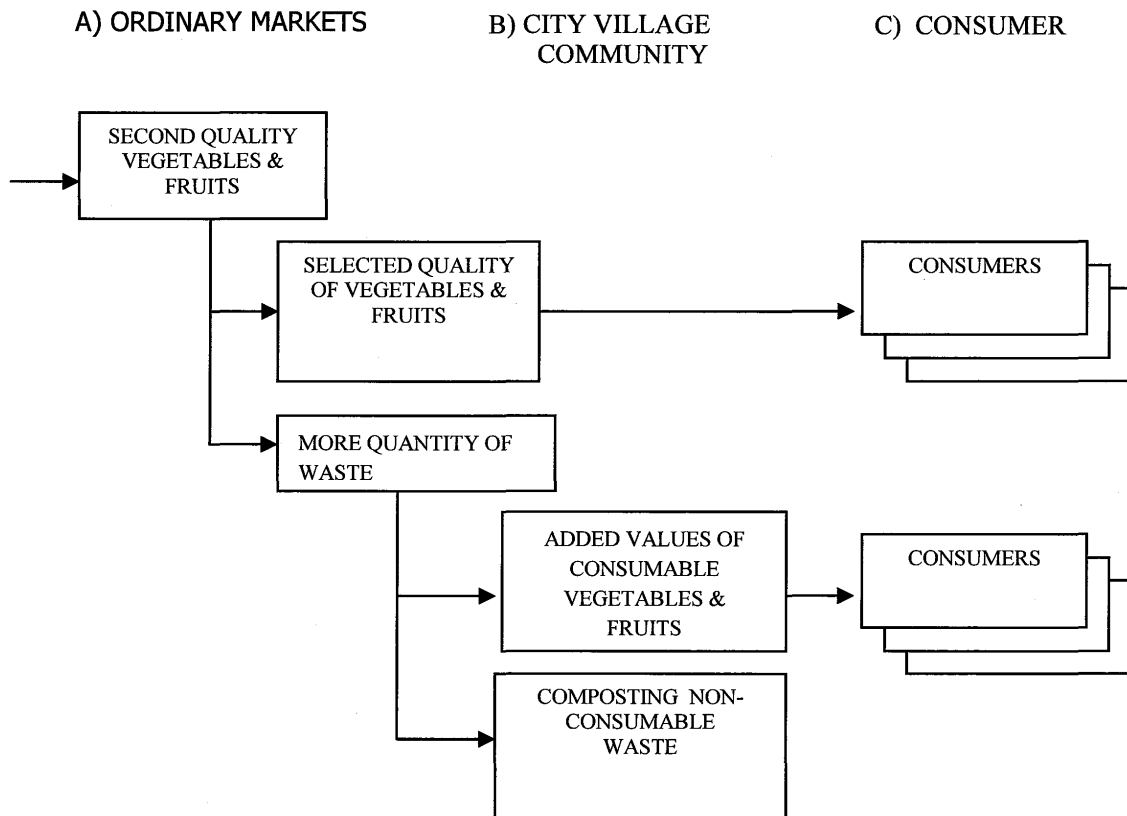


Fig. 2. The second quality of vegetables and fruits to be selected by the retailers for sale, while the rest will be classified as some consumable parts to be processed with added values, and the non-consumable part of the waste is to be composted.

3-2 Encouragement of Waste Minimization Through Education

The target of our project is to empower the farmers to develop cottage industries to manufacture the added values of fruits and vegetables in producing juice, pickles, crackers, etc., and manage the non-consumable part of the waste to produce compost for their own use and to be marketed. As a complementary effort, the condition and status of the market traders and retailers in Jakarta are studied. They are important links between the farmers producing vegetables and

fruits and the consumers in the city. Apart from these roles and the profit or income generated from their business as traders and retailers, there are certain unexpected impacts that the wasted resources are the source of the dirty Jakarta. Efforts should also be developed to add values of resources wasted from the markets that still could be consumed, while the rest should be composted.

But we soon found that it is difficult to change the habit or custom of farmers and retailers in the actual social system. Then, we decided to work on high school students through education. Currently,

three high schools including agricultural and fishery high school are participating in this project. Students participating are practicing cooking for added value products or composting as part of their homemaking course or extracurricular activities making use of the textbook prepared by this project.

The common traditional habits of most people to generate waste should be changed through education, training and empowerment to manage all possible utilization of wasted resources; at the same time to increase and optimise the benefit from these wasted resources. To begin in changing this habit is potentially through formal education to motivate the school children. This applies to the high school students of schools in the farming village as well as surrounding the markets in the city. They socialise the activities such as producing added value products and composting from vegetables and fruits that have been wasted making use of our guidance and textbook provided through this project. The wasted vegetables such as cabbage, cucumber, garlic, onion etc., can be used to prepare pickle, sauerkraut, etc. Fruits such as mango, jackfruit, sour-fruit, guava, etc., can be prepared as crackers, as juice or as instant (dry) juice. Chilli, pepper and other spices can be processed by grinding, since in the form of (dry) powder these can be preserved for several weeks or months, and still can be sold when the harvest season is over with higher price.

The non-consumable organic waste accumulated both in the farm village as well as in the market should be composted. The products of compost can be locally used in the field by the farmers while in cities this can be used to grow vegetable, chilli, etc., in plastic pots, or sold for other users.

4. Conclusion

Environmental problems in developing countries are closely connected with the gap or disparity in terms of knowledge and economy as is the case of poverty issues. It seems almost impossible to solve the environmental problems through making them give up an affluent lifestyle or through offering the state-of-the-art technology. An advanced technology might worsen the gap or the disparity in the society or the community, if it were not for an appropriate preparation in the society or the community as a whole. The integration of the

environment and other social and economical values at the community level shall be a key to settle the environmental problems.

Therefore, what is necessary for them is not the individual technology such as composting, waste recycling, etc., but social system and preparation to make use of the technology. This can be achieved through human development, encouragement and development of the people. It is the nurture of the farmers who are motivated and responsible, and who take part in creation of improved society.

The direct and primary target group of this project has been changed from farmers and retailers to the high school students, because

- 1) it is the students with experience and know-how who will participate in the future improved society,
- 2) creating such an educational system in high school make us expect continuous and accumulative effect which the graduate who studied and experienced will be born every year,
- 3) immediate environmental effect in farm villages is expectable with the students educated extending their experience and know-how,
- 4) low literacy of farmers is an restriction to expect them as an direct target group, and
- 5) it seems very difficult to change the habit or life style of adult if it were not for the immediate or visible benefit of it.

In this paper, we have introduced about the partnership project carried out by a Japanese NGO with an Indonesian NGO. The project was initiated three years ago and we have just built the frame of the project and stand at the beginning stage of its implementation. Although many difficulties including the financial aspect are expected in its implementation from now, we would like to continue and develop this project for the farmers in Indonesia to be helpful and supportive.

¹ United Nations, International Development Strategy for the Third United Nations Development Decade, resolution by the general assembly adopted in December 1980

² The Comprehensive Development Framework is an approach proposed by the World Bank in 1999.

³ State Ministry for the Environment & UNDP,
Agenda-21-Indonesia, March 1997

⁴ Soerjani.M, Overview of Environmental
Problems and Management in Indonesia, CRHRE,
University of Indonesia, Jakarta, 1992

⁵ These data are obtained from a booklet prepared
by and through interview to officials at the Central
Market Kramat Jati Jakarta.