

THE ECO-GESTURE OF WASTE SORTING IN URBAN AREAS

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ABSTRACT

Faced with the evident environmental crisis, the strengthening of the ecological action dynamic has been taken on board with the objectives of sustainable development. Act, a term that has become symbolic, is combined with knowledge, duty, will and power. The article aims to consider this act, at the level of the city dwellers of the lower zones. Also, in the usual domestic life of the urban population, how does this 'act' translated? Considering the household waste, the questions of choice depends on the acquisition of an item, its use and its utility at the end of the cycle. In fact, to what extent could sorting household waste contribute to the preservation of the environment? With these interrogations of the aspects of reality, the reflections were enriched in the documentary research. With reference to comprehensive sociology, the gaze was also focused on observing the daily lives of some families in the city of Antananarivo. Similarly, the conversations were forged into intensive interviews.

In the end, the adoption of the eco-gestures for sorting household waste is based on determination. Giving social and economic meaning to "waste", as well as to the regular act of sorting, motivates families to adapt new habits. The interest, which is as multifaceted as it is sustained, is necessarily long-lasting. However, the exclusive feeling predominates over the gesture. Compared to a still deficient device, the craze remains partial if not scattered. Minority eco-citizenship, which is still little recognized, raises the risk of frustration and disengagement. The challenge of the principle of inclusiveness and solidarity is surely to act together for everyone's good.

Keywords: waste, sustainable development, urban, practice, association, partnership, solidarity

1. INTRODUCTION

The challenges arising from the United Nations Conference on Sustainable Development Rio + 20, Brazil, in June 2012, based on "The future we want", have been aligned with the Sustainable Development Goals (SDGs). The new program adopted at the 70th session of the United Nations General Assembly essentially aspires to "Transform our world by 2030", through an action plan for humanity, the planet and prosperity. In a declarative and solemn manner, one hundred and ninety-three (193) countries including Madagascar, have thus committed to the implementation of strategic policies for the achievement of seventeen (17) objectives to one hundred and sixty-nine (169) targets (UNDP, 2018).

As a result, the ideology of sustainable development, which has become mantric, is adaptable everywhere and in all sectors (Gran I., 2011; Hamman P., 2012), although, the reference to numbered dedicated objectives presents a risk of breaking down the three fundamental dimensions of sustainable development, articulating the economic (profit), the social (the population) and the environmental (the planet).

In these terms, this article aims to question the interweaving of sustainable development, locally speaking, and in the specific urban context. As a result, some observations are revealed for Antananarivo: the unhealthy environment with piling up waste, the prevailing economic precariousness and the vulnerability that torments the population (Instat Epm, 2011; Morisset J., 2011). According to Forbes magazine for the year 2020, Antananarivo is

the third dirtiest city in the world. It turns out that the waste management service is located at the organizational crossroads: the whole system is called into question, in particular because the collection comes up against multiple difficulties, but also because of the saturation of the landfill site at Andralanitra. (Onu Habitat, 2012; Breselec R. et al, 2015).

Faced with the evident ecological, socio-economic crisis, a population margin has sought to exceed expectations, by acting in one way or another. Indeed, actions are taking root based on the recovery of waste through sorting. How have these action steps taken shape? To what extent could sorting waste contribute to preserving the environment? And, what are their lasting prospects?

2. MATERIALS AND METHODS

2.1 Materials

The issue of sustainable development, particularly the recovery of waste, has been explored from multiple sources. The research materials used were matched with the techniques used.

2.1.1 Bibliographic and webographic materials

Writings on sustainable development and waste, which are very diverse, can be found in books, journalistic papers, scientific articles, legal texts, technical reports, etc. These popular themes are visible in physical paper version, but also on the technological tool of the web. It was necessary to select, the elements relating specifically to our subject. The present work has thus been enriched with flaky documentations and digital consultations. Each reading was the subject of a file which subsequently made it possible to establish a synthetic and comparative documentary review.

2.1.2 Human materials

The resource persons surveyed, as part of this study were urban users, waste sorters, administrative officials, families, members of activist entities, and people from private sectors, active in the environment. This selection was made by quotas and by reasoned choice, of the non-probability sampling method, on a population basis of middle-class and low-level socio-economic categories, in the slums of Antananarivo. Experiential waste recovery capital was also considered, with the aim of bringing together different cases.

2.1.3 Data collection and processing tools

The field data collection tools were the questionnaire, voice recorder, notebook, observation grid, camera, and laptop. The questionnaire was well prepared in terms of its recitals, design and processing. Among other things, we conducted a test before approaching it with our interlocutors. It has been drawn up in two languages: French and Malagasy. And, the questions, articulating the closed, semi-open and open types, were crafted to prompt responses. A dictaphone was used to record interviews. This tool made it possible in particular to complete the notes collected in the notebook. Thus, the notebook recorded the ideas, key words, points of attention, thoughts, and responses of the interlocutors on the open questions. The observation grid constituted a benchmark matrix for the objects of special attention in the field. A camera was used to take pictures of local realities. In this case, it captures passive and direct observations, such as the waste recovery chain and the related finished products. Finally, the laptop supported us in the research on the internet, the design of the questionnaire, the reading sheet, the observation grid, the entry of processing masks, the entry of data, the processing of the information collected and the writing.

In relation to treatment, digital and technical tools developed qualitative analysis software, NVivo was used for the analysis and processing of qualitative data. The statistical processing as well as the development of tables and graphs were carried out on the EXCEL 2010 spreadsheets. And the WORD 2010 was the office software for the editorial staff.

2.2 Methods

The development of research has been fundamentally incremental, with calibrations often necessary depending on the questions related in particular to the issues. The mixed method, combining the quantitative and qualitative approach, was adopted. The quadrupolar methodological model of De Bruyne et al., 1974, proposing four interdependent poles, structured the general approach of the research carried out: epistemological, theoretical, morphological, and technical.

2.2.1 Epistemological pole

The methods pertaining to the epistemological pole, are part of the inductive logic starting from individual actions of a social nature. During the field trips, the interviews carried out were essentially individual. In line with the words of Mays and Pope (Mays N. et al, 1995), the investigation focused on collecting information on the meanings, experiences and points of view of the inhabitants of the urban municipality of Antananarivo. The central themes concerned waste, sustainable development, and the actions initiated. The posture was socio-constructivist, through reformulations, explanation if not the theorization of testimonies and experiences. And, for the sake of rigorous quality (De Sardan O., 2008), triangulation was taken into account by the multiplicity of actors surveyed.

2.2.2 Theoretical pole

Considering, sociology as a science of social action, the theoretical pole essentially concerns the understanding articulated with a functional analysis. It is a question of grasping, among other things, the meaning which motivates specific actions according to the Weberian sociological precept, « *de comprendre par interprétation l'action sociale et ce faisant d'expliquer causalement son déroulement et ses effets* » (of understanding social action by interpretation and in doing so causally explaining its development and its effects) (Weber M., 1922, 28). The process adopted, within these frames of reference, was one of understanding, interpretation and explanation.

2.2.3 Morphological pole

From the morphological pole, the analysis frameworks focused on taxonomy and typologies. The information collected was entered into an arranged database. The processing method was systematic and regular, to ensure the organization of the content collected. The data produced were collected from documentary and audio-visual sources, review procedures, direct observations as well as discussions in intensive if not prolonged interactions. The data were of two kinds: "ethics" collected by the observation device and "emics" made up of discursive data. We performed the qualitative analysis, based on codes and an analysis grid. The quantitative aspects were exploited from the statistical approach.

2.2.4 Technical pole

The comparative method was adopted throughout the research, from the initial question to the written restitution. The use of secondary data from the bibliographic and webographic documentation made it possible to establish a comparative reading grid on the central themes of the study. The resulting elements subsequently supported the operationalization on the mode of investigation to be carried out, as well as the variables to be considered. Thus, observations and interviews were diversified to have comparative elements of reality. Regarding waste recovery actions, the comparison between different cases was studied. However, points of diversity, contradictions and gaps were permeated, and compared, allowing trends to be detected.

3. RESULTS

3.1 Report to waste

Axiological controversies have emerged around waste, particularly at the level of urban users. It should be noted that Household and Assimilated Waste (DMA) concerns the garbage from street sweeping and garbage from trash cans, household garbage such as food scraps or vegetable peelings and waste from administrations and small businesses (Raharinjanahary, 2011). The graph below shows the response rates for the closed question on the utility of waste, for 298 people surveyed.

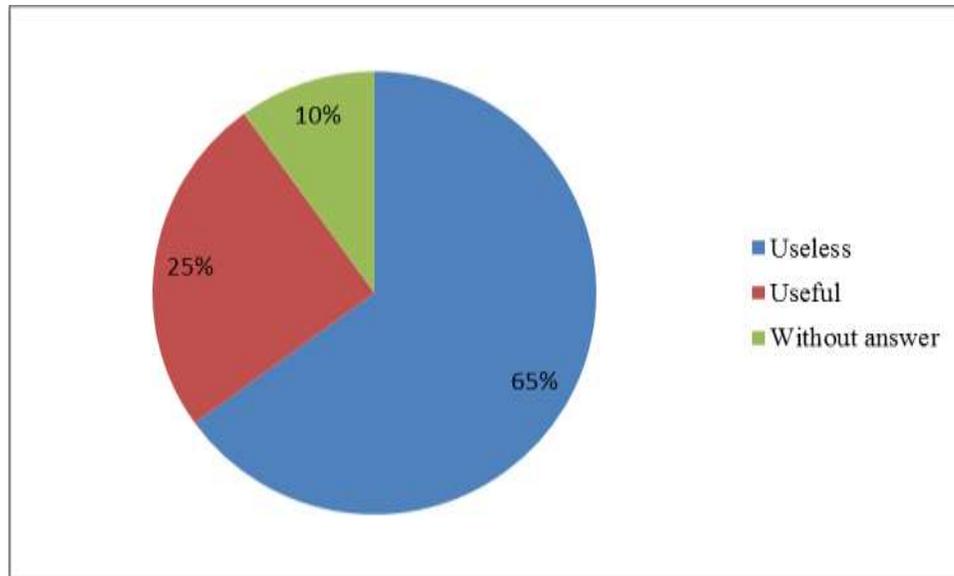


Chart -1: Useful characteristics of the waste

Waste, referring to the Malagasy term "fako", is generally perceived as the end of a production or product chain, considered unnecessary for 65% of those surveyed. And, in the urban way of life, this characteristic is strengthened more. A middle-class, 40-year-old woman said: « Ambanivolo, fako izany, tsy misy, misy ilàna ny zavatra rehetra avy ampiasaina. Fa an-drenivohitra eto, raha dinihina, misy ny fako, ny avy ampiasaina mila ariana. Ny fako hita mivangogona etsy sy eroa, indrindra moa ny toerana voatokana amin'izany, eny amin'ny fokontany eny » (In the countryside, rubbish doesn't exist; the fact is that everything used still remains useful. But here in the capital city, it can be considered that there is waste; wastes can be seen everywhere) . Garbage is piled up here and there, especially in designated areas, in villages). Whether it be in the household or at the corporate level, waste is bound to be thrown away and rather to be ridded of. The literature on the subject has also mentioned this remaining fact:

- 18.2% of households store their waste in pits while 42.45% dump it directly in the street and in swamps (Raharinjanahary, 2011);
- In 2010, 620 tonnes of garbage were collected daily. And, in 2023, a shift to 1,050 tonnes of waste per day is planned. (Imv, 2012).

The people throwing the waste, concentrate on such remarks as "What follows does not concern me". And, at the end of the interview, complaints are expressed, concerning the ambient dirt, the urban hygiene measures which are lacking, the State which abandons its population, the environmental incivilities on the throwing of the rubbish as the defecation in the open air,... As a result, an onomasiological path (Hagege, C., 1985) unfolds like the following figure 1 on the notion of waste at the level of urban users.



Fig -1: Onomasiological journey on the notion of waste

3.2 Links between waste and sustainable development

Speaking of the Sustainable Development Goal, in terms of « Tanjon’ny Fampandrosoana maharitra lovain-jafy » (Sustainable Development Goals Inherited), a lack of knowledge arises about its existence, its meaning, as well as its interest. The following graph 2 illustrates the knowledge of sustainable development for the 298 people surveyed.

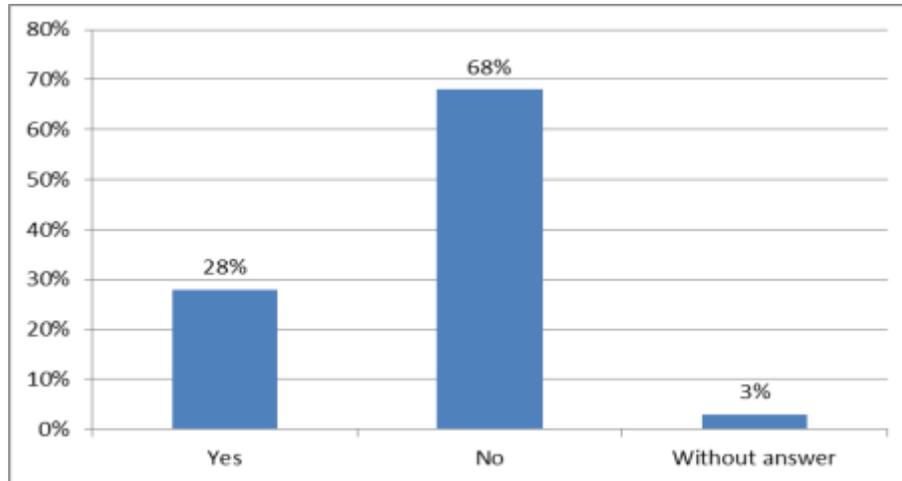


Chart -2: Knowledge of sustainable development

On the dichotomous option, the No was significant with 68% of responses. The points of view particularly insisted on a logic rather centered on the development. Among other things, a waste sorter from Andralanitra states that: « Ny zava-dehibe dia mila mandroso, rehefa mandroso ny olo, ny firenena, dia tombony ho an’ny taranaka foana izany » (The important thing is to develop. when development affects people and the whole country, it would be advantageous to the next generation)

In addition to that, the majority of our interlocutors, approximately 52% of them considered the expressions “sustainable development” or “inherited”, as especially labeled in « teny mipoapoaka ampiasain’ny fanjakana, mety ahazoany vola angamba e » (terms in vogue, necessary for obtaining financing).

And, if we refer to the waste, the semantic and temporal characteristics, present themselves in a paradoxical way.

Table -1: Elements of the paradox between waste and sustainable development

Feature	Waste	Sustainable development
Sémantic	useless, dirty, messy	useful, suitable, orderly
Temporal	daily, expeditious, real	next, slow in coming, symbolic

Waste and sustainable development have opposite meanings. Households live from hand to mouth, and worry little about the future. The most essential thing is to be able to ensure every day life economically and within a social organization without hindrance.

3.3 Waste recovery

People who have found some utility for the wastes, about 25% constituting our sample, try to recycle and transform them in different ways. Thus, we established a body of documentary data as well as experiential feedback from the interviews. The corpus comes down to three cases.

Case 1: Family workshops

« Des ateliers familiaux spécialisés dans le traitement des matériaux issus des déchets sont apparus depuis la crise de 2009 dans les périphéries d'Antananarivo, là où le foncier est disponible et plus abordable. Ils permettent de créer des objets variés par la réutilisation de morceaux de métaux, de tissus, de papiers. Les tissus lavés, découpés et tissés servent à fabriquer des tapis de salle de bain. Un atelier installé près d'Anozizato fabrique des chaussures en caoutchouc à partir de pneus issus de la récupération. Il chausse les ouvriers qui chargent et déchargent les camions de livraison du marché d'Anosibe voisin» (Family workshops specializing in the treatment of materials from waste have appeared since the 2009 crisis in the outskirts of Antananarivo, where land is available and more affordable. They allow you to create a variety of objects by reusing pieces of metal, fabric and paper. The washed, cut and woven fabrics are used to make bathroom rugs. A workshop near Anozizato manufactures rubber shoes from recycled tires. It shoes the workers who load and unload the delivery trucks in the nearby Anosibe market) (Breselec R. et al, 2015)

Case 2: Associative intervention

Another example, the Green NKool association since 2016, has set up a waste recovery device linked to production, based on the concept of donation and the win-win principle.

Table -2: Functional matrix of used edible oil processing

Entity / Person	Characteristics
Business	Donation to the used oil association
Association	Assignment of the transformation of oil into soap, sale of soaps
People victims of gender-based violence	Sorting and production of soap
school	Donation recipient, 1 soap purchased from the association = 1 donation

In essence, from 500 liters of used and salvaged cooking oil, 10,000 hard household soaps with an average weight of 100g are produced. For this, the molds used are also yoghurt pots sorted in the solid waste. And, a multi-impact chain is in operation: the company donates the waste oil; the sorting and the production are carried out by four men and eight women, especially single, if not victims of gender-based violence; soaps are sold with added value of donation for schools, one donation of soap for a public primary school; soaps are redistributed free of charge to low-level workers. The profit relies on the inclusive approach integrating the private sector, civil society as well as the population considered vulnerable benefiting from sources of income. Otherwise, these types of wastes usually incinerated are turned into material.

Case 3: Project mode

There are also collaborative and partnership actions, involving different stakeholders, such as the "Fanavotana" project, literally a rescue program. This is a micro waste collection chain (newspapers, cardboard, paper, plastic bottles) in order to integrate a group of vulnerable women into the formal labor market. This action was initiated by the association Agir pour le Développement Durable et l'Economie Verte in Madagascar (ADDEV) in collaboration with the associations Green NKool, Ecologik Mada and Teach for Madagascar. In the line of sight of the sustainable development objectives, each entity brings its expertise. This partnership modality integrates interactions of several types, in this case public / private and / or formal / informal.

4. DISCUSSION

4.1 Paradigm shift of homo detritus

The waste of its "dirty" character undergoes a metamorphosis to be "clean", in that it becomes matter, useful. This makeover, in reference to social representation, is the ambition of an acrémental continuation, even of a paradigm shift of homo detritus (Jeudy H; 1991; Raharinjanahary 2011). It arises from an individual consciousness first, then a collective and ecological consciousness. Actions are based on an existing or becoming meaning. The intentions structuring sociological rationalism (Weber, M. 1922) initiate the emergence of actions. And, these intentions are gradually driven by motivational logic.

Waste management methods, in this case, composting, recycling or reuse, identify with innovative resourcefulness (Durand et al., 2019) in the face of the economic constraints of meager dedicated finances and the increasing informal sector. Other integrated models seek the articulation of the different SDGs :Living without waste, in the tendency of zero waste, would be the absolute.

With regard to the theme of sustainable development, there is an essential refocusing on development. This alternative coming true will logically create aspects of sustainability and more for the next generation. The questions merge in that the current SDGs take into account the social aspects of our daily life, our basic needs for education, health, habitat, employment, etc. ?

4.2 The need to act

The distrust of the state concerning all its entities at its different levels, has meant that a takeover has been structured at the local level. The life stories of the pioneers starting from the recovery of waste testify to a need to act now. Their outlook has changed: waste is completely usable, and can generate substantial economic income. And, the scope has been considered cross-cutting, touching on different aspects of human life and the environment. The practical and real aspect would need more to be highlighted, such as waste management and recovery. Among the needs of the population is the need for a model put to the test. The concrete, visible goes beyond the symbolic aspect often advocated with the SDGs (Augier H. 2012). If the accommodation is still weak in Antananarivo, it is because its communication has limits if not remains unclear.

However, around this word also focuses attention and incentives, structured by identifying unifying (Hamman, P. 2012). On the one hand, this rush presents a risk of opportunistic deviations. In fact, the State losing its legitimacy, thus fragmenting the social organization, takes advantage of new brokers, often known as fund hunters through organizations or associations with unprecedented negotiation capacities in the political and local field (Bierschenk T. et al, 2000; Goedefroit S. et al, 2002). On the other hand, the growing ecological consciousness mobilizes a responsible collective consciousness. The majority of interventions are based on mechanisms at several levels of committees, local, in order to promote a progressive autonomous takeover.

4.3 The value chain logic

Waste in its management and recovery systems is structured more like a bridge in relation to the door in the Simmelian metaphor. In fact, the door requires opening and then closing to access the next space. However, the revalued waste has established social links based on solidarity. A citizen movement is developing through systems of donations and exchanges. (Jolivet, 2001). The mobilization of actors of urban habit, then ecological towards a cultural habitus, in the sense of sustainable waste, would redraw the relationship between waste and sustainable development.

The entrenched approaches go beyond the global strategy initiated by the State and its mechanisms, in that they are based on adaptability (B. G. Glaser et al, 2017; Durand et al., 2019). The efforts of the policy based on speeches, advance the constraints and blockages to the actions beforehand. Compared to a system that is still deficient, the enthusiasm remains partial if not scattered. The exclusivity still lies in the recovery of waste. The still little recognized minority eco-citizenship raises the risk of frustration and disengagement.

5. CONCLUSION

A decade away from the 2030 agenda, the ecological turning point (Bess M., 2008; Augier H. 2012) should be adopted, and certainly with radical dimensions of change, and lasting change, to move forward in a greening (Latour B. 1995) of everyday life, in a radical movement inspired by a certain "deep ecology", raised to the rank of genuine alternative political ideology, of ecologism (Dobson A. 1992).

The participatory mobilization that partnership in a multi-scale perspective would surely concede to the ecogesture, to the eco-citizenship of sustainable transformation of the current world.

Certainly, « un voisin durable, c'est un voisin qui trie ses déchets et me surveille pour que j'en fasse autant. Une amitié durable, c'est une amitié où l'on ne met pas en danger l'avenir de la planète, même en paroles. » (a sustainable neighbor is a neighbor who sorts his waste and watches over me so that I do the same. A lasting friendship is a friendship where the future of the planet is not endangered, even in words) (Gran I., 2011).

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