



NATURAL RESOURCES AND ENVIRONMENT POLICIES AND PRACTICES

SOLID WASTE MANAGEMENT & THE ROLES OF INFORMAL SECTOR IN VIETNAM

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Cover photo:

An informal worker is collecting recyclable waste in Cam Ha, Hoi An, Quang Nam.

Photo: IUCN Viet Nam



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Contents

04 NEWS

07 RESEARCH

- 07 Policy, law and state management on environmental protection in solid waste recycling.
- 12 Overview of the informal recycling sector in Vietnam - practices, roles of the informal sector in solid waste management.
- 19 Waste recycling craft villages – Type and their environmental impacts.
- 24 Domestic solid waste in Vietnamese urban areas and the role of the informal sector in Ho Chi Minh City.
- 30 Rethinking the role of the informal sector in Vietnam's solid waste circular economy.

40 EXCHANGE

- 40 Efforts in plastic waste management in Ha Noi.
- 43 Waste pickers' thought.

ISPONRE hold workshop on plastic waste management in Viet Nam

On December 8, 2020, the Institute of Strategy and Policy on Natural Resources and Environment (ISPONRE) in collaboration with the Hanns Seidel Foundation (HSF) organized a workshop titled “Completing a policy system for plastic waste management in Vietnam”. Assoc. Prof. Dr. Nguyen Dinh Tho - Director of ISPONRE presided over the workshop. The event attracted the attention and participation of representatives from a variety of ministries, development organizations and research institutions.

At the workshop, Assoc. Prof. Dr. Nguyen Dinh Tho detailed the harm that discarded plastic is doing to our environment and how much it is entangled with our lives. Vietnam is considered to be within the top five countries worldwide for plastic waste generation, adding 8 million tons of waste into the ocean each year. According to the United Nations Environment Program, of the 8.3 billion tons of plastic that has been produced since 1950, more than 60% of this has been discharged directly into the environment. Minimizing plastic waste is now of paramount importance for policy makers if environmental sustainability is to be taken seriously.



Delegates participated in the Workshop.

Photo: ISPONRE

Reducing waste volume through Extended Producer Responsibility: getting started in Viet Nam



EPR National Platform representatives in the Workshop | Photo: IUCN Viet Nam

On November 17, 2020, the National Assembly passed the new Environmental Protection Law, which stipulates Extended Producer Responsibility (EPR) for businesses in Viet Nam. This means that businesses and producers now bear the responsibility for the waste stage of their products.

MONRE has established an EPR National Platform (NP) led by the Department of Legal Affairs (DLA) to develop a national EPR strategy and action plan. The implementation details will be defined in an EPR decree.

To support this process, IUCN and DLA organized a workshop in Hanoi on November 19, 2020. The aim of the workshop was to present the EPR NP TOR and action plan and the outline of the EPR country report that DLA is preparing. Participants included representatives from DLA, ISPONRE, IUCN, WWF, Sub-Association of Recycle Waste in Viet Nam, Unilever, La Vie, Tetra Pak, Coca-Cola, and Friesland Campina.

EPR will apply to six sectors: food and beverage, electrical goods, tires, batteries, lubricants, and electric vehicles.

According to the new law, businesses can implement EPR in one of three ways: (1) Do the recycling themselves, (2) Do the recycling through a third-party Product Recycling Organization (PRO), (3) Make a financial contribution to the Viet Nam Environmental Fund (VEF).

Together with DLA, IUCN will continue to support the consultation process on the draft EPR decree. EPR is intended to reduce the cost of managing end-of-life products by reducing waste volume and increasing recycling, thereby contributing to the prime minister's new target of reducing the amount of waste that goes to landfills by 80% by 2025. EPR has the potential to create new economic opportunities and share the financial burden of solid waste management more fairly.



A private waste collector and his self made vehicles | Photo: Hoai Linh

Ho Chi Minh City: Transforming private waste collectors to reach 88.5%

According to the Ho Chi Minh City Department of Natural Resources and Environment, in the first 7 months of 2020, the districts continued to organize and rearranged the local private waste collection force, mobilized 502 private waste collection groups to cooperatives or enterprises, increasing the total number of private waste collection groups to 2,366 groups, the conversion rate was 88.5%.

Report of the People's Committee of 24 districts, in the first 7 months of 2020, the city had 35 cooperatives, 170 companies and enterprises operating in the field of environmental sanitation and there were 308 private waste collection groups which had no recognized legal status. For the standardization of vehicle collection, the city has also achieved certain results. In the first 7 months of 2020, the People's Committees of 24 districts reviewed and converted 163 additional means of collection and transportation.

The total number of existing means of collection in the city is 6,776 vehicles (including 3,311 standard vehicles and 3,465 non-standard vehicles), the need to convert new means of collection and transport is 1,943 vehicles (including 1,041 660L barrels and 902 garbage cars) with the need for loans from the Environmental Protection Fund about VND 404 billion. Since the implementation of Directive 19 up to now, the city has converted 693 collection and transport vehicles.

(Source: SGGP online)

Policy, law and state management on environmental protection in solid waste recycling

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Abstract

Many policies and laws on solid waste management have been formulated and enacted in recent years, such as:

- National Strategy for Integrated Management of Solid waste to 2025, vision to 2050;
- National Strategy on Environmental Protection to 2020, vision to 2030;
- Law on Environment Protection 2014 (revised in 2020);
- Decree No.38/2015/ND-CP on waste and scrap management.

These policies have brought about an array of positive results such as:

- Rate of municipal solid waste collection increasing from 78% in 2008 to 85% in 2015;
- Collection services have been extended to grade-V in urban and rural residential areas;
- Socialization of collection, transportation and investment in the construction of solid waste treatment facilities.

Together with the central government, local authorities, businesses, and production households are also active in waste management and improving solid waste recycling rates in their areas.

However, the roll-out of effective waste-management policy is still facing many difficulties and challenges. The rate of recycling of solid waste is not meeting expectations. For rural areas, especially those in remote locations, there is a particularly low collection rate for solid waste and pollution levels are unacceptable. Measures to prevent waste from plastic bags have not yet achieved positive results. The implementation of approved solid waste management planning in many localities is still slow. Investment in waste management is limited and has not yet met requirements.

In coming time, in addition to amending and supplementing the policy and legal framework on solid waste management and solid waste recycling, it is also necessary to have synchronous solutions to improve the efficiency of management and investment, attracting social capital and propaganda, awareness raising to improve the current situation.

1. Policy and legal framework on management of solid waste recycling

Many policy mechanisms are currently in place in regards to solid-waste management. These are as follows:

- Law on Environmental Protection 2014 (revised by National Assembly on 17/11/2020);
- Law on Fees and Charges 2015;
- Decree No.38/2015/ND-CP dated 24/4/2015 on waste and scrap management.

Along with these, many regulations on management of specific wastes have been issued. The table below presents all the relevant policy interventions from 2009 to present:

Policy Number	Date	Description
Decision No. 2149/QD-TTg	17/12/2009	Approving the National Strategy for Integrated management of solid waste to 2025, with a vision to 2050.
Decision 582/QD-TTg	11/4/2013	Improving the environmental pollution controls for the use of non-biodegradable plastic bags by 2020
Decision No.31/2014/QD-TTg	5/5/2014	Support the development of power generation projects using solid waste in Vietnam
Decision No.1196/QD-TTg	23/7/2014	Mobilizing resources to invest into solid waste treatment and waste-water management
Decree No.19/2015/ND-CP	14/02/2015	Implementation of a number of articles of the Law on Environmental Protection.
Decision No.16/2015/QD-TTg	22/5/2015	Regulations for the recall and proper treatment of discarded products.
Joint Circular No. 58/2015/TTLT-BYT-BTNMT	31/12/2015	Stipulating regulations on biomedical waste management.
Decision No.452/ QD-TTg	12/4/2017	Regulations concerning treatment and use of materials discharged from thermal power plants, chemical and fertilizer plants for use in building construction projects
Directive 33/2020/CT-TTg	20/8/2020	Strengthening the management, reuse, recycling, treatment and reduction of plastic waste.

In 2017, the Ministry of Construction conducted an assessment¹ into the progress made by these strategies. The report has shown positive findings, detailing the following:

¹ Ministry of Construction (2017), Report on the implementation of the National Strategy on Integrated management of solid waste to 2025, with a vision to 2050.

- The rate of urban solid waste collection has increased from 78% in 2008 to 85% in 2015;
- Collection services have been extended to grade-V urban centers and rural residential areas;
- Socialization of collection, transportation and investment in the construction of solid waste treatment facilities (in Hanoi, Ho Chi Minh City, Quang Ninh, Hai Phong, Buon Me Thuot, Thua Thien - Hue ...);
- Solid waste reaching landfills is now over 60%; the rest is treated by incineration, composting or plastic recycling.

Moving forward, the report suggests that there should be investment into waste treatment in Nam Son, Soc Son, Hanoi, and Tan Thanh, Thu Thua, Long An. Moreover there should be a roll-out of sorting waste at sources for most hospitals and medical centers in urban centers of grade III or higher. Finally, there is a pressing need for the construction and installation of many solid waste incinerators (domestic, medical, industrial; capacity from 5-400 tons/day).

2. State management of waste and waste recycling

Progress has been made in a variety of ways for waste management and recycling. For industrial solid waste management, most enterprises in industrial zones have signed contracts with entities that collect, transport and treat solid waste. This will go far to reduce the environmental impact associated with industrial waste.

Regarding hazardous solid waste management, the implementation of strategies to curb this threat have been enacted well, especially in provinces which are home to many industrial zones. Binh Duong has seen 2,997 establishments register as a waste producer meaning that emissions can be tracked and accounted for. In Dong Nai, the rate of collection and treatment for hazardous waste is up to 95.7%. Furthermore, waste producers have registered with management agencies such as MONRE, along with treatment service providers. As of 2015, the Ministry of Natural Resources and Environment has granted licenses for hazardous waste treatment to 85 entities.

For medical waste management, this process has been implemented synchronously and effectively by the health sector and localities. According to the synthesis reports in the localities, most of the medical facilities and hospitals have classified waste at source and treated medical waste appropriately. Hazardous medical waste is collected and treated by incinerators at big hospitals or at concentrated treatment facilities in the area.

Solid waste recycling: According to the Vietnam Environment Administration, many solid waste collection and recycling projects have been led by ministries, branches, localities, business communities and residents. These strategies have been a step in the right direction for environmental sustainability, and are as follows:

- National Strategy for Environmental Protection to 2020, with a vision to 2030;
- National strategy on Integrated management of solid waste to 2025, with a vision to 2050;
- Solid waste treatment investment program for the 2011-2020 period.

The State budget support Program aims to overcome pollution and reduce environmental degradation for a number of public sector industries. Moreover, ministries, branches and localities have actively implemented many waste-management projects and domestic solid waste treatment facilities have been upgraded and to meet technical regulations. As such, there have certainly been successes in the attempts to curb the environmental impact on the Vietnamese landscape.



US Ambassador Ted Osius participated in the program of waste auditing and waste collection in Ha Long Bay organized by IUCN and its partners | Photo: IUCN Viet Nam

3. General assessment

► Positive outcomes

The positive outcomes from the general assessment are that investment has been attracted to urban wastewater treatment projects and that there is overall progress in solid waste management. Collection rates have increased from 80-82% in 2010 to 85.5% in 2017 and discarded and buried solid waste has increased from 80-82% in 2010 to 85.5% in 2017. These figures have also coincided with the rate of buried waste being lower than that of 2012.

For solid and hazardous waste management, the positive outcomes have been seen via a number of new mechanisms and policies on waste electricity generation and construction waste management. Strategies to combat excessive discarded products along with plastic bag controls have been measurably successful. Furthermore, The National Strategy on Integrated solid waste management to 2025, with a vision to 2050, has been adjusted to become more effective (Decision 491/QD-TTg dated May 7, 2018). Solid waste management plans continued to be reviewed and updated²; with 19/20 localities in 03 key economic regions have approved the plan.

Seven interprovincial solid-waste treatment projects have been deployed across three economic regions in the North, Central and South. The Nam Son - Soc Son treatment area in Hanoi has completed phase 1 whilst projects in Binh Dinh and Ho Chi Minh City are in their early stages of roll-out. As of now, there have been 26 investment projects to build up centralised solid waste treatment facilities between 2011-2012³.

► Limitations and shortcomings

The reduction in solid waste production has not met expectations and the rate of buried urban domestic solid waste at levels of around 70%. Domestic waste in many rural areas, has a low collection rate which has been left unimproved over many years. Measures to prevent plastic bag waste are yet to render

² The master plan on solid waste management in the Northern key economic region to 2030 has been approved (Decision 1979/QD-TTg dated October 14, 2016). Currently, the Ministry of Construction is reviewing and updating the plans for solid waste management in key key economic regions in the Central and the South.

³ In which, there are 03 treatment facilities using combustion technology, 11 treatment facilities using organic fertilizer production technology, 11 treatment facilities using organic fertilizer production technology combined with burning, 01 treatment facility uses pellet production technology.

positive outcomes. Marine plastic pollution still presents increasing problems and is on a troubling trajectory.

The effective roll-out of waste policies and legal framework still face difficulties and problems. The approval rate for solid waste management planning in localities is still slow and investment in waste management is limited and has not yet met actual needs. The process to deploy loans to implement waste treatment projects has is cumbersome and lengthy, resulting in slow progress. The updating of data on the generation, composition, and type of waste is not effectively regulated, leading to difficulties in waste management. As for hazardous waste management, due to the lack of regulations, the implementation process lacks a basis for assessment and supervision in the process of licensing and managing.

The socialization and participation of non-state enterprises in the waste recycling sector are still limited, mainly from the informal sector with outdated technology and environmental risks. The role of community supervision has not been fully promoted. Community environmental protection activities are limited, not properly guided, organized and not regularly implemented.

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Overview of the informal recycling sector in Vietnam - practices, roles of the informal sector in solid waste management

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Abstract

Although less recognized by public authorities, informal recycling still plays a major role in waste management in many developing countries around the world. With the rapid urbanization and population growth in Vietnam, the volume of local solid waste (CTR) is increasing substantially. Waste collection (buying/picking up) and selling recyclable materials has formed a network of informal scrap dealers throughout urban and rural areas. The paper introduces the results of initial research on informal collection and recycling sector in 6 provinces in Vietnam: Hanoi, Vinh, Da Nang, Nha Trang, Buon Me Thuot and Ho Chi Minh City within the framework of JEAJ Recycurbs Viet 2017-2019 project (Study on scrap collection and recycling network in Hanoi with a landscape and sub-sociological approach) and COMPOSE 2019-2021 project (Creating an Observatory for Measuring Plastic Occurrences in Society and Environment). The paper identifies the actors involved in the informal collection, transport and recycling chain, and also highlights the nature and presence of scrap collection networks at researched localities. In the context of implementing the Government's Resolution 09/NQ-CP dated February 3, 2019 on uniform domestic solid waste management, the research results will contribute to the scientific basis for developing policy on Extended Producer Responsibility (EPR) in Vietnam initiated by the Ministry of Natural Resources and Environment.

1. Context of solid waste collection and recycling in Vietnam

Cities in many developing countries are facing many difficulties in collecting and recycling the increasing volume of urban solid waste. With 96.2 million people in 2019, Vietnam is ranked third among the most populous countries in Southeast Asia after Indonesia and the Philippines (Asean, 2020). Among the top 5 economies of the Association of Southeast Asian Nations (Indonesia, Malaysia, the Philippines, Thailand and Vietnam), Vietnam leads with GDP growth in 2019 of 6.7%. Over the past years, along with the socio-economic development, the population growth has rapidly increased the amount of solid waste generation. Currently, Vietnam is facing the challenge of managing the volume of domestic solid waste generated each day nationwide which is more than 61,000 tons/day, of which the volume generated in urban areas is about more than 37,000 tons/day, rural areas is more than 24,000 tons/day (Ministry of Natural Resources and Environment, 2019).

The treatment of domestic solid waste from both households and industries have two main characteristics:

- In big cities, huge amounts of waste are being produced every day (Especially in Hanoi and Ho Chi Minh City).
- There are complex and fragmented collection, sorting and disposal systems that involve the use of many workers often from the informal sector (World Bank, 2018).

Although less recognized by public authorities, informal recycling still plays a major role in waste disposal in many developing countries around the world. Before the Government's Resolution No. 09/NQ-CP (February 3, 2019), the responsibility for solid waste management in Vietnam generally belonged to many different ministries and sectors. Local governments were also involved in the task of solid waste treatment and other relevant units helped assist with the collection, transportation, and recycling according to their respective duties specified in the contract of each locality. The waste-management situation in Vietnam shows that informal collection and recycling currently works in parallel with the formal disposal sector, despite the lack of integrated management. (De Bercegol, R et al, 2017).

In the framework of Viet Recycurbs (2017-2019) and COMPOSE (2019-2021) projects, 6 provinces are selected for the study survey, including 2 special cities: Hanoi and Ho Chi Minh City. One city of grade 1 directly under the Central Government is Da Nang city and 3 urban centers of grade 1 under the province are Vinh, Nha Trang and Buon Me Thuot. These cities are selected based on geographical features, distributed from the North and the South, from the highlands to the coast, and are urban with diverse economic activities including industry, tourism and culture. With the aim of understanding the importance and role of the informal sector, the research team conducted the survey in the entire area of the 6 above-mentioned localities to understand exactly how the informal sector operates in this context.



Waste collection and limitation on using plastic bags for a green Viet Nam

Photos: MONRE, TTXVN

2. Identifying the actors of the informal collection and recycling sector in Vietnam and the relationships between them

Through urbanization and rapid population increase, the amount of solid waste in Vietnam is increasing at an alarming rate. Waste collection and the selling of recyclables has formed a network of informal scrap dealers throughout urban and rural areas. This informal recycling sector includes scrap collectors, scrap dealers, recycling villages, and recycling workshops that are actively involved in waste collection and recycling with various forms of activities. These actors are specifically identified as following:

- **Scrap collectors:** These workers are known by different names from North to South such as: dong nat, nguoi di sot and ve chai. Scrap collectors specialize in purchasing old materials that are damaged or discarded that can be recycled from households or shops, agencies, companies, schools and construction sites. The items are then re-sold to stores specializing in scrap buying. Most of these scrap collectors are from Nam Dinh, Vinh Phuc, Bac Ninh, Thanh Hoa, Binh Dinh and are migrant workers who work as seasonally.
- **Scavengers:** These individuals search and collect for recyclable waste on streets, at landfills, and at treatment complexes for reuse or sale to scrap buying shops.
- **Scrap collection facilities:** The entities known as junk shops, scrap shops, and bottle yards, are facilities that collect scrap, recyclable waste products and reuse. The owners of scrap collection facilities will calculate and buy the scrap back from collectors, or buy directly from major waste sources (companies, schools, apartments etc.) for sorting. Once the volume of collected goods is enough for a vehicle trip, the scrap will be transported to craft villages or recycling companies.
- **Transporters of scrap:** The people who offer transport services to the service requester to take scrap from buying facilities to craft villages or recycling companies. In many cases, scrap buying facilities are equipped with their own means of transportation but the vehicles have a small capacity of less than 2.5 tons. For high volume transport, for vehicle loads of 5 tons or more and when the transport distance is far (over 100km), the transportation is usually carried out by a professional transport service unit.
- **Recycling workshop / Recycling facility:** A production facility to gather human resources, equipment and materials for the recycling of scrap waste into raw materials. Most of the recycling factories are small to medium-sized, manual, unregistered, and employ workers from mountainous and remote areas, on average 3-15 people/workshop depending on the scale.
- **Craft recycling villages:** Areas that focus on the handling and recycling of scrap. These villages are mostly found in the North and usually work with three main types: paper, metal and plastic. The origins of these recycling areas dates back to handicraft villages whom had traditional occupations such as making do paper and bronze items. With a dynamic tradition and the ability to evolve quickly, these craft villages have caught up with the needs of the market and transformed into large-scale recycling villages. Currently, in the North there are 3 major recycling areas: Phong Khe paper recycling village, Van Mon metal recycling village, in Bac Ninh province and Minh Khai plastic recycling village in Hung Yen.
- **Recycling hamlet:** A neighborhood scale area located in the suburban area of Ho Chi Minh City that works to recycle scrap waste into raw materials. These households in the recycling hamlets often work together due to favorable land conditions, spacial requirements and will sometimes be related to one another.

The operation mode of the informal purchasing and recycling unit is shown in the diagram below:

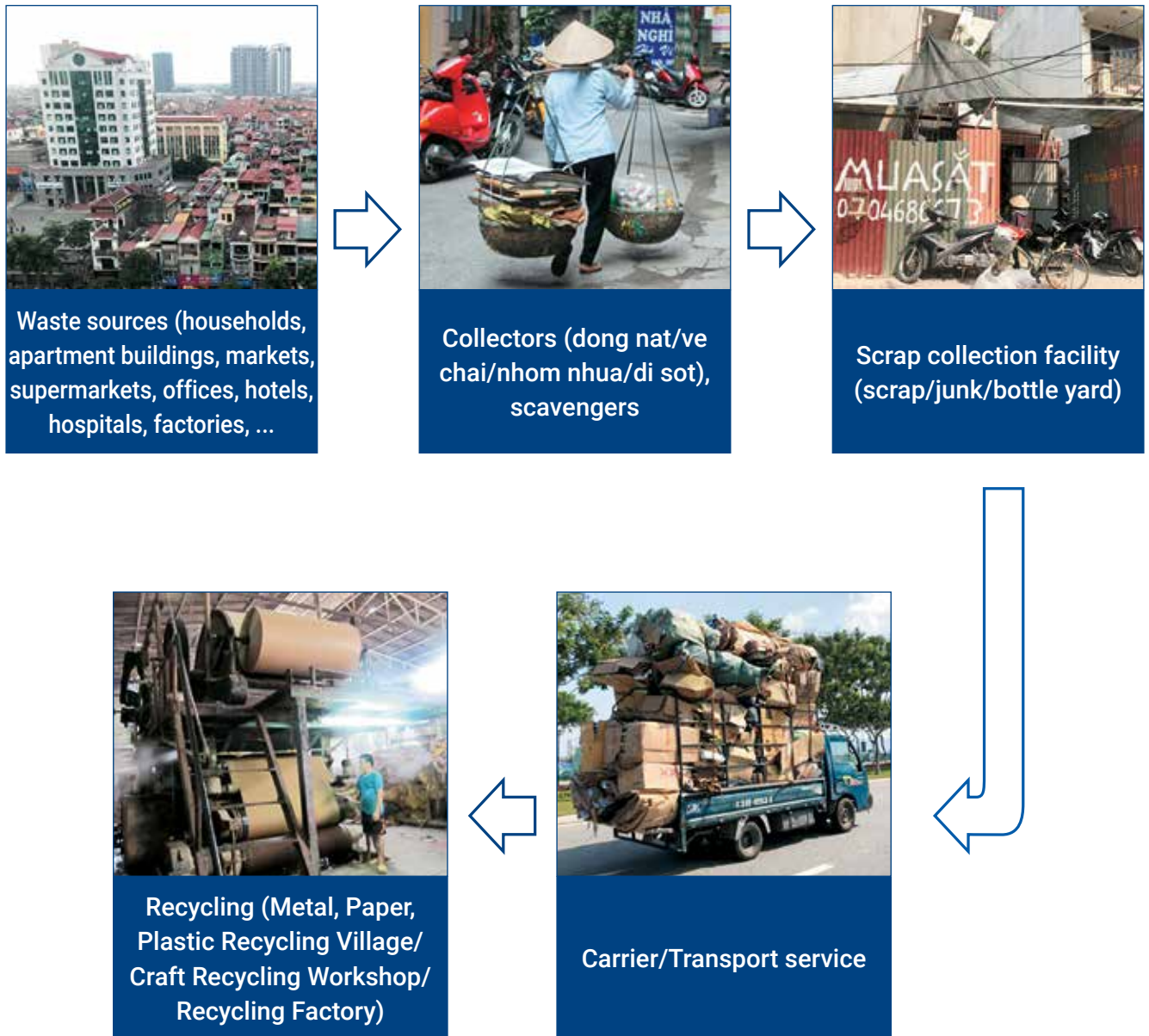


Figure 1: The chain of scrap collection, transportation and recycling.

3. Network of scrap buying facilities in studied localities

Among the actors in the waste collection, transport and recycling chain, scrap collection facilities play a fundamental role. These facilities gather, classify, and transport to other localities. However, as these facilities are easy to open and close along with being informal, they are considered difficult to control and operate freely. Scrap collectors operate discretely and do not want to be noticed or taken seriously. The results of the 2020 overall survey in 6 cities of Vinh, Buon Me Thuot, Nha Trang, Da Nang, Ho Chi Minh City and Hanoi show that there are a total of 2135 scrap collectors present in all cities with specific numbers shown in Table 1 and distributed as shown in Figure 2 below.

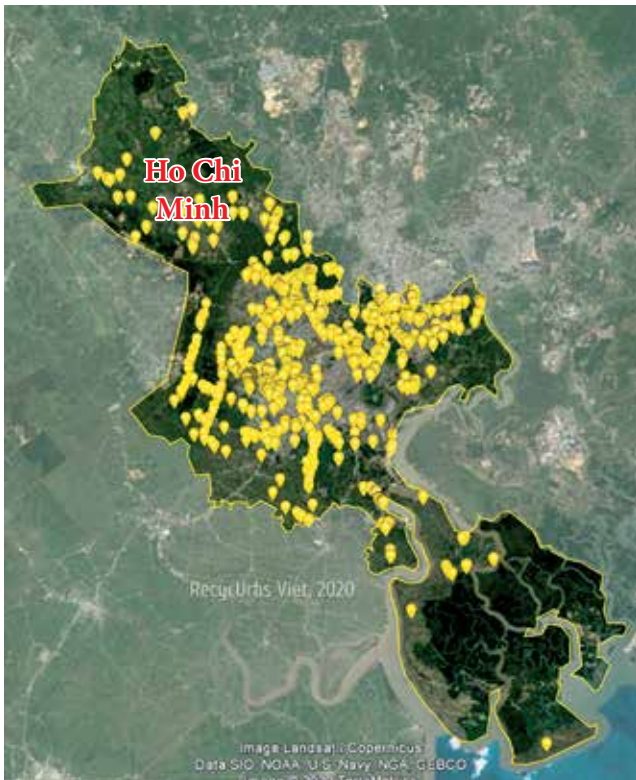
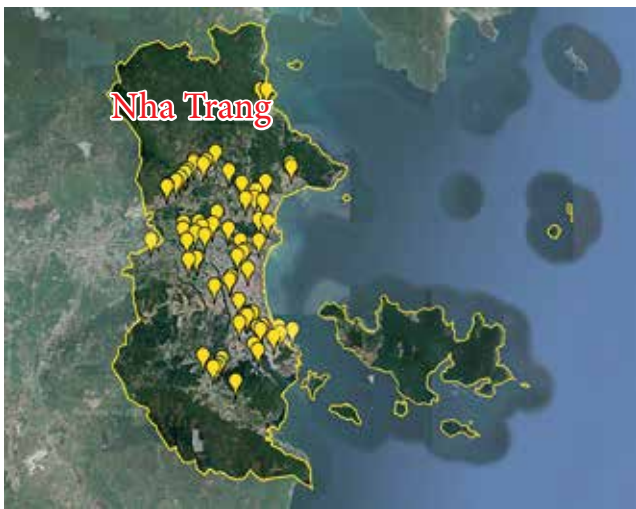
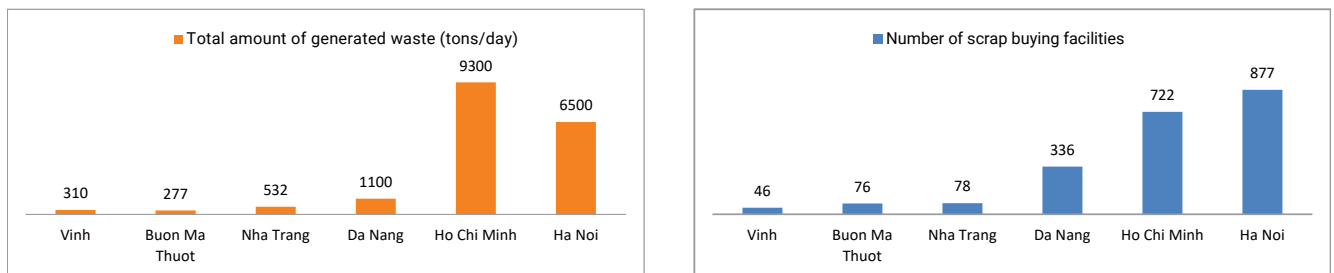


Figure 2. Distribution of scrap buying facilities in 2020 in 6 urban areas Vinh, Buon Me Thuot, Nha Trang, Da Nang, Ho Chi Minh City, Hanoi

Table 1: Total daily generated waste and number of scrap facilities in 6 cities Vinh, Buon Me Thuot, Nha Trang, Da Nang, Ho Chi Minh City and Hanoi



The number of scrap buying facilities is proportionate to the amount of waste generated in each urban area. Scrap collection facilities have a diversified scale with area from 20m² to 2400m², in which Ho Chi Minh City is home to many large-scale facilities, with 45% of total facilities with ground area from 100m² or more. Particularly, Hanoi has an outstanding number of scrap buying establishments due to their compact size, alternating in residential areas, 60% of scrap buying establishments have a ground area of less than 50m² and concentrated mainly in the urban center, where the population density is high and the amount of generated waste is large.

Scrap collection facilities operate in parallel with the solid waste collection activities of the collection units and companies. From waste sources to disposal sites, recyclables are sorted by residents, garbage and scrap collectors and sold to scrap collectors. Here, scrap is further sorted and sold to specialized recycling facilities (Figure 3). Recyclable waste separation and collection activities have significantly contributed to reducing the amount of landfilled waste in the solid waste treatment complexes. It is estimated that the amount of scrap purchased by the junk network is up to 30% of the total amount of solid waste generated in urban areas.

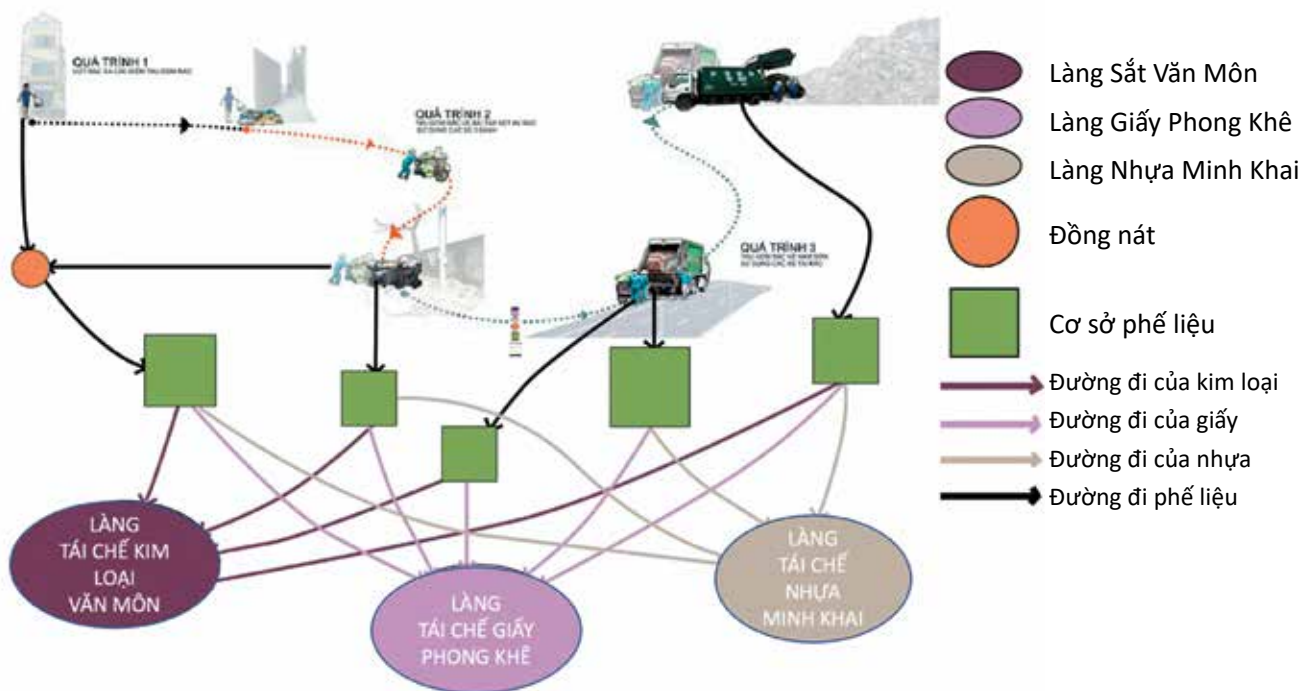


Figure 3: Current status and relationship between scrap collection activities and domestic solid waste collection in Hanoi

4. Conclusion

In the context of implementing the Government's Resolution 09/NQ-CP dated February 3, 2019 on uniform domestic solid waste management, MONRE is developing regulations on the Extended Producer Responsibility (EPR), whereby organizations and individuals means now bear the responsibility for the waste stage of their products. Products and packages must now be collected and recycled according to the required recycling specifications and quotas. Therefore, it is essential to research and understand the informal collection and recycling network to contribute to building a solid understanding of the current situation concerning solid waste collection, transportation and treatment in Vietnam.

The activity of scrap purchasing or in other words 'dong nat' is an economic activity originating in the village of Nom, Hung Yen for more than 100 years (Le Minh Phung, 2019). Originating from small activities of just a few individuals, now scrap collection and recycling has become a popular activity, present in all localities in Vietnam. This activity is attracting a lot of workers and bringing economic income for households which demonstrates it is an in demand service for society that can grow over coming years.

Preliminary research results within the framework of Viet Nam's COMPOSE and Recycurbus research projects have shown the presence and regular distribution of scrap collection facilities in Vietnam, affirming that the existence and operation of the network is indispensable to meet social needs. Therefore, in order to develop regulations on Extended Producer Responsibility, this informal purchasing and recycling sector will play an important role in the policy implementation process. State management agencies need to consider, investigate and understand the current status, characteristics and nature of this network, clarify their roles, responsibilities and ability to participate in the chain of collection activities, classify, transport and recycle products to establish an appropriate and highly effective management policy.

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Waste recycling craft villages – Type and their environmental impacts

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Abstract

Solid waste recycling is a type of village craft activity that holds a unique identity within the recycling sphere of Vietnam. Craft villages utilize scrap as raw materials and thereby reduce production costs whilst reducing the amount of waste polluting the environment. In addition, craft villages that recycle waste have created jobs for people who collect raw materials, scrap and waste. In turn, these communities have developed a fruitful industry from recycling discarded waste. Currently, the recycling craft villages are generally divided into three recycling groups; paper recycling, metal recycling and plastic recycling. Although these villages are distributed nationwide, most are clustered in Northern Viet Nam.

When producing craft items from discarded waste, often the ideas are developed spontaneously according to household size and using simple, outdated equipment and tools. People work based on their experiences and the local knowledge they have obtained rather than following a regulated and standardized procedure. This unregulated approach to production has led to some negative impacts. For metal recyclers, the recycling process generates toxic gases that pollute the atmosphere. Moreover, the recycling industry also generates dust and emissions such as SO₂, NO₂, acid vapors and alkalis. These pollutants are generated from processes such as surface treatment, paint spraying, product surface polishing, heating, drying and bleaching.

Up to now, the number of craft villages planned in the craft village industrial cluster is still very low, so the situation of waste treatment in many craft villages is left open. Most craft villages have not yet built up wastewater treatment systems. All types of waste gases and wastewater are discharged directly into the environment, seriously affecting the quality of life of surrounding people. The above shortcomings are putting the problem of the handicraft village environment before major challenges, which need to be addressed and solved substantially.

1. Overview of craft villages in Vietnam

Craft villages and villages with handicraft practices in Vietnam have long been part of the country's history, some sites have been in operation for thousands of years. The Dai Bai bronze casting village in Bac Ninh has been in existence for nearly a thousand years. The Bat Trang pottery village of Hanoi has been around for nearly 500 years whilst the Dong Xam silver carving village (Thai Binh) and Non Nuoc Stone Village (Da Nang) have a history of more than 400 years. The development of craft villages and traditional trades has undergone many changes over the historical periods of the country, especially during the Doi Moi period.

Craft villages have been formed in almost all provinces in Vietnam. According to the National Environment Status Report 2011-2015, there are 5,096 craft villages in Vietnam, of which the number of traditional craft villages recognized under the Government's craft village criteria is 1,748, the rest are considered as villages that have handicraft practices. However, it should be noted that the published data on the number of craft villages is inconsistent, sometimes with huge variation between sources. This causes a lot of difficulties when developing specific policies for craft villages.

Vietnam rural craft villages are currently classified according to 6 main production categories:

Handicrafts (ceramics, porcelain, fine art glass, carving, gold and silver plating, embroidery and lacing)	Food processing and animal husbandry	Weaving, dyeing and tanning	Construction materials and quarrying	Scrap recycling	Other jobs (production of agricultural tools such as plowing, boat building and building paper fans, etc.).
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The distribution and development of craft villages is not uniform throughout the country. Craft villages in the North account for a large proportion of the number of craft villages in the country (about 60%), most of which are in the Red River Delta; the rest are in the Central (23.6%) and in the South (about 14.6%).

In recent years, thanks to the modernization and diversification of economic sectors, craft villages have participated in socio-economic development in rural areas, contributing to job creation in many regions. Rural vocational production activities have created jobs for more than 11 million workers, attracting about 30% of the rural workforce.

This economic development has contributed to increased incomes, improved living standards, poverty reduction, preservation of traditional cultural values and contributed to restructuring the rural economy. The statistical results in some craft villages show that the proportion of industry and services reaches 60-80%; agriculture accounts for 20-40%¹.

2. Types of craft villages

Among the 1,748 craft villages recognized in Vietnam, there is a type of craft village that has developed rapidly in the last few decades along with the development of the rural economy, which are craft villages that recycle waste.

The recycling craft village is a group of craft villages that utilize scrap as raw materials for production and thereby reduce production costs and at the same time reduce the amount of waste that pollutes the environment. In addition, as the craft villages that recycle waste have developed, they have created jobs for people who collect raw materials, scrap and waste.

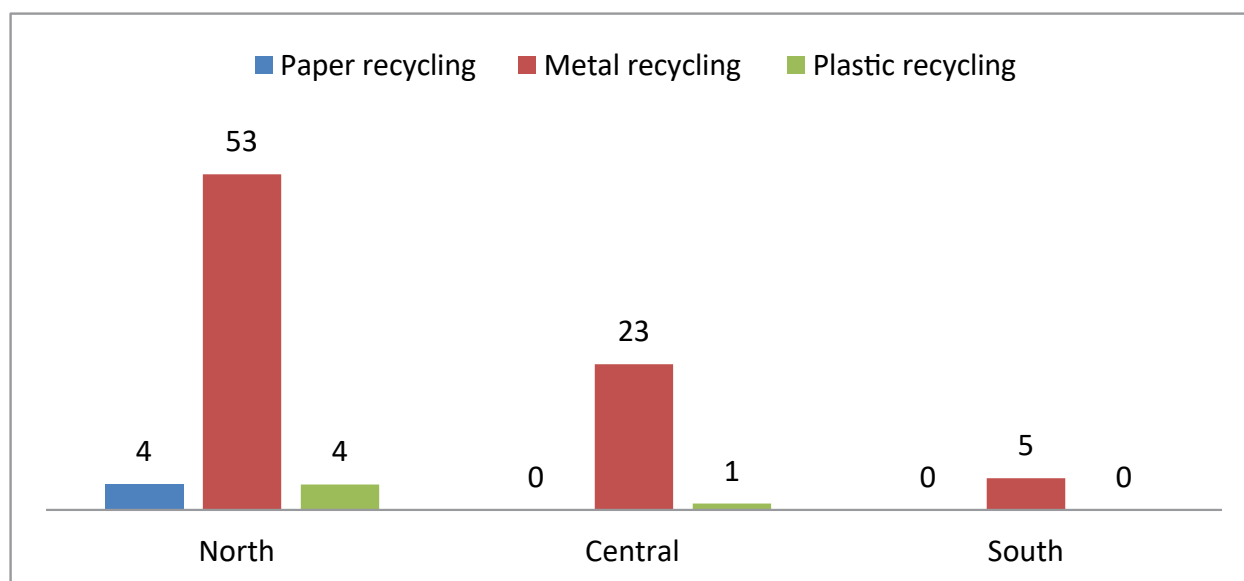
Like other types of craft villages, production of recycling craft villages develops spontaneously, organized according to household size, using simple, outdated equipment and production tools. After all, with limited qualifications, people work mainly according to their habits and experience.

At present, the recycling craft villages are divided into three basic recycling sectors, including paper recycling, metal recycling and plastic recycling².

¹ National Environment Report 2008 - Vietnam Craft Village Environment.

² Brief report "Assessing the status of solid waste management in scrap recycling craft villages and proposing management solutions". Dai hoc Xay dung, 2011.

Amount of waste recycling craft villages nationwide:



a) Paper recycling craft villages

Paper recycling is being developed on a large scale in some provinces, particularly in the North. The two villages of Duong O and Phu Lam produce a variety of paper handicrafts, such as toilet paper, cardboard and votive paper. The benefits of this means of production are that less waste is discharged into the environment and there is a lessened demand for raw materials.

The production techniques used by the paper recycling villages are often based on crowded land, using small scale production with scattered supply lines. Second, the methods of production are outdated, patchy and inconsistent. This means that production isn't particularly efficient.

After analyzing the product types created in these communities, the paper craft villages can be classified within the three following groups:

- Cardboard production
- Votive and toilet paper production
- Caton paper production

b) Metal recycling craft villages

Vietnam has a large number of handicraft villages producing iron and steel throughout the country. The recycling technologies in these villages mainly focus on handling large quantities of scrap iron and steel along with discarded household appliances.

According to the Vietnam Environmental Status report, much of this scrap metal is sourced from markets where scrap recyclers are able to buy all different types of discarded waste. As of yet, none of the villages have evolved into market leaders in the scrap recycling industry and remain as small, scattered enterprises throughout the country.

Along with metal recycling craft villages, Vietnam has also seen a development of 80 small mechanical craft villages that also reuse and recycle steel products. The items made by these villages meet a number of quality requirements and are accepted by the domestic market.

Notable metal recycling communities can be found at Duc Tu commune, Dong Anh, Hanoi; Da Hoi, Van Mon (Yen Phong), Bac Ninh province; Xuan Tien, Nam Dinh province, Tong Xa village, Yen Xa, Y Yen

district, Nam Dinh; aluminum recycling village of Binh Yen - Nam Thanh, Nam Truc, Nam Dinh province; Da Sy village in Ha Dong; La Khe village, Binh Dinh province; Bao Vinh village, Cau Vuc village, Thua Thien-Hue province. Also in Nam Dinh, Ha Nam: scrap metal recycling is very popular in districts: Y Yen, Vu Ban, Xuan Truong, Nam Truc.

After studying the production methods in place at metal recycling villages, production activities can be classified into the following groups:

- Iron and Steel Re-use and Recycling
- Non-ferrous metal re-use and recycling

c) Plastic recycling craft villages

Vietnam is not home to many plastic recycling villages. However, some do exist, primarily in the north such as plastic recycling village Minh Khai (Nhu Quynh, Hung Yen), Trang Minh (Hai Phong), Phu Xuyen (Ha Tay), Trieu Khuc and Trung Van (Hanoi), etc. Along with recycling and reusing plastic, many households are also found to participate in the collection, classification and transportation of materials: Recycling village Phu Xuyen (Hanoi); Trang Minh (Kien An, Hai Phong); Trung Van village (Tu Liem Hanoi), Dong Mau plastic recycling village, Yen Dong commune, Yen Lac; Cao Phu village, Te Lo village, Tam Hong commune, Yen Lac, Vinh Phuc province; Khoai village (Minh Khai, Nhu Quynh, Hung Yen), etc.

The primary raw material found in production is scrap plastic. This scrap material is collected from the following areas: Hải Phòng, Thanh Hoá, Nghệ An, Sơn La, Lạng Sơn, Tp Hồ Chí Minh, Bình Dương, Đà Nẵng, etc. through the network of scrap collection from provinces in the country. In general, these wastes when collected are usually classified according to the composition of plastics: HDPE, PP, PS, PVC, PET, etc.

3. Environmental impacts from waste recycling craft villages

Each village craft has a separate amount of environmental degradation. The type of recycling village that creates that largest amount of pollutants is metal recycling. Metal recycling generates a host of toxic gases such as acid vapours, alkalis and metal oxides (PbO, ZnO, Al₂O₃).

Craft villages that utilize animal agriculture for human consumption produce a variety of pollutants, ranging from decomposing organic matter in waste-water to gases such as SO₂, NO₂, H₂S, NH₃. These gases have a very unpleasant smell and is troublesome for residents, particularly for Lam Yen village of Quang Nam Province where produce drums made of leather.

Weaving and tanning also produce SO₂ and NO₂ pollutant gases. This derives from the anti-mould treatment applied to bamboo and rattan products. Sulfur used in the drying of raw materials exacerbates air pollution in these villages. Pollution associated with plastic recycling villages is also high. When plastic is burned, it releases dangerous chemicals and particulates. These emissions are known to cause respiratory ailments and they're potentially carcinogenic. Concentration levels of SO₂ and NO₂ in plastic recycling villages is often at dangerous levels, far exceeded what is permitted.

The recycling industry generates dust and emissions such as SO₂, NO₂, acid vapors and alkalis resulting from processes such as surface treatment, paint spraying, product surface polishing, heating, drying, bleaching, gas smelting waste, ... typically in Trung Van plastic recycling village (Hanoi), Dai Bai bronze casting village (Bac Ninh), Vo Hoan plastic recycling village (Nam Dinh) and Yen Binh aluminum recycling village (Nam Dinh)³.

³ National Environment Status Report 2011-2015.

Types of gas waste from recycling craft villages:

No.	Type of recycling	Materials		Gas waste
		Primary	Secondary	
1	Paper recycling	<ul style="list-style-type: none"> - Paper, cardboard, carton, ... - Shells - Pulp - Bamboo, cork, bagasse 	<ul style="list-style-type: none"> - Pine resin - Javen - Alum - Color products - Soda 	- Dust, SO ₂ , H ₂ S, alkaline
2	Metal recycling	<ul style="list-style-type: none"> - Iron, steel, copper, lead, aluminum scrap - Beer cans, soft drinks, ... - Ship shells, car hulls, ... - Old iron and steel broken appliances. - Old machinery and broken equipment - Waste battery 	Chemicals: <ul style="list-style-type: none"> - HCl - NaOH - Cr³⁺ - Ni²⁺ - CN⁻ - H₂SO₄ 	- Dust, CO, metal vapors, acid vapors, Pb, Zn, HF, HCl, THC
3	Plastic recycling	Plastic scrap: <ul style="list-style-type: none"> - Hard type: PP, PS (barrel, safe, plastic bottle cap, ...). - Soft type: HDPE, LDPE (chemical bottles, cosmetics, toys, ...). 	<ul style="list-style-type: none"> - Colour powder - Additives 	- Dust, CO, Cl ₂ , HCl, THC, solvent vapor

By law, if craft villages are not in the financial position to apply pollution-reduction measures they must be moved to an industrial complex or a designated site outside of residential areas. However, up to now, the number of craft villages are moved to the craft village industrial cluster is very low (47 craft villages). Most craft villages have not yet built up wastewater treatment systems. All types of exhaust gases and wastewater are discharged directly into the environment ... Especially wastewater in the metal recycling, agricultural and aquatic product processing villages is a pressing issue that seriously affects the environment. Hazardous solid wastes arising from craft village production activities have not been properly classified, recycled or reused.

This article has summarized the key environmental issues associated with handicraft villages and illustrates the need to urgently address the challenges at hand.

References:

1. *National Environment Status Report 2008 - Craft village environment.*
2. *National Environment Status Report 2011-2015.*
3. *National Environment Status Report 2017 - Waste Management.*
4. *Brief report "Assessing the current situation of solid waste management in scrap recycling craft villages and proposing management solutions". Xay dung University, 2011.*

Domestic solid waste in Vietnamese urban areas and the role of the informal sector in Ho Chi Minh City

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1. 1. Overview of the domestic solid waste situation in urban areas

Vietnam generates a huge amount of annual waste. Urban areas produce 35,000 tons/day and rural areas create 34,000 tons/day. Of this, Ha Noi and Ho Chi Minh City account to between 7,000 - 9,000 tons/day¹.

The levels of domestic solid waste (DSW) is increasing at an average rate of 10-16% per year. These levels are also increasing sharply in the large urban areas such as Hanoi, Ho Chi Minh City, Da Nang and Hai Phong where urbanization and industrialization is rapidly taking place. These four cities account for 45.24% off all DSW produced across the country.

Domestic solid waste accounts for 60-70% of total urban solid waste, and in some areas this rate is up to 90%². In addition to this, 1.8 million tons of plastic waste is produced by Vietnam each year, of which 730,000 tons is leaked into the ocean³ with only 27% being recycled⁴.

Population growth and economic development are factors behind the rapidly increasing levels of waste production. Hanoi and Ho Chi Minh City are currently battling this rising ride of pollution with complex and labour intensive collection, sorting and treatment systems. For both of these cities, along with many urban areas in Vietnam, the informal sector plays an important role to manage waste.

Currently, due to ineffective waste-management and monitoring, waste-separation at source is rarely conducted. This leads to difficulties to efficiently recycle suitable materials as recycling facilities are given low-quality material, or unsorted material that can be rendered redundant. Once the input supply for recycling facilities meets a necessary standard, the recycling rate will be able to increase. Currently, much of the responsibility for this depends on the unregulated informal sector which naturally incurs difficulties.

¹ According to the website of Ministry of Industry and Trade (2020).

² According to the website of Vietnam Environment Administration (2018).

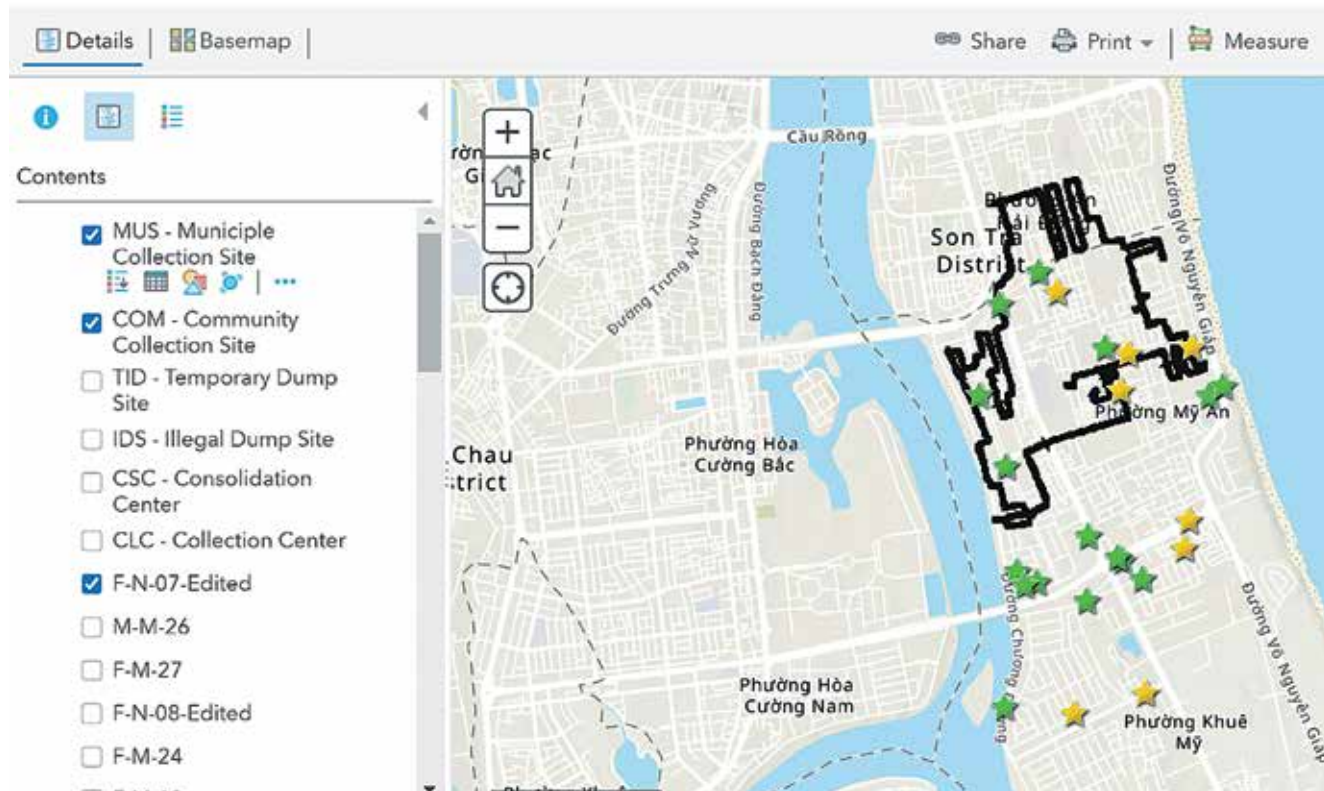
³ According to the report on Plastic waste inputs from land into Ocean of Dr. Jenna Jambeck.

⁴ According to the website of Vietnam Environment Administration (2018).

Informal sector in Vietnam

The informal sector operates throughout Solid Waste Management (SWM) in Viet Nam. Waste pickers, known as “ve chai” in the South and “Dong nat” in the North are informally self-employed to manage the rising levels of waste in urban and rural areas. It is estimated that there are 10,000 waste pickers in Ha Noi⁵ and 1.000 -1.800 in Da Nang City⁶.

ArcGIS ▾ Da Nang Waste Picker Map - EGL V2



Visualization of operating areas of dong nat, collection sites and waste hotspots by ArcGIS

Picture: UNDP

Informal forces are at the forefront of recovering sellable materials such as cardboard, paper, metal, plastic (hard plastics, PET), cans. Waste-pickers scavenge recyclables from open landfills, public waste bins, unmanaged waste or buy from homes, shops and supermarkets. After collecting or picking up full trolleys / bicycles / optical bags, these workers bring items to junk-shops for re-selling. Recyclables are sorted again and sold to larger dealers, then transferred to craft villages or recycling businesses, or exported to foreign countries, especially to China (although currently China has banned importing recycled waste, there are also Chinese traders who come to Vietnam to buy at junk-shops).

The informal sector has played an important role in the recycling and reusing of waste, but the true impact the sector has been difficult to quantify due to lack of data. The National Environment Report published in 2011, indicates that the recycling rate of urban solid waste was around 8-12% and was mainly from the informal sector in craft villages.

From independent waste collectors in Ho Chi Minh City, informal sector's difficulties in their life & working condition should be considered broadly with diversified poverty.

⁵ According to *Spatial structure, process of forming and operating junk-shops in Ha Noi (2019)* of Nguyễn Thái Huyền, Nguyễn Thị Hải Yến và Lê Thị Thảo Trang.

⁶ Nguyễn Tuấn Lương - UNDP.

The rapid urbanization of Vietnam has attracted people across the country to move to cities, meaning the informal sector has had to quickly adapt to rapidly changing urban demographics. The constantly evolving social landscape has made the situation very complex. It is difficult for informal sector workers to properly establish themselves, meaning they are left without access to health insurance, education and proper working equipment. Waste-pickers also face many administrative difficulties as migrants to big cities.

Moreover, the informal sectors' income is not stable as it depends much on the resale market, which is constantly fluctuating in value. The fixed income is low while the cost of living in urban areas is higher than other areas. Informal waste-pickers tend to live in low-income areas, with a lack of sanitation and basic living standards. They also lack opportunities to participate in community activities or organizations because they have to constantly work very hard in hazardous environments.

The informal workers are not only limited in access to social protection, but also faced with community discrimination when working with waste.

It is evident that those who work in the informal sector face difficulties and challenges in daily life, in terms of material and spiritual conditions. Government from all levels should provide support to these individuals, to ensure there is a pathway to a regulated employment and so working conditions and social life are improved. By this, the large number of informal workers will achieve better economic and social benefits whilst being better integrated into the working life of the city.

Independent waste collectors among Ho Chi Minh City

In Ho Chi Minh City, the informal sector works to collect and separate waste. The informal sector can be defined by:

- (i) Independent Waste Collectors (about 4,200)⁷: collect domestic waste from households in small streets/alleys and then take recyclables for resale and transfer remaining waste. Organic waste and single use plastic is taken to temporary transferring stations (managed by CITENCO) or meeting points (managed by ward). After that CITENCO will transfer remained waste to land-fillings and disposal.
- (ii) Street waste picker "vechai" (about 2,000)⁸: collect recyclables on the streets and purchase recyclables from households, shops, supermarkets and sell these to the junk-shops.
- (iii) Junk-shop (estimated 1.800)⁹: buy recyclables from independent waste collectors, street waste pickers and also from households/ shops. The junk shops will sort recyclables again and sell to recycling companies/ enterprises.

Independent Waste Collectors (IWCs) hold a very important role in solid waste management in Ho Chi Minh City as they collect 60-65%¹⁰ of domestic waste of the city. These IWCs also separate waste as well to ensure better quality supply reaches recycling facilities. Each IWC collects an average of 13-16kg of plastic per day for recycling.

This is a unique workforce in Ho Chi Minh City. The date that IWC's became established cannot be specified, as the sector has evolved due to the pressing environmental challenges of the city. The workforce mostly consists of immigrants from neighboring provinces who have limited education and social protection. Much of this workforce do not have permanent or temporary residence, and reside in risky and unsafe conditions paid for by fees from households.

^{7, 8, 9} *Enda Vietnam – Annual Report 2018*

¹⁰ *Enda Vietnam – Annual Report 2018 and website of Department of Natural Resources and Environment of Ho Chi Minh City.*

Enda Vietnam - a non-governmental organization - support the urban poor and disadvantaged groups and have worked with IWCs since 2006. Enda Vietnam has supported IWCs to access to social protection by capacity building and strengthening IWCs' cooperatives.

Enda Vietnam cooperates continuously with IWCs to connect the informal workers with local authorities and help authorities understand the difficulties faced by these individuals. Enda Vietnam also conducts advocacy to mobilize the authorities to promulgate regulations related to IWCs' living and working conditions.

Through support granted from all government levels and Enda Vietnam, the IWCs have witnessed positive changes. Individuals, working independently that have no family relations, now have their own cooperatives or private companies at districts of HCMC. They have legal status and their voice has been listened to and considered among authorities and community.

The Independent Waste Collectors have now been validated in the community role that they play, with new laws and regulations being issued to enhance their status. IWC's are now able to cooperate with local authorities to give feedback on how best to achieve objectives for solid waste management in Ho Chi Minh City.

Despite the positive progress, rapid growth of the city means that the workload, demands and pressures from urbanization are still bringing challenges to IWCs.



Independent Waste Collector in HCM | Source: Enda VN



Street Waste Picker in HCM | Source: Enda VN



Junk-shop in HCM | Source:Enda VN



Training course | Source: Enda VN

Working conditions:

Although IWCs have benefit from their own cooperatives and private companies who provide step by step support, the working conditions of IWCs are still independent. Some cooperatives have just been established meaning they lack competence and face difficulties in operation. These independent waste collectors are not entitled to the same benefits as City Environment Company (CITENCO)'s workers such as social insurance, annual or maternity leave.

For IWCs that are immigrants, these individuals do not have temporary or permanent residence in Ho Chi Minh City and have difficulty in accessing the city social welfare program. An example of this is that the IWC's missed out on the support offered by the National Program to labor forces affected by Covid-19 during social distancing. IWC's continue to work regardless, despite social distancing not being possible. Moreover, these workers are susceptible to infection due to direct contact with household waste, including waste from the current areas in lock down.

Authorities have granted assistance to these workers by subsidizing the cost of purchasing health insurance. However, those receiving support are required to have either permanent or temporary residence in the city which is at a low rate. Only 30-35% of IWCs have KT3 in Ho Chi Minh City which leaves much of the workforce unprotected.

About social life:

Due to the nature of work, the working time of independent waste collectors is different from the majority of other city workers. These workers work mainly at night time to avoid traffic jams.

Income from IWCs is sourced from two main avenues: waste collection fees from households (accounting for 70-75%) and daily sale of recycles (accounting for 25-30%)¹¹. Up to now, regulations for increasing collection fees (according to Decision 38/2018 / QD-UBND issued on



Difficulty in community intergrating | Source:Enda VN

October 22, 2018) haven't been implemented in the community due to many inadequacies in the practical application. Furthermore, the price of recycle waste has dropped by more than 50% compared to previous years, causing difficult and precarious life to IWCs.

Adding to the difficulties that IWCs face, are the pressures applied by city authorities to change their collection equipment to trucks. 80% of IWCs lack the financial means to make this change¹², and city infrastructure is not suitable for big or small trucks.

Community discrimination adds an extra dimension to the challenges faced, as biases are brought upon garbage collectors as they can be deemed undesirable in living areas.

Enda Vietnam's relentless efforts to change societal perceptions of garbage collectors are making a difference in community integration. Community activities such as story-telling via pictures and videos are helping to alter viewpoints. These videos show life from an IWC perspective, concerning their difficulties in everyday life. It is assumed that as community integration is heightened, IWCs will gradually become proud of their contributions in making the city cleaner, greener and more beautiful.

Over recent time, thanks to the support of the local authorities, the IWCs' working and living conditions have been improved. The practical support of protective equipment during the Covid-19 epidemic along with guidance and adjustment to current regulations have partly helped independent waste collectors with motivation and confidence to implement their job. Moreover, the recent listening and problem-solving by local authorities brings increased optimism for IWCs because their role in society is being recognized.

¹¹ *Enda Vietnam – 2018 Annual Report*

¹² *Information collected from IWC Cooperatives' representatives in HCMC*

Rethinking the role of the informal sector in Vietnam's solid waste circular economy

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Introduction

It is estimated that globally 19-24 million people are working in waste management and recycling sector, but only 4 million are formally employed¹. In Vietnam, although there are no complete statistics for all waste management activities, there are 41,100 informal employees in water supply, waste management and treatment of wastewater². Waste management is not only an environmental service but also has invaluable public health implications for minimizing health risks from waste, which is especially significant in the current context of the COVID-19 pandemic. But COVID-19 itself is deepening the inequality between formal and informal employment globally, especially in the area of solid waste management. While communities benefit from both formal and informal waste management services, those working in the informal sector face greater risks to health and their own livelihoods when countries shut down and their economic growth slows down.

This paper shares a different perspective on informal workers and their role in solid waste management from international experiences and observations and research in Vietnam. In the context that Vietnam is revising policies on solid waste management under the recently passed Law on Environmental Protection 2020, the paper is expected to provide a hint to lawmakers on integrating and linking the informal and formal sectors to enhance waste management effectiveness and ensure social security.

¹ *International Labour Office (2013). Sustainable development, decent work and green jobs. Report to the 102nd session of the International Labour Conference. Report V. Available at https://www.ilo.org/ilc/ILCSessions/previous-sessions/102/reports/reports-submitted/WCMS_207370/lang-en/index.htm*

² *ILO/General Statistics Office of Vietnam (2016). Informal Labor Report 2016. View at: https://www.ilo.org/wcmsp5/groups/public/---asia/---robangkok/---ilo-hanoi/documents/publication/wcms_638334.pdf (accessed on January 10, 2021).*

1. How to understand "informal"

The concept of "informal" was first introduced in the 1970s which has led to many debates over four decades to find the causes of informal status as well as to define and measure the degree of informality around the world³. The following table shows a number of concepts related to "informal" in international and Vietnamese documents:

Table 1: Some definitions of "informal"

No.	"Informal" definition	Source
A	International	
1	<i>The informal economy</i> : refers to all economic activities by workers and economic units that are – in law or in practice – not covered or insufficiently covered by formal arrangements.	Recommendation No.204 of International Labour Organization (ILO) ⁴
2	<i>The informal (economic) sector</i> consists of units engaged in the production of goods or services with the primary objective of generating employment and incomes to the persons concerned. The informal sector is a subset of unincorporated enterprises not constituted as separate legal entities independently of their owners. They are owned by individual household members or several members at a low level of organization, on a small scale, and with little or no division between labor and capital as factors of production.	Report <i>Tackling Vulnerability in the Informal Economy</i> (2019) of ILO and OECD ⁵
3	<i>Informal employment</i> : is an employment-based concept and it is defined in terms of the employment relationship and protective measures relevant to the worker's work. Workers are considered to have informal jobs if their employment relationship is, in law or in practice, not subject to national labor legislation, income taxation, social protection or entitlement to certain employment benefits (advance notice of dismissal, severance pay, annual paid or sick leave, etc.). The underpinning reasons may be the non declaration of the jobs or the employees; casual jobs or jobs of a short duration; jobs with hours or wages are below a specific threshold (for example, for social security contributions); or lack of application of law and regulation in practice.	Report <i>Tackling Vulnerability in the Informal Economy</i> (2019) of ILO and OECD ⁶

³ OECD/ILO (2019), *Tackling Vulnerability in the Informal Economy*, Development Centre Studies, OECD Publishing, Paris, <https://doi.org/10.1787/939b7bcd-en>.

⁴ International Labour Organization (ILO), *Recommendation Concerning the Transition from the Informal to the Formal Economy*, 12 June 2015, R204. Adoption in 104th International Labour Conference in Geneva. Available at: https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:R204 (try cập ngày 10/01/2021).

⁵ OECD/ILO (2019), *Tackling Vulnerability in the Informal Economy*, Development Centre Studies, OECD Publishing, Paris, <https://doi.org/10.1787/939b7bcd-en>. Annex A.

⁶ *Ibid*

No.	“Informal” definition	Source
3	In the case of own-account workers and employers, the informal employment status of the job is determined by the informal sector nature of the enterprise. Employers (with hired workers) and own-account workers (without hired workers) are considered to be informal when their economic units belong to the informal sector. All contributing family workers are classified as having informal employment, irrespective of whether they work in formal or informal sector enterprises.	
4	<p><i>Informal sector</i>: sector that includes economic operators involved in unofficial business activities or in subsistence activities that are not constituted as legal entities.</p> <p>In which, <i>unofficial business activities</i> are activities that are conducted by economic operators not constituted as legal entities, with income above the living wage as well as the minimum tax threshold and that purposely desire to bypass national and/or local laws and regulations.</p> <p><i>Subsistence activities</i> are activities that can be found in both the formal and the informal sectors, and are conducted by economic operators (mostly individuals and families) who earn a wage that is barely sufficient to support or maintain themselves and is below the minimum tax threshold required per national laws and regulations to pay taxes.</p>	ISO/IWA 19:2017(EN) ⁷
B	Vietnam	
5	<p><i>The informal economic sector</i> is defined as the area of operation of all non-legal enterprises that produce at least one or more products and services for sale or exchange, unregistered (no business license). In Vietnam, the enterprises operating in this area are mainly non-agricultural individual business households and cooperative groups.</p>	The Report on Informal Employment was prepared by the General Statistics Office of Vietnam in cooperation with the ILO in 2016. ⁸
6	<p><i>Informal employment</i> is defined as employment without social insurance (especially compulsory social insurance) and without a labor contract of 3 months or more. In Vietnam, most jobs in the informal economy are considered informal jobs.</p>	This is also the first report on informal employment in Vietnam.
7	<p><i>Informal workers</i> are defined as workers with informal employment. Each employee is identified only on one main job (or called the main job). As such, informal employment can be found in both the informal sector and the formal sector.</p>	

Thus, the shared feature in these definitions is that non registration or non legal status is one of the common criteria for describing the informal sector. However, applying this definition to describe the

⁷ ISO/IWA 19:2017(EN) - *Guidance principles for the sustainable management of secondary metals*. Xem tại <https://www.iso.org/obp/ui/#iso:std:iso:iwa:19:ed-1:v1:en> (truy cập ngày 10/01/2021).

⁸ ILO/General Statistics Office of Vietnam (2016). *Informal Labor Report 2016*. View at: https://www.ilo.org/wcmsp5/groups/public/---asia/---robangkok/---ilo-hanoi/documents/publication/wcms_638334.pdf (accessed on January 10, 2021).

diversity of informal groups working in the area of solid waste management and recycling in Vietnam is insufficient. For example, waste collection or recycling operators in Vietnam are in many cases still registered and have full legal status. According to the Decision 27/2018/QĐ-CP of the Prime Minister on the promulgation of the Vietnamese economic sector, the wholesale of metal and non-metal waste and scrap sector has the code of 46697. Thus, in the structure of Vietnam's economic sector, the State still admits it is a business subject to the regulation of the law. However, the swapping between formal and informal states in practice makes defining and identifying the informal sector very challenging.

2. Identification of the informal sector in waste management in Vietnam

In this paper, the "informal" status refers to individuals, groups or entities that are spontaneously involved in waste collection and recycling in order to pursue benefits foremost, not for waste collection and recycling. Informal status also implies unregistered, unorganized, or legally registered but employing unregistered and non-contractual labor⁹.

The informal sector is very diverse with many different names, scope of activities and organization in different regions of Vietnam. This paper divides informal workers into 3 main groups corresponding to their role in solid waste management activities including collection - aggregation and sorting - recycling as follows:

Collectors are scrap collectors, scavengers, mobile collectors (also known as Dong nat or Ve chai) of recyclable wastes from households, offices, schools, bins, garbage transit sites or at landfills. Collectors can work independently or in coordination with waste collectors in formal facilities. They can also work in registered service units (as in the case of labor at a private waste collection team in Ho Chi Minh City) or freely and unregistered.

The aggregators and sorters (also known as the scrap yard owner) are the people who collect recyclable scrap from collectors or directly from the source, then sort for sale. They can either buy recyclables from independent Dong Nat people or organize their own collection network. The yard owner's operation may be unregistered or registered as an individual business household or enterprise.

Recycling village is a group of individuals that jointly produce and trade a specific product by hand or handicraft at the village scale, and the name of this product is often associated with the name of the village that produce them. Recycling villages play an important role in closing the life cycle of a product. They buy scrap from Dong nat, scrap yards or from imported sources and recycle them into raw materials for further production or finished products and then sell them back to the market. The form of operation in the recycling villages is very diverse from individuals, households or businesses, which can operate with or without registration or registration under many forms at the same time.

Notably, the transportation activity is not divided into a separate group because in many cases it is performed as part of the activity of one or all of the three groups above. For example, Dong nat transport scrap by themselves and sell to yard owners or a group in the craft villages that specialize in purchasing and transporting (also known as "shopping") to provide raw materials for production as a labor division and support in the recycling chain of the craft villages.

⁹ This definition is also used by the author in the report: Phuong, N. H. (2020). *Legal framework, policies and governance institutions of ocean plastic waste management in Vietnam*. Bonn, Germany: IUCN Environmental Law Centre. 18p. View at: https://www.iucn.org/sites/dev/files/content/documents/viet_nam_sccoping_study_vn_05112020.pdf

3. The role of the informal sector in waste management in Vietnam

Similar to developing countries with underdeveloped solid waste management systems, the informal sector in Vietnam has not only forged a symbiotic relationship in sharing the burden of solid waste management with the formal sector but also made a living on all stages of the waste treatment process. A network of more than 4,000 private waste collectors (known as the "private waste collection force") of 2,141 registered waste groups in 24 districts, collects about 70% of solid waste in Ho Chi Minh City and surrounding area¹⁰. In Hanoi, 799 "scrap yards" connected to a network of more than 10,000 "Dong Nat" separate about 2,500 tons of scrap, equivalent to 30% of the total daily domestic solid waste generated for recycling.¹¹

The informal sector has also succeeded in building the habit of sorting waste at home for people - something that the formal system cannot do, even though it is accompanied by encouraging and sanctioning administrative violations up to 20 million VND for the act of not sorting waste.¹² A random survey of 212 households in 4 districts in Ho Chi Minh City in April 2016 revealed that 64% of all surveyed households sorted waste for selling scrap, less than 1% changed their behavior due to understanding the benefits of sorting solid waste at source or by monitoring information through the media¹³. Direct cash payments and home convenience, which no formal service can currently provide, the informal sector has had a particularly significant impact on behavior of waste sorting, though it applies only to valuable waste.

Involved in almost all stages of collection, sorting, aggregation, transportation, recycling into raw materials or goods resold to market or export, informal network of Dong nat - Scrap yards - Craft villages have created a circular economy in waste management in Vietnam. A new life cycle of waste is reborn to continue as input to other industries or into a marketable product. According to a report by the Hanoi Urban Planning Institute, in 2013, about 18-22% of waste in Hanoi was recycled, mainly in some craft villages of Hanoi such as Trieu Khuc, Da Hoi or Minh Khai.¹⁴ The following infographic depicts a "hybrid" economic model between circular and linear in waste management, in which the informal sector dominates the cycle whereas the formal sector dominates the linear one.

In addition to their positive environmental contributions, the informal sector may also have a negative impact on the environment. The combination of manual labor such as carrying scrap by hand rickshaw, cycling or the use of rickshaw animals, small vehicles such as motorcycles, small tractors not only help save costs, fuel but also help reduce emissions.¹⁵ However, the "easy" with low working conditions also has a high potential risk of occupational accident. Furthermore, improper dismantling and recycling activities also cause environmental pollution and risks to the health of workers. Author's survey in the late 2019 to mid-2020 period of some recycling craft villages in Bac Ninh and Hung Yen shows that

¹⁰ *Phuong, N. H. (2020). Legal framework, policies and governance institutions of ocean plastic waste management in Vietnam. Bonn, Germany: IUCN Environmental Law Centre. 18p. View at: https://www.iucn.org/sites/dev/files/content/documents/viet_nam_sccoping_study_vn_05112020.pdf*

¹¹ *Ibid*

¹² *Decree on sanctioning of administrative violations in the field of environmental protection (155/2016/ND-CP; November 18, 2016). Item 4 Article 20.*

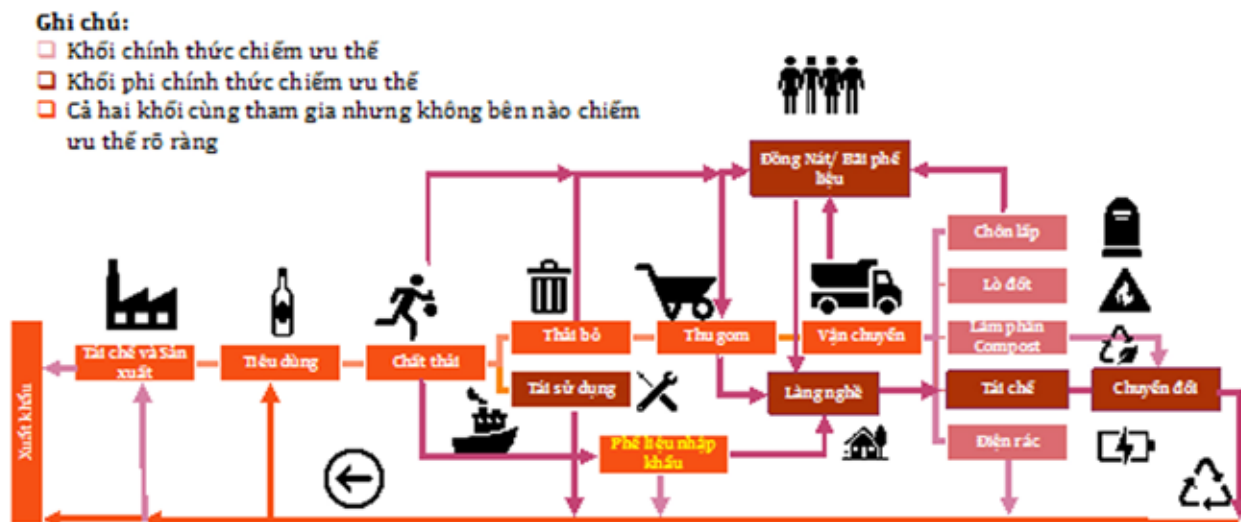
¹³ *Nguyen Kim Thanh (2016). Pilot model of solid waste management towards sustainable resource use. Solid waste management in Asia workshop in August 2016.*

¹⁴ *Nguyen Leroy, L. M. & Vuong Chi, C (2016). Solid Waste Typology and Management in Hanoi.*

¹⁵ *OECD (2016), Extended Producer Responsibility: Updated Guidance for Efficient Waste Management, OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264256385-en>.*

imported scrap and garbage are still being recycled in the craft village even though they do not meet the requirements or have a license for importing scrap for recycling. Wastewater, solid waste, and gas waste from recycling activities are discharged directly into the environment without being properly treated.

Figure 1: The "hybrid" economic model in the life cycle of waste in Vietnam ¹⁶



Economically, active participation in waste management and recycling is an easy source of livelihood for both unskilled and untrained workers. However, the informal sector's recycling process has proved to be very inefficient in the recovery of raw materials. For example, the recycling of gold from electronic circuit boards can recover up to 95% of the gold, but informal recycling only recovers about 25-50%.¹⁷ In addition, informal networks are also involved in activities of "washing" illegal plastic and scrap, or tax evasion, especially in recycling craft villages.¹⁸ Some hazardous medical wastes containing blood, fluids, etc. are sold to scrap yards or craft villages. The calculation of revenue and taxation related to the informal sector is also challenging since the output-input flows may not be reflected in the books of account. Although the law stipulates that if households and individuals doing wholesale scrap business have turnover of VND 100 million or more per year, they must pay value-added tax, but in reality, it is difficult to supervise, but mainly based on self-declared figure.¹⁹ A significant number of plastic bags currently produced by individual business households in plastic recycling villages are sold to the market without paying the Environmental Protection Tax.²⁰

¹⁶ *Phuong, N. H. (2020). Legal framework, policies and governance institutions of ocean plastic waste management in Vietnam. Bonn, Germany: IUCN Environmental Law Centre. 18p. View at: https://www.iucn.org/sites/dev/files/content/documents/viet_nam_sccoping_study_vn_05112020.pdf*

¹⁷ *Ibid.*

¹⁸ *Phuong, N. H. (2020). Legal framework, policies and governance institutions of ocean plastic waste management in Vietnam. Bonn, Germany: IUCN Environmental Law Centre. 18p. View at: https://www.iucn.org/sites/dev/files/content/documents/viet_nam_sccoping_study_vn_05112020.pdf*

¹⁹ *Item 1, Article 1 of Revised VAT Law (2013).*

²⁰ *Phuong, N. H. (2020). Legal framework, policies and governance institutions of ocean plastic waste management in Vietnam. Bonn, Germany: IUCN Environmental Law Centre. 18p. View at: https://www.iucn.org/sites/dev/files/content/documents/viet_nam_sccoping_study_vn_05112020.pdf*

4. Rethinking on the informal sector in Vietnam

Informalism is a common feature of the global economy

The first global estimate of the size of informal employment reported by the World Labor Organization (ILO) in 2018 shows that informal employment accounts for 61% of total global employment, equivalent with 2 billion people, or 50% of the total employment if it does not include the employment in the agricultural sector, and exists in all countries regardless of socio-economic level of development.²³ Evidence shows that most people enter the informal economy not by choice, but as a result of a lack of opportunities in the formal economy and a lack of other means of making a living. In particular, the more prevalence is in developing countries where informal employment amounts to 90% of the total workforce in developing countries, 67% in emerging countries, and 18% in developed countries.²¹

Informal jobs are diverse, including street vendors, waste collectors, daily-based workers, seasonal workers, domestic workers and home workers (such as crafts or contracted by official companies). In particular jobs in waste management and recycling currently have a total of 19-24 million workers but only 4 million are formal jobs.²² Thus, on a global average, the number of informal workers in waste management is 4-5 times higher than that of formal workers and if the recycling rate increases, this number will continue to increase.

In Vietnam, the first report on Informal Labor by the General Statistics Office of Vietnam in collaboration with the ILO in 2016, although the definition is narrower than the global definition of the ILO, shows that Vietnam has about 18 million informal workers, accounting for 57.2% of the total number of non-agricultural labor. If we include workers in the agricultural household sector, the proportion of informal workers accounts for 78.6%. In terms of the total number of employed workers in the economy, the size of workers with formal jobs and those with informal jobs tends to increase. Most of the informal workers work in three groups of industries: "Processing and manufacturing", "Construction" and "Wholesale and retail; repairing cars, motorcycles, motorbikes" with the proportion accounting for nearly 70% of the total number of informal employees. However, the informal labor in water supply, solid waste and wastewater management and treatment also accounts for 30.7% of the industry, or 41,100 people.²³

Inequality between formal and informal labor

Being the majority of the workforce and contributing to the development of the economy, informal labor is at a disadvantage than formal labor in all aspects. While the average salary of the formal workers is 5.7 million VND/month, the informal workers are only about 4.4 million VND/month, not to mention the average working hours is 2 hours higher.²⁴ 43.9% of the informal workers are classified in the group with vulnerable jobs, while only 14.0% of the formal workers are classified in this group. While only 1.7% of the formal workers are not able to sign a labor contract, 62.1% of the informal workers have only a verbal agreement and 14.6% do not have any kind of agreement. Most informal workers do not have social insurance (97.9%), while the proportion of formal employees without compulsory social insurance is only 19.5%.²⁵

²¹ ILO (2018). *Women and Men in the Informal Economy: A Statistical Picture Third Edition*. ILO Publications. Geneva.

²² *Ibid*

²³ International Labour Office (2013). *Sustainable development, decent work and green jobs. Report to the 102nd session of the International Labour Conference. Report V*. Available at https://www.ilo.org/ilc/ILCSessions/previous-sessions/102/reports/reports-submitted/WCMS_207370/lang-en/index.htm

²⁴ ILO/General Statistics Office of Vietnam (2016). *Informal Labor Report 2016*.

²⁵ *Ibid*

COVID-19 is deepening the inequality between formal and informal employment globally, especially in the area of solid waste management. While communities benefit from both formal and informal waste management services, those working in the informal sector face greater risks to health and their own livelihoods when countries close and economic growth slows down. Scavengers, which do not have access to safe labor protection equipment, are now more risky as the amount of medical waste is rapidly mixed in the general waste stream, leading to a high risk of infection. Obviously, informal labor and their economic units are contributing to general economic and social development but are not protected, governed, or recognized for value. This prevents them and their families from benefiting from public policy.

In Vietnam, although the Government has introduced a 62,000 billion VND support package to people in need due to the COVID pandemic - an unprecedented humanitarian policy to provide emergency assistance to those in need - but informal workers are almost ineligible. According to Resolution 42/NQ-CP dated April 9, 2020, employees who do not sign contracts (also known as self-employed workers such as waste collectors, Dong nat, street vendors...) are supported VND 1 million/person/month for no more than 03 months, applicable from April to June 2020.²⁶ However, as of November 2020, the country has only disbursed more than 17,000 billion and mainly for 5 groups of people with meritorious services to the revolution, people from poor households, near-poor households, and social protection beneficiaries (with the list available, without any review) while the remaining groups only reach 1%, even 0%.²⁷ COVID-19 poses big questions to lawmakers on how to improve the safety and livelihoods of informal workers and their dependents - the main but unrecognized workforce.

The future of the informal sector in the Extended Producer Responsibility (EPR)

EPREPR is an environmental policy approach in which the manufacturer's responsibility is extended to the post-consumer stage of the product life cycle. EPR requires manufacturers to be responsible for the collection, sorting, recycling and disposal of used or discarded products and packaging they introduce to the market. The adoption of EPR in countries with informal sectors deeply involved in waste management and recycling, such as in Vietnam, will have a strong impact on the livelihoods of waste collectors, scrap yard owners as well as informal recyclers. As a "subsistence", the implementation of the EPR needs to consider the role of the informal sector to avoid outbreaks of social conflicts related to disputes over valuable waste sources - then considered as resources.

As mentioned, while the informal sector's activities can have a negative impact on the environment and operate less effectively than the formal sector during the recovery of materials, they are very effective at waste collection, sorting and dismantling. Several global studies have provided convincing evidence that the informal sector in middle-income countries collects more waste than the formal sector when both systems operate in parallel. The GIZ study based on Scheinberg et al. (2010a, 2007b) analyzed waste collection activities in six cities and found that no formal collection system could collect more than 13% of the total waste generated while the informal sector recovered up to 30%.²⁸ Therefore, the challenge is to make the most of their value while minimizing the negative impact of this group to improve the efficiency of waste management and recycling.

²⁶ *Ibid*

²⁷ *Resolution on measures to support people facing difficulties due to the Covid-19 pandemic issued by the Government (42/NQ-CP; April 9, 2020). Section II.4*

²⁸ *Hai Trieu (November 2, 2020). Just disbursed 17,500/62,000 billion VND of Covid-19 epidemic support package. View at http://congan.com.vn/tin-chin/rui-ro-xuat-hien-bat-cu-dia-phuong-nao_102327.html (accessed January 10, 2021).*

Some of the interventional approaches to include the informal sector in the EPR that Vietnam can refer to include:²⁹

- *Welfare-based interventions*, sometimes referred to as social integration. These interventions focus on individuals and households involved in recycling, and are based on the assumption that scrap collectors are victims in need of social assistance.
- Rights-based interventions, including labor organizations. These interventions support the informal sector to ensure the legitimate rights and interests of citizens and workers and to build unions to strengthen these guarantees. Proponents of this type of intervention see scrap collectors as workers. Confederation and the formation of legal corridors for professional recognition are the primary targets of rights-based intervention.
- *Informal sector integration*, also sometimes referred to as inclusive recycling. The integration process often involves a two-way process between the service chain and informal recyclers, including some form of accommodation and recognition of informal scavengers such as through official contracts or agreements, identification card, or license. The integration process promotes the formation of cooperative groups or economic organizations in which informal recyclers are considered entrepreneurs, or businesses. The result of this initiative is often the establishment of semi-formal recycling organizations in partnership with the formal sector. Integration can also include supportive measures such as agreements to legalize business relationships, and finding options for filing taxes for informal businesses.
- *Formalisation* is when the informal sector accepts to comply with the laws on Tax, Business, Commerce, they will register to establish a business. In this way, they are in a higher position, with increased knowledge and skills.
- *Professionalization and access to financing*. This option is intended to support the informal sector, where family businesses or small-scale autonomous organizations cannot access financial and business services due to ethnic, social or immigration status. This approach is demand-based and is particularly relevant in cases of the recycling value chain and the benefits from municipal recycling where there is no tense confrontation between local authorities and informal recyclers. Its focus is on enhancing knowledge, competence, entrepreneurial skills and access to raw materials and finance. This approach helps to enhance career recognition, through which it can help improve access to micro-credit and financial flows.
- *Business to business (B2B) value chain approach*. This approach can be in the form of advance financial support for inventory and/or provision of infrastructure and equipment. This approach works best where a highly linked value chain such as a scrap store and the end-consumer forms the focal point for the link between the suppliers and the collectors.

²⁹ OECD (2016), *Extended Producer Responsibility: Updated Guidance for Efficient Waste Management*, OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264256385-en>.

³⁰ *Ibid.*

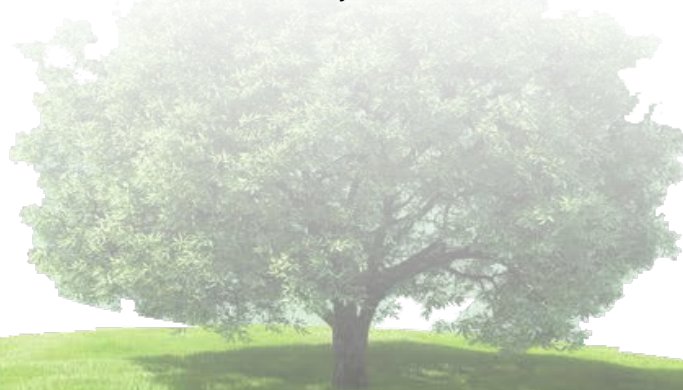


Waste collection on streets | Photo: MONRE

Conclusion

Being the main labor force in society, but almost the role, position and contribution of the informal sector have not been recognized and evaluated equally. More than ever, Viet Nam needs comprehensive investigation to identify the complex links between informal activity and development, diversity of risks and vulnerability in the informal economy, policy measures aimed at protecting workers in the informal economy and facilitating them and their families in the transition to formal economy.

Modernization of the waste management system in Vietnam is placing increasing pressure on the informal sector. Meanwhile, the transition to formalism is a complex issue involving many policy areas such as promoting enterprise registration and licensing, or creating a favorable business environment and enhancing compliance with relevant legal regulations such as tax, social security and labor law. However, not all workers and informal economic units can be formalized in the short or medium term. Therefore, lawmakers need a long-term roadmap, in which, improving living and working conditions is the first necessary step, followed by removing obstacles and creating an enabling environment to encourage gradual transition and formalization. The socio-economic status of the informal sector needs to be improved and enhanced in the whole process, with the first thing is rethinking the role of the informal sector in Vietnam's solid waste circular economy./.



Efforts in plastic waste management in Ha Noi

Interview: MSc. Nguyen Thi Huong - Head of Environmental Impact Assessment and Appraisal Division, Environmental Protection Branch, Hanoi Department of Natural Resources and Environment



Dear Madam, recently plastic waste has become a common concern of the whole society, so what policies is Hanoi implementing to promptly solve this problem?

- In Vietnam, it is estimated that each person uses 30-40kg of plastic/year, and is one of the four countries generating the most plastic waste in Asia. Particularly in two big cities, Hanoi and Ho Chi Minh City, every day about 80 tons of plastic and plastic bags are discharged into the environment. The number of plastic packaging and plastic bags used is increasing in Vietnam, leading to a rise in the amount of disposal waste each year. The rate of waste, packages, and plastic bags that are not reused but buried is about 5-8%, equivalent to about 2.5 million tons/year.

Facing this situation, recently Hanoi has promptly issued many documents to strengthen management, reuse, recycling, treatment and reduction of plastic waste, such as: Plan No. 232/KH-UBND on October 25, 2019 of the People's Committee of Hanoi on prevention and control of plastic waste and plastic bags to 2020, vision to 2025 and Document No. 4996/UBND-DT dated October 16, 2020 of the People's Committee of Hanoi on the implementation of plastic waste minimization measures for state administrative agencies, socio-political organizations and public service delivery units pursuant to Directive No. 33/CT -TTg dated 20/8/2020 by the Prime Minister on strengthening management, reuse, recycling, treatment and minimization of plastic waste.

These are two important legal bases, contributing to solving the plastic waste problem of the city now and in the future.

Could you please briefly outline some specific activities that the city has implemented in recent years?

Regarding the goal of reducing plastic waste, Hanoi has implemented many practical solutions and initially obtained some positive results such as:



Carry out propaganda on mass media such as radio, television, online seminars ... to raise public awareness about minimizing plastic waste, sorting waste and plastic waste; coordinating with socio-political organizations, social organizations to build movement and coalition against plastic waste; mobilize people and communities to limit or not use disposable plastic products (including persistent plastic bags, food plastic packages, plastic bottles, straws, styrofoam containers products, cups and tableware ...) to protect the environment.



Do not allocate funding for expenditures in state administrative agencies, public service units to make banners, slogans, bottles, cups, straws, disposable plastic bowls, chopsticks ... at offices and in conferences, seminars, meetings and holidays, anniversaries and other events; to prioritize the selection of recycled and environmentally friendly products.



Has been and continues to advocate for trade centers, supermarkets, shops, markets, hotels, restaurants, cafeterias, tourist resorts and production, business and tourist establishments, etc. ... in the city committed to reducing plastic waste, limiting the use of disposable plastic products or replacing with environmentally friendly products; not providing plastic bags free of charge to customers or switching from non-biodegradable plastic bags to other environmentally friendly bags.



Implement training on waste classification at source; arranging or requesting the arrangement of collection and sorting bins for domestic and plastic waste; organize training and guidance on garbage classification in offices, schools, health facilities and public areas such as airports, wharves, bus stations, shopping malls, supermarkets, local markets, parks, resorts, tourist sites ...

Would you please share some plans and solutions to this problem of the city?

First of all, we request the Ministry of Natural Resources and Environment to soon develop the solid waste management regulation in the guiding documents on the implementation of the Law on Environmental Protection (revised) in the direction of treating plastic waste and waste as resources; promote the development of circular economy models; well implement waste reduction and classification at source, collection, reuse, recycling, and treatment of waste (including plastic waste). Along with that, it is necessary to develop technical documents guiding waste classification at source; Research and propose a mechanism to limit production and consumption and adopt a roadmap to ban production and consumption of some disposable plastic products according to Directive No. 33/CT-TTg dated August 20, 2020 of the Prime Minister on strengthening the management, reuse, recycling, treatment and reduction of plastic waste so that the People's Committee of Hanoi can develop and implement policies to support businesses in producing eco-friendly packaging, in particular those that transform their technology of producing consumer packaging from persistent plastic to another environmentally friendly material;

Regarding specific solutions, the city will:



Deploying the waste classification at source; arranging or requesting the arrangement of collection and sorting bins for domestic and plastic waste; organize training and guidance on garbage classification in offices, schools, health facilities and public areas such as airports, wharves, bus stations, shopping malls, supermarkets, local markets, parks, resorts, tourist sites ...



Strengthening the capacity and efficiency of solid waste collection and treatment; separate collection and treatment of classified wastes (including plastic waste). Implementing waste collection service charges for small traders at traditional markets; Establish a centralized collection point for recycled plastic waste to bring to the plastic waste recycling treatment plant. Collecting and classifying waste in tourism service establishments, tourist resorts and tourist attractions according to regulations ...



Investigate, survey and assess the current state of plastic manufacturing facilities in the city from input materials and production technologies to evaluate outdated technologies causing environmental pollution and propose alternative solutions; Research and develop criteria and evaluation mechanism for eco-friendly commercial and service establishments on replacing disposable plastic packaging products;



The Department of Industry and Trade coordinates with the Department of Natural Resources and Environment to establish a chain of alliances to introduce environmentally friendly products, replace disposable plastic products (plastic cups, straws, ...), persistent plastic bags, packaging for plant protection products, pesticides, chemicals in agricultural production ...; Organize training and propagation of products on television and press channels so that consumers know and use commercial establishments and production units in the city.



Formulate and improve support and preferential policies: Introduce and sell environmentally friendly packaging products; propose a list of investment projects for production of environmentally friendly plastic bags, recycled plastic bags into the list of projects to encourage private investment; plastic and plastic bag collection, recycling and treatment; assisting businesses in the production of environmentally friendly packaging;



Assessment of potentials and mechanisms to support the transformation of production and business models of small and medium enterprises in Hanoi oriented to a circular economy model (one of the outstanding features of a circular economy is to form a closed production chain that does not generate waste, of which, plastic waste of one enterprise is the input material of another enterprise); Proposing solutions to create jobs for companies to stop or change the model of packaging production from plastic to environmentally friendly bags;



7. Encourage investment in socialization and attract domestic and foreign investors to invest in factories to collect, recycle, and treat plastic waste.

With synchronous and sustainable solutions, we believe that plastic waste will be gradually resolved effectively in Hanoi city.

Thank you for sharing the information!

Waste pickers' thought

Mr. Nguyen Van De

Independent Waste

*Collector in district #10-
HCMC*



How long have you been in this job?

I have been in this job for 26 years.

What are the difficulties in daily domestic waste collection?

Previously, many households refused to cooperate as the waste collection fee was 20,000 – 30,000 Vnd/household/month, but they still tried to litter waste on the streets to avoid payment fees and people looked down upon waste collectors like me.

IWCs have limited education, lack of knowledge and skills so it is too difficult to persuade the community people or the authorities. I have not received any support over the past 10 years, except from Enda's support so I sometimes feel upset.

The IWCs' main income basically depends on collection fee and "ve chai" (recycle waste - Interviewer), but currently the price is fluctuating due to Covid-19, so our income is unstable. Although the collection fee has increased, it has not been implemented synchronously, so many IWCs and myself are still affected.

We have to go to work during the Covid-19 epidemic outbreak. We are very afraid but we can't stay at home for social distancing. If we stay at home, domestic waste is stagnant, community people complain and refuse to pay collection fee.

The independent waste collectors are as step-children, no one cared (except Enda). Almost IWCs like me don't have permanent resident or KT3 in the city, so we can't access to the city's social welfare programs.

What are the difficulties when the city authorities request to change the current collection equipment?

Ho Chi Minh City authorities force us to change current waste collection equipment (trucks-interviewer) but we couldn't do it. Although trucks are big or small, it could not move in small streets/ alleys and almost IWCs are collecting domestic waste in small streets. Moreover, I have no money to buy a truck.

Almost IWCs are facing with financial difficulties because the price of truck is very expensive. The average monthly income of IWCs is about 6 to 7 million VN to pay for rental and other costs as well, so it is too difficult to buy a truck. Although, the government gives priority to borrow loans with low interest, IWCs could not pay back. Like me, I could not have enough money to buy even a small truck.

The current waste collection vehicles (rickshaw) can move easily in small streets but the trucks could not. It is not convenient to use trucks in small streets/ alleys to collect waste. Moreover, IWCs could not go to take examination for getting driving license (if we use trucks) because we have to work 364 days a year (just off the first day of the Traditional Lunar New Year).

Do you (and other IWCs) receive any support outside?

Enda Vietnam has supported us for over 10 years. Enda donates protective gear, health and accident insurance, and Enda supports us with social protection. Then Enda has also provided capacity building; trained on common disease prevention, speaking & communication skills; established cooperatives; so we gradually became more knowledgeable and secure. During the Covid-19 pandemic, Enda Vietnam provides us gels, protective clothes, face-masks, gloves, boots and knowledge on Covid-19 prevention. IWCs are very proud of wearing protective clothes with logos of Enda and our cooperatives.

Recently, Enda Vietnam has supported us with funding and capacity building when our cooperative established. Thanks to Enda's trainings, we can use speaking skills to negotiate with local people to increase collection fees.

Enda also organizes seminars for IWCs having chances to discuss with HCMC Department of Natural Resource and Environment, People Committee so our voice has been listened to. The city authorities now start to support us. We heard that from 2021, the city will support health insurance for IWCs who have KT3 or permanent residence in HCMC.

When we have our own cooperative, our voice is enhanced with the community & government. The community no longer looks down on us. And I am also very proud of my work in contributing on environmental protection and keep the city green, clean and beautiful.

Do you have any suggestion for the community and authority?

I want the city authorities to give a suitable fixed price of waste collection fees for all districts in Ho Chi Minh City.

The government should create conditions for IWCs to change the current waste collection vehicles with a reasonable price. Or let the IWCs use the current vehicles with improved hygiene for being suitable to collect waste in small streets.

I also hope that the government provides 1-2 items of protective clothing each year and health insurance for IWCs. According to the law, we have to buy for all members of families and there are 5-7 members in one family so IWCs cannot afford to buy.

I do hope all community people follow the regulations of waste littering and payment collection fees so IWCs can work easily and especially, hope these organizations like Enda will stay for a long time or forever with us (smile). Without Enda's support, we wouldn't be as well-organized as we are now.

Thank you very much for participating in the interview and for what you've done to keep the city clean!

Ms. Cai Thi Thuy Nuong

*Independent Waste
Collector in Thu Duc
district-HCMC*



What do you think when you engage in collecting & recycling waste for the city?

I have been in this job for 23-24 years, a job that all day face to trash, back to the sky, a job that had not been appreciated before. Now, people value this job better, it's fun, right? What do you think if the city having no IWCs to collect and recycle waste every day like me, is it still clean? In general, I feel sad for us sometimes, but I am proud to raise my children with this job. In addition, I also contribute to keep the city clean and beautiful.

What are your difficulties in the daily waste collection?

I had accidents several times while collecting trash because this job has high risks. I have previously stepped on sharp objects that bleed a lot and have been forced to go hospital for stitches or bandages. Previously, my son felt ashamed because I am an IWC, but now he understands and is proud of his mother.

I am a woman who works in a heavy and hazardous environment, but I can do it all, I myself collect waste, drive my own waste vehicle, carry heavy trash bin. We go without annual and maternal leave and other benefits that CITENCO's workers have.

I have to go to work early every day as three-wheeled vehicles are only prohibited at certain hours. As such, I sometimes get very tired so I need to park my vehicle by the side of the road to sleep and overcome fatigue before continuing work.

The biggest difficulty for me and other IWCs is the government's requirement to change the current waste collection vehicles. I don't know why the city authorities ask us to use trucks with capacity 2-5 tons, but I think the current vehicle is the most convenient, I can go into small alleys. If IWCs are forced to use trucks, I think only about 5-10% of IWCs are able to afford it.

In addition, the current price of recyclables is unstable so my income has decreased significantly. The Covid-19 pandemic made me even more worried. Thanks to Enda's support with protective devices and face-masks, IWCs was very happy.

Have you ever thought that you no longer work as an independent waste collector and take another job?

I had the same thought in past when people looked down my job, but I did not have a high knowledge or degree to apply for another job. In addition, I take have had this job for a long time so I love it.

Previously, IWCs worked independently, no with no relationship with others or, no organizations. Now, I have joined in the cooperative and, some of my benefits are guaranteed and as we have our own organization. Besides, Enda has supported with trainings, protective gears, health & accident insurances ... so we feel secure. Moreover, this job has already chosen me (laughs), so I guess I'll work until my health becomes weaker and I can't do it anymore. This job is very important with me because I can earn money to support myself and my family. I am proud to do a useful job for my family, society and contribute to environmental protection.

Currently, I has about have about 1,000 households to collect domestic waste from every day, I could not work alone because I am old enough so I hire one worker to work with me.

How do you think about current plastic waste?

Recently, the volume of plastic bags has increased dramatically, especially during this epidemic outbreak. Previously, when China still imported, the price was high, so almost IWCs collected plastic bags and sold for junk-shops, but now the price is very low and junkshops only buy clean bags, so most plastic bags go to the landfill or float on the river, cause very polluted. As for me, I collect 10-13 kg/day of all kind plastics to sell.

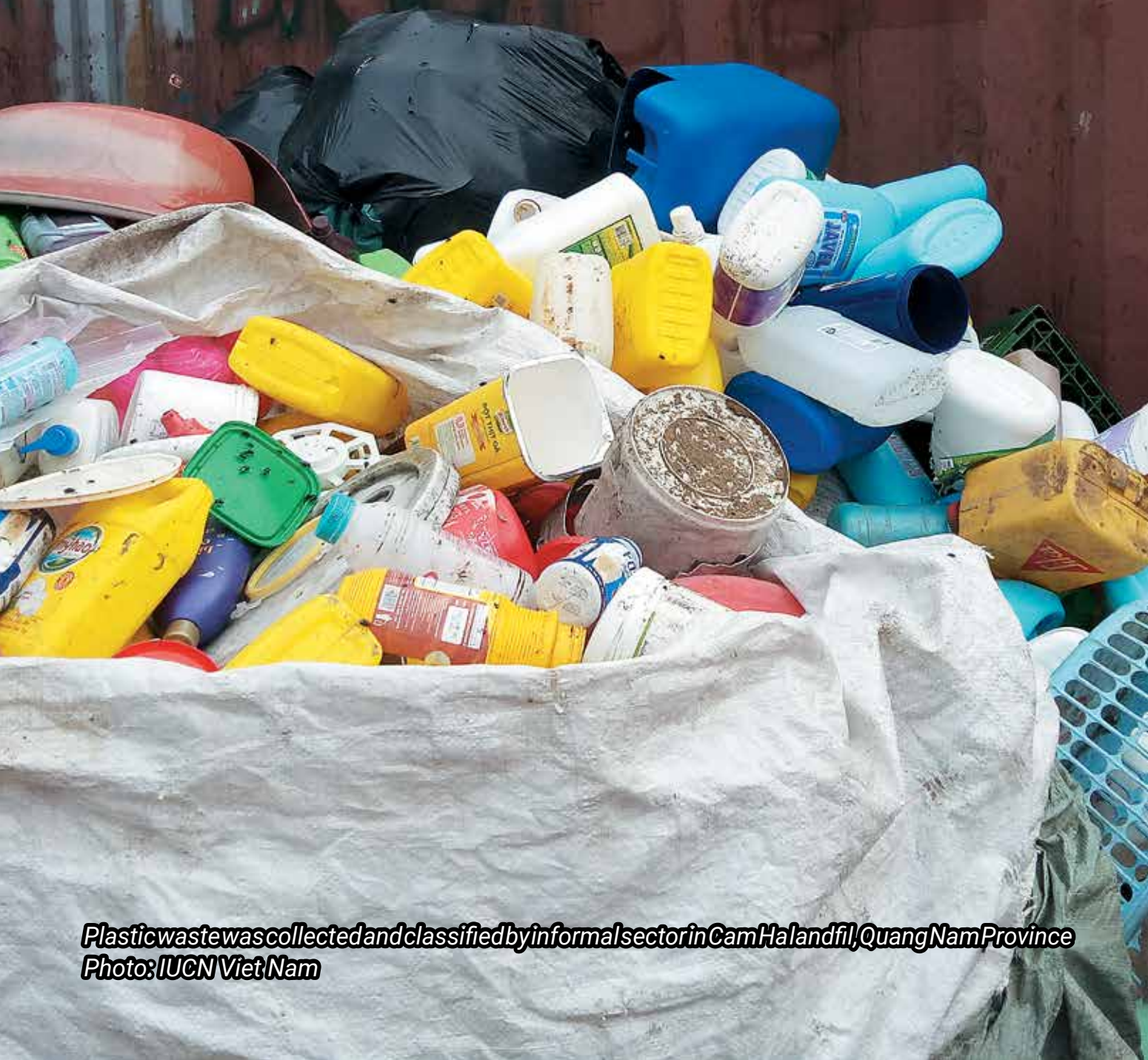
What are your concerns or thoughts in the future?

This garbage collection is a hard job and has many potential risks, especially for women. I do hope that the authorities pay attention and have appropriate policies to support social protection, especially maternity for women, even though the independent waste collectors are not part of CITENCO. Enda has provided us with much support but it requires more attention from the authorities.

The city should allow IWCs use the current collection vehicle because it is suitable for the financial conditions and transporting in small alleys, how can trucks turn around in small streets? The people could not allow truck to stop in front of their houses or stopping on main roads is not allowed.

Thank you very much for your participation in the interview. Wish you and others IWCs good health and received appreciate support soon!

POMPES Salmson
PMU
PORT OF DA NANG
N°4689128



*Plastic waste was collected and classified by informal sector in Cam Halandfil, Quang Nam Province
Photo: IUCN Viet Nam*



Informal workers are collecting recyclable waste in Cam Ha, Hoi An, Quang Nam
Photo: IUCN Viet Nam



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