**Track 1: Governance, Politics, Ethics and Conflicts in Planning**

**Focus on actors: the institutional structure and networks in municipal waste management. An exploratory analysis from the Rio de Janeiro Metropolitan Area**

**Antonella Maiello\* e Ana Lúcia Nogueira de Paiva Britto \*\***

Graduate program on Urbanism, Faculty of Architecture, Federal University of Rio de Janeiro

\* Post-doc researcher

\* \* Associate Professor

**Key-words**: policy network; neo-institutionalism; municipal solid waste management; Brazil

**Abstract**

All over the world the management of wastes represent a main concern. The waste production has doubled along the last ten years and the coming years will experience an upward trend (McAllister, 2015), unless a radical change in the prevailing consumption and production patterns will occurs. Usually, the management of waste is a municipal government task; nonetheless it involves multiples actors and deserves a multilevel, cooperative, as well as well coordinated, organization among them. As a matter of fact, municipal solid waste management (MSWM) is a complex process, which entails subsequent and costly stages such as waste collection, transfer, treatment (Soltani et al., 2015) and final disposals. Often, especially, in developing world, the municipal government has no enough resources to perform these functions alone, especially those that require big infrastructures (e.g. treatment/incinerator plant). For this reason, each municipality may need to join to those neighboring to share costs and space, going beyond the municipal scale, to improve the environmental and economic performance of their own MSWM strategy. Furthermore, waste production occurs along a long cyclic path, which starts from row material producers to final consumers. Therefore, the MSWM policies and planning institutions ought to deal with business sector as well as with citizens and civil society organizations in order to promote sustainable behaviors at each stage of waste cycle. Municipal governments need to develop an integrated approach, and, even if it sounds as an overworked concept in theory, it is still a necessary target in the practice. This multi-stakeholder dimension of waste management are often neglected in grey literature on MSWM, as scholars in this field have focused, so far, on quantitative aspects of waste management (Intharathirat et al., 2015, Welivita et al., Edjabou et al., 2015).

Using this gap in the state of the art as a starting point, the present research purports to analyse MSWM as a political process, focusing on involved actors and institutions, as well as on formal and informal relational dynamics (i.e. networks) among them. The study is based on a theoretical framework that combines neo-institutionalism and policy network literature, since this blend allows observing both formal and informal processes, which underpin a political phenomenon. The concept of *policy networks* is a very vague and disputed one, though it represents a fundamental meta-concept in the policy analysis theory and debate. Policy networks are defined as the *informal arrangements*, *characterized by horizontal and decentralized relations* which intervenes in a policy-making process (Kenis and Schneider, 1991). Policy networks scholars envision the policy-making as a complex system, or community, made of multiple sub-systems interrelated with each other by an intricate net of relations (Blom-Hansen, 1997). These sub-systems are distinguished in two types. On the one hand, sub-systems are institutions and governmental bodies (*sub-government*), featured by an increasing interdependence, which demand increasing level of coordination. On the other hand, sub-systems can be conceived as individual actors of the informal political community (*attentive public*), which represent an interest on the issue but have no decision power (Pross, 1986). Some authors have identified these two groups with the two opposed poles of a typology of structuration. Thus, while the *policy community* identifies the most structured definition of a political system, on the opposed side there are the *issue network* (Marsh and Rhodes, 2002), which represents informal, open and fluctuant aggregations unified by a common interest. Other authors have emphasized the importance of unbalanced power relations shaping these abstract social structures (Marin and Mayntz, 1991). These concepts match the description of MSWM provided above, and allow representing waste management process as a political arena, rather than a mere material transformation process. Though, since the aim of this research is to provide an analysis of waste management as a policy and to map the involved actors, the relation networks envisioned were investigated through a neo-institutional perspective. From this perspective institutions are the frame that shapes social values and identities (March and Olsen, 1984). They represent a milestone to address the analysis of the policy process encompassed in the fluidity of networks. Network analysis permit to identify the dynamic dimension of a political process and highlight institutional limitations. In the meanwhile, adopting a neo-institutional perspective, we also acknowledge that institutions, at once, design the limits of relations among political actors and are worth to be considered.

We chose the territorial context of Baixada Fluminense as a case study. In Brazil municipalities are the governmental entity responsible for solid waste management (SWM) and urban garbage. The National Law Nº12305/2010, which establishes the Solid Waste Management Policy (SWMP), identifies goals for the Brazil as a whole, which need to be implemented at municipal scale. The SWMP defines goals and principles for the waste management. Among the others objectives, the National Law promotes the inter-municipal cooperation, endorsing the creation of waste management consortia. The Rio de Janeiro State Plan of Waste Management, acknowledging the relevance of regional scale (i.e. supra-municipal) for waste management, divides the state territory in eight consortium districts (Rio de Janeiro, 20103). The Baixada Fluminense consortium is one of the eight districts and it involves six municipalities: Belford Roxo, Duque de Caxias, Mesquita, Nilopolis, Nova Iguaçu e São João de Merite. We adopted a mixed approach for the empirical research, combining different methods for collection and analysis of qualitative data. By applying a secondary source analysis, we firstly mapped actors and institutions involved in the waste management process for the six municipalities. Than, we separated *policy community* actors (e.g. local government representatives) from *issue network* actors (e.g. environmental activists and professional associations), identifying relevant policy sub-systems. Finally, we selected and interviewed key informants for each sub-system. We used a semi-structured interview protocol based on both open and multiple-choice answers. Questions were aimed at investigate behaviors and routines of each actor, as well as and interactions among them, within the existing institutional framework. Findings emphasized the dominance of informal relations and practices, suggesting coalitions and conflicts among the mapped actors.

**References**

BLOM-HANSEN, J. 1997. A ‘New Institutional’ Perspective on Policy Networks. *Public Administration,* 75**,** 669-693.

EDJABOU, M. E., JENSEN, M. B., GÖTZE, R., PIVNENKO, K., PETERSEN, C., SCHEUTZ, C. & ASTRUP, T. F. 2015. Municipal solid waste composition: Sampling methodology, statistical analyses, and case study evaluation. *Waste Management,* 36**,** 12-23.

INTHARATHIRAT, R., ABDUL SALAM, P., KUMAR, S. & UNTONG, A. 2015. Forecasting of municipal solid waste quantity in a developing country using multivariate grey models. *Waste Management,* 39**,** 3-14.

KENIS, P. & SCHNEIDER, V. 1991. Policy networks and policy analysis: scrutinizing a new analytical toolbox. *Policy networks: Empirical evidence and theoretical considerations***,** 25-59.

MARCH, J. G. & OLSEN, J. P. 1984. The New Institutionalism: Organizational Factors in Political Life. *The American Political Science Review,* 78**,** 734-749.

MARIN, B. & MAYNTZ, R. 1991. *Policy networks: Empirical evidence and theoretical considerations*, Campus Verlag.

MARSH, D. & RHODES, R. 2002. Policy communities and issue networks. *Social networks: critical concepts in sociology,* 89.

MCALLISTER, J. 2015. Factors Influencing Solid-Waste Management in the Developing World.

SOLTANI, A., HEWAGE, K., REZA, B. & SADIQ, R. 2015. Multiple stakeholders in multi-criteria decision-making in the context of Municipal Solid Waste Management: A review. *Waste Management,* 35**,** 318-328.

WELIVITA, I., WATTAGE, P. & GUNAWARDENA, P. Review of household solid waste charges for developing countries – A focus on quantity-based charge methods. *Waste Management*.

PROSS, Paul, Group Politics and Public Policy, Toronto, Oxford University Press, 1986, 352 p.

RIO de JANEIRO, Plano Estadual de Resíduos Sólidos, Secretaria de Estado de Ambiente, Instituto de Estado de Ambiente, 2013