

## Urban Housing and Social Capital as Key Factors in Implementation of Recycling Policy. The Case Study of the New Recycling Program in Rome

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### **How to cite**

Martire, F., Barbanera, L., Floridi, F., Fusillo, F., Palmieri, M. (2022). Urban Housing and Social Capital as Key Factors in Implementation of Recycling Policy. The Case Study of the New Recycling Program in Rome. [Italian Sociological Review, 12 (2), 477-500]

Retrieved from [<http://dx.doi.org/10.13136/isr.v12i2.559>]

[DOI: 10.13136/isr.v12i2.559]

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### **3. Article accepted for publication**

Date: April 2022

Additional information about

**Italian Sociological Review**

can be found at:

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# *Urban Housing and Social Capital as Key Factors in Implementation of Recycling Policy. The Case Study of the New Recycling Program in Rome*

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## **Abstract**

When the recycling policy expects to change the citizens' behaviour, its implementation needs to be planned carefully, inquiring in advance the contextual factors that may interact with the actions planned by the policymakers. The connection between the actions planned on the desk and the characteristics of local context, where the policy impacts, is even more important when the relationship between the institutional policymakers and the citizens is conflictual. In this case, a vertical top-down approach in the policy implementation is not suggested, and a participatory bottom-up strategy should be employed, promoting popular consensus and trust in the environmental policy. The paper reports the case study of the new recycling program in Rome. The study shows that the delays and the problems encountered by the policymakers are due to the rigid top-down implementation and the low involvement of citizens and grassroot associations in designing the new recycling program, planned to change the everyday lives of people. The results identify the key contextual factors of recycling policy's success: the urban housing and the social capital of people.

Keywords: implementation of recycling policy, pro-environmental behaviour, social capital.

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## **1. The implementation of public policies: top-down and bottom-up strategies**

The implementation of public policies plays a crucial role to determine the success or the failure of the policy itself; what happens in this stage affects the achievement of the policy goals (La Spina, Espa, 2011). ‘The study of implementation examines those factors that contribute to the realization or non-realization of policy objectives’ (Van Meter, Van Horn, 1975: 448). In this perspective the literature stresses that the implementation of policies is not a linear process, but it is rather an interactive and circular process, conceived in evolutionary terms. During the implementation stage, policies continuously change considering the retroactive mechanisms activated by the actions decided by policymakers, by the results generated by those actions, and by the changes in the context where those actions take place (Majone, Wildavsky, 1978).

The literature distinguishes two main approaches to the implementation of public policies: top-down and bottom-up. According to the top-down approach, the policy implementation is vertical hierarchical process, where the policymakers organize the needed actions to effectively achieve the intended objectives. In this approach, the analysis of the implementation process focuses on comparing the planned actions and the actual modalities carried out for executing the policy. Conversely, the bottom-up approach defines the policy implementation as the set of problem-solving strategies applied by the involved actors (La Spina, Espa, 2011). From this side, the implementation process is analysed from the point of view of lower ranked functionaries and recipients, keeping into accounts stakeholders’ motivations and behavioural strategies. Nonetheless, several criticisms undermine this type of approach: it could lead to an excessive relativism, since the intended objectives are no longer considered for evaluating policies; additionally, this approach drastically reduces the role of policymakers.

Many studies<sup>1</sup> in implementation research focus on the importance of finding a balance between top-down and bottom-up strategies, to address the criticisms and exploit the strengths of each one. Uhlmann et al. (2019: 22) state that a successful ‘public policy requires careful balancing top-down factors, such as legislative requirements and effective controls, with bottom-up factors, including participation and stakeholder acceptance as well as cultural attitudes towards compliance’. The authors report that the analysed policies, mainly implemented by a top-down approach, are considered ineffective, because they have not been accompanied by actions able to generate virtuous mechanisms

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<sup>1</sup> Just to mention a few: Abas, Wee, 2014; Bellido et al., 2019; Crescenzi, Giua, 2016; Ibarra, Cristina, 2017; Mazmanian, Sabatier, 1983.

among the citizens. In these cases, the promulgation of laws for implementing the policy should be balanced by high involvement of the citizens, to guarantee a real effective implementation of the policies.

However, as the time passes, the preference toward the top-down approach is decreasing and the bottom-up approach is attracting more attention, because the latter values the point of view of citizens and other local stakeholders, increasing the popular consensus toward the policy itself (Valentinsson et al., 2019). Moreover, the bottom-up strategy helps to understand how contextual factors interact with the implemented actions; this interaction may generate unexpected distortions and unexpected outcomes, unlike what intended by the policymakers (Fasanella, 2012). Therefore, 'the study of implementation of public policies cannot proceed separately from the analysis of socio-economic and political context where the policies are implemented, and that more or less directly affect the implementing modalities' (La Spina, Espa, 2011: 71).

## **2. Waste recycling policies and pro-environmental behaviour**

Assuming that the main purpose of environmental policies is to produce a change in people's behaviour, it should be kept in mind that this objective is conditioned by factors external and internal to the individual, which are connected to the context where the policy is implemented. This is evident when the analysis concerns the impact of the policy in promoting good practices of waste recycling. Indeed, recycling policy takes place into very specific urban and social contexts, which provide local opportunities and hindrances.

Through the review of the literature of recycling policies, the factors associated with pro-environmental behaviours are identified. External factors concern macro contextual elements, which the people perceive linked to the collective sphere of social life, which are not under their own direct control. These aspects (i.e., the legislative system, the regulation of waste collection, system of reward or punishment) are considered factors that influence their own pro-environmental behaviour in everyday life, even if the people represent them as something imposed by the structures of power, which they cannot modify in any way. External factors encourage or discourage people from considering the recycling as a pro-environmental behaviour to be pursued, and consequently they can influence how the people represent the recycling policy (Hornik et al., 1995).

An external factor very often associated with the propensity to have pro-environmental behaviour is the type of house in which the people live. High levels of concern for environmental issues and high frequency of pro-

environmental behaviour are observed among the people living in single-family homes, especially in sub-urban areas, where the consequences of personal recycling actions fall easily within the private personal sphere. These levels are lower when the people live in apartments and big flat complexes, especially placed in urban areas, where the responsibility of individual recycling behaviour is socially shared with many people living in the same building. For this reason, the recycling policies work better in areas with low population density (Ambrosius, Gilderbloomb, 2015).

Another external factor associated with pro-environmental behaviour is introducing monetary incentives, to increase the recycling rate (Agovino, Cerciello, Musella, 2019; Halvorsen, 2012). Monetary incentives should increase the motivations related to individual satisfaction of gaining economic rewards (Cecere, Mancinelli, Mazzanti, 2014). Nevertheless, this kind of incentives may activate some variable mechanisms that modify the outcomes by interacting with the policy and eventually make them fail (Fasanella, 2012). This is frequent when pro-environmental attitudes and daily recycling behaviour already exist; in this case, intrinsic motivations of people are more relevant than extrinsic motivations. 'When there is a strong conviction both about the benefits of recycling and the responsibility of cooperating, incentives are of minor importance, especially those of a material or moral nature' (Vicente, Reis, 2008: 145).

On the other hand, individual factors are mainly personal motivations that produce individual satisfaction and gratification in performing actions that are good for the environment and for the community. Individual factors are aspects that people perceive linked to their own personal sphere and which are, therefore, under their own direct control. Internal factors can facilitate or prevent a person from considering the waste recycling as pro-environmental behaviour, and consequently modifying the positive or negative representation the individual has about the recycling policy (Hornik et al., 1995).

Scholars point out the central role of social capital as the main internal factor to be able to influence pro-environmental behaviours (Pretty, 2003; Pretty, Ward, 2001; Uphoff, 1998). The studies highlight that social capital is the product of four components: trust in institutions, trust in the others, compliance with social norms, and system of values (Jones et al., 2011). Trust in institutions is essential element for the success of waste management policy: 'In the case of recycling, institutional trust remains a significant predictor indicating that the perceptions held by citizens of the management actors is important in recycling actions' (Jones et al., 2011: 279). The more the people trust in institutions, the more the citizens accept to cooperate actively in the policy implementation, modifying everyday habits because their efforts are valued by the conduct of institutions (Cvetkovich, Winter, 2003).

Trust in the others is another essential aspect of social capital. Higher levels of trust in others bring the people to perceive that all fellow citizens have pro-environmental recycling behaviours (Wagner, Fernandez-Gimenez, 2008). 'As a result, individual behaviour is expected to be influenced by the perception that other members of the community act in an environmentally responsible manner' (Wondolleck, Yaffee, 2000: 153).

Compliance with social norms is very interconnected with the individual system of values. Compliance with social norms is the individual capacity to understand which actions are considered socially correct by the rest of the people belong to the same community and to behave in compliance with them (Coleman, 1990). When the set of socially accepted norms is fully or partially internalized by the individual, the personal system of values orients the individual to behave in compliance with them (Bratt, 1999). Sometimes, the individual refuses to comply with the social norms because they do not match up with own personal system of values. These individuals, therefore, can show anti-social behaviours and anti-environmental behaviours (Corral-Verdugo, Frias-Armenta, 2006). In this case, the mechanism of social pressure works as a very strong incentive for pro-environmental behaviours: citizens perceive a form of moral obligation, in the sense that 'they do what they want others to do' (Berglund, Matti, 2006: 567).

Understanding the contextual factors of pro-environmental behaviours is crucial to limit unexpected effects of recycling policies. If people do not separate their own domestic waste properly or at all, the policymakers should understand why this happens. The top-down implementation of recycling policy does not take the contextual factors in consideration; at best, the policymakers presume to know the peoples' reasons in advance. On the contrary, the bottom-up implementation of recycling policy is based on this specific know-how: how the contextual factors (external and internal to the individual) interact with the actions planned by the policymakers, and how this interaction impacts on the daily life of people and, consequently, on the policy's success. It requires that the promulgation of laws and controls is balanced by inquiring the needs of the local community and by its deep involvement in the implementation of recycling policy.

### **3. The new recycling program in Rome**

On October 28, 2011, the Municipality of Rome and AMA (Municipal Company for waste collection) and CONAI (National Packaging Consortium) signed the Memorandum of Understanding, to identify the best practices for

the management of urban waste collection and to draft a feasibility plan for the separate collection of urban wastes.

This plan recommends adopting a five-fractions waste collection model: organic waste, multi-material (plastic/other metal packaging), paper, glass, and dry residual fraction. The waste collection is made through door-to-door waste collection or curbside waste collection. According to this plan, the city of Rome is divided in 155 ZTO (Optimal Territorial Zones), classified in six territorial macro-categories: green areas (small buildings, low population density, large private and/or public spaces for positioning the bins and allowing AMA vehicles to collect urban waste), where it is possible to easily implement the door-to-door waste collection system; yellow areas (small buildings, medium population density, good availability of private and/or public spaces), in which the implementation of the home waste collection system is possible but some problems can occur; orange areas (larger housing dimension, higher population density, reduced private and public spaces), where the home waste collection system can lead to marked problems; red areas (large housing dimension, very high population density, absence of private and public spaces for positioning bins and parking the AMA vehicles), where the home waste collection is not suggested.

In 2013, the Municipal Authorities decided to implement the collection of domestic wastes with the five-fractions model, mixing door-to-door and curbside waste collections. Where door-to-door waste collection is active, the residents have to separate their own waste at home: the people living in single houses or buildings with less than 7 apartments have to put their own rubbish into little individual bins, placed in private areas, and to place them outside, respecting AMA's calendar; the people living in buildings with more than 7 apartments have to put their own rubbish into collective bins, placed in private areas, and to move them outside, respecting AMA's calendar. Where the curbside waste collection system is active, the residents have to separate their own wastes at home and put them into large bins placed in public spaces.

Table 1 shows the longitudinal data released by AMA, about the tons of urban waste produced annually and the rate of recycled urban waste. The five-fractions model has made it possible to reach important results: the percentage of recycled urban waste increased from 25,7% in 2012 to 44,3% in 2017. The tons of recyclable fractions increase constantly, and the tons of dry residual fraction (destined to landfill) decrease gradually. On average, the percentage of domestic users served by door-to-door collection increased from 6% in 2012 to 33% in 2017.

Through Resolution no. 2 of January 8, 2018, the City Council approved the update of the Memorandum of Understanding signed on October 28, 2011, between the Municipality of Rome and AMA and CONAI. Through resolution



no. 88 of May 9, 2018, the City Council approved “The plan for developing the separate waste collection system in 2018”<sup>2</sup>, proposed by AMA and CONAI. The objectives of the new recycling program are the followings: increasing the percentage of separate waste up to 55% in 2019, implementing the door-to-door collection service all over the districts, improving the quality of the waste collection service provided by AMA. The new plan establishes that districts VI and X are the first ones to be involved. Considering the high number of residents already served by the traditional door-to-door in these two districts, the implementation of the new recycling program can contribute significantly to achieving the declared objectives: at the end of 2017, the door-to-door waste collection service already reached 77% of domestic users in district VI and around 53% of domestic users in district X. The plan should be progressively extended to the other districts of Rome.

*TABLE 1. Tons of urban waste and % of recycled waste and % of residents served by door-to-door collection.*

<b>Year</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
Tons of urban wastes	1,754	1,756	1,738	1,701	1,691	1,688
Paper	207	240	239	247	249	203
Plastic and glass	84	93	111	118	126	135
Organic	93	140	201	229	255	255
Other	66	73	97	107	95	155
Dry residual fraction (not separated)	1,304	1,210	1,089	1,000	966	939
Separate waste collection %	25.7%	31.1%	37.3%	41.2%	42.9%	44.3%
Residents served by door-to-door %	6%	12%	28%	29%	33%	33%

Source. AMA data processed by ASPL, agency for control and quality of public services of Rome Municipality (2020).

All mapped domestic users of districts VI and X are reached by the new separate waste collection. Single houses and small buildings, where door-to-door collection is easily to implement, received small bins or condominium bins with RFID (Radio Frequency Identification) technology, which allows the AMA staff, equipped with technological vehicle, to match the domestic user details with its produced separate waste collected in that day. All users are asked to respect the five-fractions model, separating their own waste at home, and to put the separate waste into the respective bins, to be placed out of the house/building three times a week; citizens are required to put out the bins during a specific daily time slot.

Large buildings, served by curbside waste collection, are reached by the innovative ecological domus or the intelligent bins, capable of recognising the user through a digital green card. Ecological domus is a fenced and camera

<sup>2</sup> <https://www.comune.roma.it/servizi2/deliberazioniAttiWeb/home>

controlled prefabricated facility, placed in public or private areas, where citizens bring their own differentiated wastes, after being recognised by an appropriate digital green card; not all residents can enter and put inside their own fractioned waste. Intelligent proximity bins are large containers dedicated to receiving separate waste, located in public spaces, near the buildings that cannot be reached by the door-to-door waste collection. They are closed containers, which can be opened thanks to digital green cards.

The mapping of all domestic users in districts VI and X was executed in the first half of 2018; AMA staff was entrusted with making a crossed matching between the residents registered as domestic users in the AMA database and the residents not yet registered. During the second half of 2018, AMA delivered the bins to the domestic users, progressively. At the end of 2018, step by step, all territories of districts VI and X were reached by the new separate waste collection system. In this period, AMA organised a communication campaign to inform the citizens about the new collection system, showing the correct recycling behaviours. Following the plan deadlines, the new recycling program should be fully operating in districts VI and X since 2019.

#### **4. Research strategy**

In our study, recycling policy is framed as an interaction system among several individual and collective agents; among them, civic and grassroots associations, devoted to recycling and to environmental issues, play a key role. We think that this framework fits well with recent experiences of recycling governance. Over the years, several Italian local administrations have tried to involve citizens to resolve public waste problems (Bobbio, 2002). Most of them have implemented a flexible model of governance based on citizens' demand of political and social participation, calling on grassroots organisations devoted to the defence and enhancement of common goods (Couldry, 2010; Moini, 2012). These can be considered participatory processes in the framework of public and/or civic engagement, depending on whether the participation process has been fostered by public administration or by citizens (Dahlgren, 2009; Moro, 2013; Sintomer, De Maillard, 2007). In both cases, the success of these experiences depends on the interplay of intentions, perceptions, attitudes, and types of behaviour of all the involved agents (Bartoletti, Faccioli, 2016; Marciano, Montani, 2012).

In this frame, in-depth research is carried out with the aim of representing how the Municipality of Rome has involved civic associations in the new technological recycling program implemented in districts VI and X. First, we mapped the grassroots associations, legally recognised by the central

administration, and reported on the official website of the Municipality of Rome. Starting from this list, we looked for Internet traces of the presence and activities of these associations operating in the two districts, with reference to the most sensitive and active regarding the environmental issues. Websites and Facebook pages of the associations active in these areas were identified. This screening allowed to rank the associations according to their sensitiveness to environmental issues and to their degree of activism. As to the latter aspect, we mainly took into consideration indicators of the dynamism of the websites and the updating of their contents. In addition to estimating the activism of the various associations, their Facebook pages were considered to evaluate their rooting in the territory. By analysing the number of likes/followers and the reactions to the published posts (both the number of reactions and the degree of appreciation shown), we ranked the associations according to their ability to trigger interest and participation.

Then we contacted the representatives of the most active associations, to propose in-depth interviews. We chose the in-depth interview, as a qualitative data collection technique, to value the participation of the subjects in the construction of the empirical material. In our opinion, this methodological strategy is the most suitable to bring out the unexpected ways in which a policy action meets the territory, and to study its impact on the community, regarding the social interaction system of waste management and recycling. Ten in-depth interviews (five in district VI and five in district X) are conducted by the members of the research team, with the aim of stimulating the interviewees to illustrate, from their point of view, the new recycling program in Rome, its actual modalities, its assumptions, its consequences, also requesting an overall assessment<sup>3</sup>. The results are illustrated in this paper.

## **5. Proof of the facts: the implementation process**

In the implementation phase, the policy decisions are put to the proof of facts. In the districts VI and X, the new door-to-door waste collection has been largely adopted in green, yellow, and orange areas. In most of the green and yellow areas, the traditional door-to-door waste collection already existed; in these territories it has been replaced by the new technological door-to-door waste collection. The empirical evidence shows that here the new door-to-door works very well. Many respondents living in these areas report good experiences about the new recycling program: especially in low density population areas with

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<sup>3</sup> The names of the respondents and the name of the grassroots associations are not reported in the paper, because the representatives of the associations accepted to be interviewed only in case their privacy is fully guaranteed.

small buildings, AMA's service works efficiently, guaranteeing a good waste collection service, even if with slight delays.

There are no negative aspects of the new separate waste collection, why should I lie? In the peripheral areas, they pass three times a week. When you see Ama's precision and efficiency, people are willing (...). The collection is constant; it never skips. Each housing unit has its own bins for paper (blue), plastic and metal (yellow), undifferentiated (grey) and organic waste; each bin is equipped with a QR Code, which uniquely identifies the contents of the bin and the owner. The Ama operators have an optical reader that they use at the moment of waste collection; the database shows the name of the user and the type of waste that is regularly collected by Ama (*grassroot association of district V*).

On the contrary, the transition to the new door-to-door system has been very problematic in the orange areas. Some critical issues are so strong as to compromise the success of the program itself. Many problems have occurred especially in the areas with large apartment complexes. Here, the problems are due to the presence of large and shared bins, provided for several residents. Interviewees report frequent deviant behaviours of citizens, due to the little concern for the consequences of individual actions.

I live in a condominium. Here, there are people who throw the boxes into the paper (bin) without breaking them, and this means that once you have thrown one or two boxes, the others no longer can use the paper (bin). So, if you maybe break it, you provide space and a way for others to be able to collect it in a way... but they have to keep it inside the house until they have disposed of the boxes. So, there are these kinds of problems (*grassroot association of district X*).

When the bins are shared among many people living in the same big building, attitudes of indifference towards the others and individual irresponsible behaviour emerge, particularly related to the management of the shared bins. In this type of building, equipped with numerous condominium bins, the apartment dwellers hardly agree on how the bins should be transferred outside the building, to allow AMA's staff to collect the separate waste; in some cases, the dwellers decided to pay someone to do it. Furthermore, if the bins are not emptied regularly, there is no space for leaving other waste. In this situation, deviant behaviours are encouraged: people find it easier to leave the garbage bags outside the containers on the ground, and the operators are often unable to identify the correct bin because of the accumulated bags.

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AMA comes for the collection once every two weeks; though I collect waste properly, then the trash bags accumulate, making it impossible to do a check (*grassroot association of district X*).

Indifference to the public affairs determines that everything that is not mine, and that is not in my garden, is indifferent to me. According to the theory of broken windows: where there is degradation, degradation increases. So, do I have to throw something away? Where do I throw it? Where there is already something thrown away (*grassroot association of district VI*).

The punctuality of differentiated waste collection is the critical point in the most populated areas. Several dwellers complain about long delays in waste collection. People denounce that AMA frequently fails to collect the waste, which accumulates around the condominium bins. Consequently, a sense of exasperation rises among the local population, especially where the bins are close to the apartments, which are easily reached by bad smells.

There are entire zones where AMA's operators don't come at all. The missed shifts accumulate. During the last period, they come once in three weeks. This exasperated the people; as a result, they are not going to have proper recycling behaviour, like in the case of leaving the rubbish next to the green bell for glass (*grassroot association of district VI*).

Even in residential areas, composed by single houses and low-medium size condominiums, some negative unexpected effects are reported by the interviewees. The grassroots associations observe an increasing amount of waste on the streets. This is the main problem occurred during the implementation process: the birth of many small uncontrolled waste tips. In the respondents' opinion, this is due to the inefficient results produced by the mapping of the domestic users. Part of householders has not been censused, becoming ghost users, who have not received their personal bins. Consequently, the real number of users is higher than the one expected, and so much more waste is produced. This phenomenon has led to serious consequences of urban degradation: ghost users have no longer a place to legally throw their own waste, because the old garbage bins placed in the streets were removed. A large part of the respondents stresses this point.

Today these persons [ghost users] have no tools to do the separate collection. So, if you walk around here, you can find trash bags gathered around the green bells for glass or in isolated places. This is creating sanitary problems, due to piles of unseparated garbage along the public roads (*grassroot association of district VI*).

People who do not pay the regional waste tax usually leave their rubbish either near the green bell for glass or a street corner in the illegal landfills' sites, which are generated by illegal behaviours of dwellers (*grassroot association of district X*).

According to the point of view of the respondents, the new recycling program has been implemented through a rigid top-down approach, giving little importance to the aspects related to the local urban morphology and to the citizen's needs, which have not been taken in consideration by the policymakers. Instead of adapting the policy to the specific urban local context, a single model of waste collection with two sub-variants – individual and collective – has been implemented, claiming that the context must adapt to the policy: the door-to-door system has been forcedly employed even in very populated areas, where the urban morphology makes the individual collection less efficient than the collective one.

In this case study, the urban housing plays a crucial role in understanding the large differences between the pro-environmental behaviours of people living in single-family houses and the anti-environmental behaviours of people residing in large apartment complexes: the first ones show to be well disposed toward the recycling program as opposed to the second ones. This occurs according to what extent the social responsibility of individual action is shared with the rest of community: when people live in single houses, the consequences of individual waste recycling behaviour are close to the personal sphere; when people live in condominiums or large buildings, the consequences of individual waste recycling behaviour are shared with a great number of people.

The second main weakness of the analysed recycling program implementation is the monetary incentive. The so-called 'Punctual Tariff' offers for citizens considerable money savings, obtained by reducing the production of unseparated waste. By activating domestic composting, it is possible to receive the reduction of the waste tax.

If you deliver waste correctly, the share of undifferentiated waste drops a lot, much, and better by recycling. In addition, I do not confer organic waste, and I obtained a 30% discount on the variable part of the bill. Ama brought me a small compost bin that I have in the garden where I put the organic waste, without giving it to Ama (*grassroot association of district VI*).

But it seems that this incentive is efficacy for a very limited number of people. Indeed, it works in the areas with single houses and large private gardens, where the domestic users have private space large enough to install

the composter, a big container able to collect the organic wastes. On the contrary, the management of shared composters for people living in big buildings with no private gardens is problematic. The institutional efforts and public money spent for monetary incentives failed, because the pro-environmental recycling behaviours do not need to be pushed further in the low population density areas where they already existed, and where the recycling program was already appreciated by the citizens.

In this case study, internal individual motivations explain why and how the new recycling program in Rome has gained such heterogeneous results. The local success of the program is mainly due to the historical continuity between the traditional door-to-door waste collection, implemented by the former political administration, and the new technological waste collection system. In the territories where this continuity occurs, the new door-to-door technological waste collection is appreciated by the people. In other words, the residents living in the areas serviced by the door-to-door collection for a long time are accustomed to and made aware of the recycling practices; the new recycling program has merely accentuated existing habits, based on strong individual motivations.

## **6. Involvement and participation of citizens**

The main goal of new recycling program in Rome is strictly linked to reaching most of the dwellers. To achieve it, AMA and the Central Municipality of Rome planned some communication campaigns and meetings with the local population to raise citizens' awareness.

The citizens appreciated some specific events dedicated to the distribution of flyers with useful information about the new waste collection system, where the grassroots associations have taken the responsibility for the organisation of the events; unfortunately, these communication meetings were few and far between. According to the representatives of the grassroots associations, these events were not strongly supported by the local institutions. Furthermore, they reported the difficulties to interact and cooperate with the institutions in a structured manner; the requests for a dialogue often remained unheeded, and even in those few meetings the attitude of the local institutional representatives was not constructive.

Our grassroots association proposed a meeting with the AMA leaders here in the neighbourhood, and however it was not possible. I do not know why, for what reasons it was not possible to do it (...) So I gave the input. I asked AMA to have a meeting, to organise a day or half day here in the neighbourhood;

we talked about it for months, and I have not yet received the answer (*grassroot association of district VI*).

The direct communication between AMA and the residents is very poor, if not absent; the communication campaign is considered unclear by the citizens. In some cases, the task of informing the population has been delegated to the AMA operators, not trained to inform the population properly, reducing the information campaign to a simple delivery of the collection calendar. Consequently, the domestic garbage is often not separated by the people correctly. This type of problem affects even more the elderly, who usually require supplementary help to understand how the new waste collection works. Some respondents mention the need to start a pedagogical action and to activate a stable relationship between AMA and citizens' associations.

That is, in my opinion this type of collection cannot work, because the people who live here should be undergo education. (...) There is an old woman; but explain to her that there is plastic, there is glass, and you have to put it here and you have to put it there. (...) There are people who do not understand Italian language, that is, here we are in these conditions (*grassroot association of district X*).

The solution should be to organise encounters, cadenced meetings, that is, a calendar of its own, in which with the various ... that is, in December AMA does a meeting with the neighbourhood organizations. (...) AMA, come to the territory! Create a day, half a day with the committees, and discuss with the citizens (*grassroot association of district VI*).

The communication actions put in place by AMA and the Municipality of Rome are quite ineffective in reaching the target of population. The communication campaign lacked planning; it relied on free engagement of the grassroots associations, which organised the few meetings really appreciated by the people living in these territories. Most of the citizens did not know when the new recycling program started, and they have never been trained about how to separate their domestic waste correctly.

The opinion of local citizens is clear: the local institutions are responsible for the problems encountered during the implementation of the new recycling program. AMA is considered the municipal company unable to cope with the institutional task it is entrusted with. It is seen as a very disorganised company, which does not respect the separate waste collection calendar communicated to the citizens and does not take responsibility for it. It is represented as a subject that does not recognise its own incapacities publicly, neither speaks with citizens



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nor listens to the people. The operators, seen as heroes with a great spirit of public service, try to remedy this condition of inefficiency.

They (AMA managers) even blamed the population for producing too much garbage (...) During a meeting between the citizens, AMA and the central administration, AMA managers appeared on the stage; we (the citizens) were here on the low side, while they were there on the high side, giving us their backs, because we were only people like that, not to be considered (*grassroot association of district VT*).

These gentlemen (the AMA operators), who materially work on the road, should be rewarded, because they do a huge job, unlike the AMA managers (*grassroot association of district X*).

The Municipality of Rome is considered the second main responsible, seen as the meeting place between businessmen and policymakers. Together, they shape the strong powers, making business through the market of unsorted household waste: they allocate public funding to finance emergency activities, like the rental of lands used for landfills or the delivery of unsorted domestic waste to another Italian region or abroad, all intended to find temporary solutions to a permanent problem. Therefore, the inefficiencies shown by AMA are perceived by people as a political intent: preventing the development of separate waste collection in Rome, to keep producing a large quantity of unsorted waste to be disposed in landfills or in facilities for its mechanical treatment necessary to burn the waste in incinerators.

Do you want to blame AMA? But the choices of AMA come from political decisions. Local roman politicians designate the managers of AMA. Do you know how many managers of AMA went to jail? Why? Because you find the strong powers in AMA (...) It means that you (Municipality of Rome) do not want to facilitate a widespread and selected separate waste collection in Rome; you prefer to burn the unsorted garbage (...) No other incinerators are necessary! You have to eliminate the strong powers within AMA, which are opposed to the virtuous closure of the waste cycle (*grassroot association of district VT*).

The system is designed to fail. I do not want to see conspiracies but... evidently someone is interested in burning the waste. Burning unsorted waste is more profitable than separating it and recovering metals, plastic, or paper. (...) In my experience, AMA has been abandoned by politics in favour of illegal business (*grassroot association of district X*).

However, a strong self-criticism emerges as well. The grassroots associations denounce the low popular participation in the meetings organised to raise people's awareness, and to inform them about the new separate waste collection system. Some respondents report that the participation of citizens was very limited.

In launching the new separate collection, AMA held spot meetings in the area. Here, they had only one meeting inside the school. But you understand... at the end we were only fifty people (*grassroot association of district VI*).

In this area we (citizens) are 30,000; AMA held this meeting in a school complex nearby and there were thirty people! Thirty people and we knew each other, because we are always the same ones; in the sense that we are all professionals, people who are active in the area (*grassroot association of district X*).

Roman citizens are represented as highly particularistic and selfish people, disinterested in common public affairs, especially in environmental issues, and irresponsible regarding the problems faced by the community. Rude and uninformed, roman citizens get often used to protest and complain about AMA and politicians and public institutions, without adopting any behaviour consistent with what they claim.

It is also our fault; we (roman citizens) must think about the future of our children. We are part of this society, and we should become citizens with a civic conscience (...) During our meetings, I heard people saying: 'That project will not work! Who cares! I just throw my garbage there' (*grassroot association of district X*).

In my opinion, it is also a cultural issue, and it takes time, starting from the school, to make it clear what the problem is (...) What is happening cannot be attributed only to the administration or to AMA, but also to the citizens, who do not understand that you cannot throw your garbage wherever you want in a civilised country (*grassroot association of district X*).

A general climate of mistrust is spread across the citizens of districts VI and X. Mistrust toward the local public institutions is the emerging factor. Most especially, people consider the local institutions disorganised, irresponsible, uninterested in solving the problems of citizens. The communication between the institutions and the citizens is weak, or they do not communicate at all. In such a context, it is very troublesome to drive a change in recycling behaviours of people who declare not to trust the institutions, and to be reluctant and

unwilling to apply the decisions taken by the policymakers. In addition to this, people do not trust each other: people perceive that the fellow citizens are not interested in doing correct recycling behaviours and improving the urban decency and the health of the community. A common individualistic value orientation prevails, leaving apart that sense of responsibility for the community which every citizen should take on own shoulders. The image of a fragmented community takes shape, where the benefit of individuals' participation in collective dimension of social life (active participation and associationism membership) is low, as well as the level of interest in recycling the domestic wastes, considered problems to be solved individually, and not common goods to be valued by the whole community.

## **7. Discussion and conclusion**

The success of recycling policy depends on the ability of policymakers to predict how the policy implementation impacts on the territory before the program starts (Koontz, Thomas, 2006). To do it, a bottom-up strategy should be preferred to a top-down approach, because it helps to deeply inquiry the characteristics of the context where the program is going to be implemented. The bottom-up approach requires the active involvement of citizens and local civic associations in the planning phase. This study identifies the factors, external and internal to the individual, which may interact with the recycling policy actions.

The urban housing is the most relevant factor external to the individual. People consider that the waste recycling is a complex and quite tiring pro-environmental behaviour to the extent that they find less complicated alternative strategies to get rid of their own waste. The decision to behave in a pro-environmental manner is strongly influenced by the quality of the services offered by the public administration: the more efficient the services to support people in recycling, the greater the satisfaction and participation of people to the recycling program (Babey et al., 2015; Kollmuss, Agyeman, 2002). To design efficient waste collection services, that facilitate and value the citizens' efforts, the planning of support infrastructures needs to consider the urbanistic characteristics of the area where the program is implemented: the individual door-to-door waste collection system should be carried out in rural areas or, if anything, in sparsely populated sub-urban areas; other types of collective waste collection system should be implemented in populated urban areas. When the individual door-to-door waste collection system is forcefully applied to very populated urban areas, the program leads to inefficiencies that create citizens' disaffection and low popular participation.

The individual decision to recycle is also influenced by the level of knowledge on how to differentiate domestic waste correctly, and what services are available to citizens and how to use them (Gamba, Oskamp, 1994; Vining, Ebreo, 1989). Designing and implementing efficient information campaigns help people to satisfy this need. The studies show that the higher the people are well informed about the recycling program, thanks to communication campaigns designed by the policymakers, the higher the citizens' participation in recycling program (Austin et al. 1993; Favretto, Manenti, Pegoraro, 2020). This empirical study stresses that the citizens ask for being informed about what and how they have to recycle; mediatic communication campaigns and local face to face meetings between the institutions and the citizens are crucial for informing the people about the correct recycling procedures.

Another factor external to the individual is the presence of monetary incentives (Needleman, Geller, 1992). However, several studies show that monetary incentives are secondary aspects, that may not affect the individual propensity to have pro-environmental recycling behaviours (Vicente, Reis, 2008). Our study confirms that they are of limited relevance, both with respect to other factors external to the individual (i.e., urban housing or communication campaign) and with respect to other factors internal to the individual (i.e., the personal value system and how it interacts with the social norms shared by the community).

The main empirical and theoretical contribution given by this study is to highlight the centrality of social capital, as the main factor internal to the individual, capable of influencing the personal choice of having pro-environmental recycling behaviour.

Although there are many definitions of social capital in the literature (Barktus, Davis, 2009), we agree that social capital is a resource both for the individual and the community. 'Social capital is a set of relationships and shared values created and shared by multiple individuals to solve collective problems in the present and in the future. It reflects how small and large groups interact culturally, normatively, structurally, institutionally' (Ostrom, 2009: 22). The ability of a community to solve common problems thanks to the social capital of its members depends on individual trust in institutions (Taniguchi, Marshall, 2018), individual trust in the others (Tabernerero et al., 2015), individual decision to behave in compliance with social norms shared by community, which may not entirely coincide with personal system of values (Jones et al., 2011).

Trust in institutions is relevant to promote individual pro-environmental recycling behaviours, especially when the institutional policymakers decide to use legislative instruments that oblige the citizens to change their everyday habits (Kim, 2005). The higher the individual trust in the institutions that planned and implemented the recycling program, the higher the effectiveness

of the institutional action perceived by the citizens. This study shows that high levels of distrust and disaffection towards the institutions, perceived by citizens as incapable and disinterested in the needs of citizens, significantly reduces the popular participation in the recycling program. From the people's point of view, the efforts of citizens in recycling would not be enhanced by the low efficacy of institutional action.

Another factor associated with individual pro-environmental recycling behaviours is trust in the others. It can be directed to the generalised other (i.e., the society) or to the particularised other (i.e., the neighbours) (Uslaner, Conley, 2003). The recycling pro-environmental behaviour is highly influenced by the trust in the neighbours. According to the theory of community-efficacy beliefs, a strong relationship exists between the efficacy of the recycling program as perceived by the individual (self-efficacy belief) and the efficacy of the recycling program as perceived by the community (community-efficacy belief) (Bandura, 1997). The higher the level of community-efficacy belief, the higher the level of self-efficacy belief; furthermore, this relationship is associated with high level of pro-environmental behaviour (Tabernero, Hernandez, 2011). The individuals compare their own opinions and assessments about the efficacy of recycling program with those of others, in particular their neighbours: *If my neighbours have a good opinion about the recycling program, and they think that the waste recycling is easy to do... then it should be so.* This comparison induces social change. 'Social change is a product of efficacy performance spirals in individuals, groups, communities, and organizations; (...) individuals, groups, communities, and organizations are not separate conceptual categories but parts of a whole, each part affecting and being affected by the others' (Lindsley, Brass, Thomas, 1995: 647). This study shows that high levels of interpersonal distrust prevent the people from comparing individual and collective beliefs. The individual trust in the others works at the base of the theory of community-efficacy belief.

This study emphasizes the compliance with social norms, that 'specify which actions are regarded by a set of persons as proper or correct' (Coleman, 1990: 242). Nowadays, the pressure of social norms pushes individuals to behave in pro-environmental manner (Bratt, 1999; Stern, 2000). When social norms have been largely internalized by the individuals, to the extent that they are part of personal system of values, citizens behave in compliance with social norms that promote pro-environmental recycling behaviours. The process of internalization of the social norms is facilitated by the individual participation in collective activities, about topics (i.e., waste recycling) that are sensitive to the whole community, and by the individual participation in formal social networks, such as organized non-governmental organizations or grassroots association (Van Oorschot, Arts, Gelissen, 2006). Individual participation (passive membership or active volunteerism) in formal social networks increases the

individual propensity to act in a pro-environmental manner, in compliance with social norms that guide the behaviours of the community members. When social norms are not internalized by the individuals, they are no longer connected to the personal system of values (Wakefield et al., 2006). The people do not recognise the role of social norms; the choice to engage in pro-environmental behaviour becomes an individual choice, and the social pressure mechanism loses strength: citizens do not perceive a form of moral obligation, in the sense that *they do what they want to do*. This study shows that low participation in recycling program is influenced by the low salience that social norms have for the individuals. When the individual system of values does not match with the pro-environmental social norms, anti-environmental recycling behaviours occur.

In conclusion, this study highlights that the problems faced by the new recycling program in Rome are due to the rigid top-down implementation executed by the policymakers, without taking into consideration several contextual factors that interacted with the action planned on the desk and implemented on the field. The policymakers dealt with something different than organisational problems, something that is grounded to the local context: the urban housing of districts and the social capital of people. A bottom-up implementation dynamic, based on participation and involvement of citizens and grassroots associations, would have enabled to identify these factors in advance. Further research is appropriate to understand the extent to which each of these factors influenced the implementation of the analysed recycling program.

### **Funding**

This study is financially supported by La Sapienza University, which funded the project 'Recycling is Caring. An Action Research on Separate Waste Collection in Rome'. Grant n. RG11715C78062D60.

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