New Accountability Systems: Experimental Initiatives and Inequalities in Public Policy and Health Care Domains

Case Study Reports

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ResIST – Researching Inequality through Science and Technology
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NEW ACCOUNTABILITY SYSTEMS

EXPERIMENTAL INITIATIVES AND INEQUALITIES IN PUBLIC POLICY AND HEALTH POLICY DOMAINS

CASE STUDIES ON
Participatory Budgeting processes: Seville, Belo Horizonte and S. Brás de Alportel
The creation of the Single Health System in Brazil in Brazil
The control of endemic diseases in Brazil: The case of dengue
The import of retreated tyres as a threat to environmental health: the EU and Brazil

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SUMMARY

ABSTRACT

This report deals with the relationship between forms of public knowledge and political and social technologies aimed at the reduction of inequalities. They embody "high intensity" forms of public accountability, which have been described by institutions and actors involved as forms of social control.

Our starting point was the identification and characterization of procedures which allow new forms of public knowledge to be collectively produced through the active engagement of citizens, public policies to be formulated and enacted through participatory and collaborative processes and forms of accountability of the effects or consequences of these forms of knowledge and policy making for the reduction of inequalities to be implemented. The policies under scrutiny here are those public policies "constitutively" involving the mobilization of scientific and/or technological resources or specific kinds of expertise, as is the case of environmental, health, and urban planning policies. The procedures targeted here are those which have as their stated aims the promotion of equality or the reduction of inequalities.

The selected cases provide inroads into how the making of public knowledge and public policies addressing issues of inequality is articulated and enacted in specific settings.

Participatory budgeting processes

This part of the report deals with participatory budgeting processes as social technologies which address both the redistribution of resources in order to address inequalities and the empowerment of citizens to participate in deliberation and decision-making. These processes are particularly relevant since, traditionally, the design, implementation, monitoring and assessment of budgets have been conceived as specialized activities, requiring a type and degree of expertise which is beyond the capabilities of non-experts or "ordinary" citizens. Participatory budgeting processes start form the premise that citizens have not only the capacities and the experience-based

knowledge required to define needs and priorities through forms of collective and collaborative engagement, but that it is in vulnerable groups or communities that the skills to manage and balance scarce resources based on a hierarchization of needs are more likely to be developed. These processes go beyond the devolution of the debate, design, implementation, monitoring and overseeing of budgets to citizens, by drawing on their skills, capacities and knowledges as ways of generating innovative forms of collective production of new configurations of public knowledge.

Participatory budgeting in Seville offers the example of the largest experience of the kind in Europe. Assuming that every citizen is acquainted with the most pervasive daily needs of their residence area, the aim of the process is to promote a broader participation in decision-making related to the investment of public resources. As a consequence, the population becomes part of the actions involved in city planning through the identification and proposal of means to address their needs. The process is organised around territorial, technical (through the application of a set of indexes) and thematic criteria. The experience of Belo Horizonte offers the example of a complex process which includes both presential and digital tools. Along with public participation, several technical dimensions were introduced in the process in order to maximise the effective redistributive capacity of the procedure having local investments as its starting point. A key example of this coexistence is the use of the "Quality of Urban Life Index". Territorial, thematic and technical criteria are part of the process. São Brás de Alportel offers an example of a consultative process. Decisions made under this process have the status of recommendations to the municipal government, with no binding power. It also offers the example of a procedure which was launched as a result of a EU-funded project, under the EQUAL programme. There are no territorial criteria for the allocation of investments, nor election of delegates. This experience is mainly defined as a mechanism for the empowerment of local populations. Both Seville and São Brás de Alportel have specific participatory budgeting processes involving children and young people.

These cases allow us to show how municipal experts and staff and citizens interact and work together to redefine what "needs" and "priorities" mean, how they are assessed, what types of inequalities are present in the community, how to describe and compare them and how to act in order to address them through the redistribution of resources. Decanonization of economic, sociological and administrative knowledges becomes possible, through a triple dynamics of recognition of local or experienced-based knowledge and of its relevance, of the sharing and collective appropriation of specialized forms of knowledge and of the collective production of the capacity for public participation and decision-making. Participatory budgeting may thus be regarded as a resource for the promotion of both social and cognitive justice, as a tool for addressing social and economic as well as cognitive inequalities, through the enactment of accountability systems which go far beyond the traditional one-way systems.

Public health and environmental justice

This part of the report focuses on the definition and implementation of health and environmental public policies in the Brazilian context. In recent years, health promotion became the cornerstone of the whole design and implementation of policies in the field of health. In a society displaying huge inequalities as is Brazilian society, however, the implementation of a comprehensive health policy aimed at ensuring health care for all citizens proved to be a huge task, its successes being unevenly distributed across the national territory. The decentralized and place-based design of the health system — which rests largely upon the provision of care and the promotion of health at the municipal level — made it easier to identify regional and group-based inequalities in health conditions and in access to health care. These inequalities are class-based, disproportionately affecting low-income or poor populations; they are associated with exclusion — of the homeless, especially of children —, and with ethnicity and race, especially in the case of indigenous populations. There is a strong association between inequalities in health and access to health care and situations of environmental racism – which was the trigger for the rise of movements for environmental justice. These situations generate specific forms of vulnerability which are not adequately addressed through "downstream" provision of health care or through more traditional approaches to preventive medicine. As a response to these situations, a range of initiatives was launched, some of them originating in health professionals and health institutions, others in popular mobilizations and movements or in a convergence of both. These initiatives provide exemplary instances of the complex co-production of the cognitive-scientific, the social and the political, explicitly addressing issues of inequality as these are revealed by the violation of the right to living in a healthy environment.

Cases selected display specific configurations of public knowledge-making and forms of publicly accountable interventions addressing problems that affect in an unequal way different sectors of the Brazilian population and generate different profiles of social and institutional vulnerability.

The creation of the Single Health System (SUS) may be regarded as part of a political, cognitive and institutional project aimed at promoting equal access to health and the conditions for a healthy living for all citizens. The case on the control of endemic diseases – taking as example the case of dengue – shows the way the system works – or does not work - to address unequal vulnerabilities. Finally, the case of imported retreated tyres displays the complex configurations of actions developed to deal with a threat to environmental health associated with international trade.

1. INTRODUCTION

The ResIST project has as its aim the assessment of the relationship between science and technology and the ways in which these influence the broadening or mitigation of inequalities. Although the project takes as its focus the currently hegemonic forms of knowledge, this part of WP3 explores other configurations of relationships between knowledge and inequality, with a focus on forms of knowledge which are usually excluded or at best marginally taken into account when dealing with so-called knowledge economies or knowledge societies.

The approach taken here is based on the assumption that there is more to knowledge than what is revealed by a focus on scientific and technical knowledge. Local knowledges, indigenous knowledges and knowledges associated with specific situated practices are themselves related in a variety of ways to various forms of inequality. Indeed, one of the main assumptions of this approach is that these various forms of knowledge are central to any effective mode of addressing inequalities. The recognition of the heterogeneity of knowledges and the corresponding expansion of what counts as technology is constitutively linked to the critique of what Callon, Lascoumes and Barthe (2001) called "double delegation", that is, the process of transferring the power to decide from citizens to political officials and administrative experts as those capable of making appropriate decisions in the political and administrative field, and to scientists and experts for those issues involving matters requiring some kind of specialized knowledge. The

crisis of this model of double delegation, which is one of the pillars of liberal democracies, has been intensified by the growing difficulty of politicians, administrators and experts in providing effective responses to successive crises affecting different domains of public policy, including health, environment and urban planning and management.

The answer to these crises has been the multiplication of experiments with participatory democracy and collaborative knowledge production, involving citizens and their organizations and movements in the debate, design, implementation and control of different types of public policies. These experiments have, in some cases, been incorporated into the regular political process, generating new forms of making political action publicly accountable. Not all experiments have succeeded in going beyond, at best, elaborate forms of public consultation. But taken together they provide a picture of innovative attempts at dealing with inequalities through the empowerment of citizens, including their cognitive and technical empowerment.

The case studies included in this part of WP3 thus address the emerging configurations of citizen empowerment through both the recognition of knowledges "other" than scientific and technological knowledge and the capacity to put to practical use the latter forms of knowledge. The capacity to effectively address inequalities through new forms of citizen engagement thus depends, on the one hand, on the design and implementation of specific forms of framing what a "citizen" is and what "participation" means, and, on the other, on the appropriation by citizens thus defined and their movements and organizations of the knowledge resources allowing them to promote sustainable and socially and environmentally just policies. The success of these forms of citizen engagement further depends on the creation of "strong" or "high intensity" forms of both democracy and public accountability. The latter may be adequately described using the concept of social control.

2. PUBLIC KNOWLEDGE AND POLITICAL AND SOCIAL TECHNOLOGIES

This part of the Work Package deals with the relationship between forms of public knowledge and political and social technologies aimed at the reduction of inequalities. They embody "high intensity" forms of public accountability, which have been described by institutions and actors involved as forms of social control.

Our starting point was the identification and characterization of procedures which allow new forms of public knowledge to be collectively produced through the active engagement of citizens, public policies to be formulated and enacted through participatory and collaborative processes and forms of accountability of the effects or consequences of these forms of knowledge and policy making for the reduction of inequalities. The considered policies are those public policies "constitutively" involving the mobilization of scientific and/or technological resources or of specific kinds of expertise, as is the case of environmental, health, and urban planning policies. The procedures targeted here are those which have as their stated aims the promotion of equality or the reduction of inequalities.

The cases provide inroads into how the making of public knowledge and public policies addressing issues of inequality is articulated and enacted in specific settings.

The overall design of ResIST involves the definition of a common vocabulary and grammar for dealing with equality/inequality, science and technology and with other topics specific to the different work packages, as is the case, for

WP3, of accountability. We propose here an extension of this approach, which we describe as "grammatical" - drawing on the work of cultural critic Kenneth Burke (1969) and on recent contributions to European sociology, such as those by Luc Boltanski and Laurent Thévenot (1991) – to include the identification of vocabularies and rules for producing certain types of statements as they can be abstracted from a corpus of theoretical or technical documents, or from a range of materials including accounts of experience of actors, documents, observation or historical materials produced through different forms of fieldwork or of empirically-oriented work. The cases selected thus display a diversity of grammars arising from the engagement with different actors' definitions, accounts and performances as they emerge in specific settings and as constitutive of particular courses of action. The "grounded" inquiry on the diverse vocabularies or repertoires of action allowing for the elaboration of situated or context-specific grammars is likely to generate tensions between the stated theoretical and conceptual aims of the project as a whole and the capacity to respond to the complexity of the field. We believe that this tension may be highly productive and provide useful tools for the improvement of the general theoretical and conceptual framework

In the following paragraphs, we offer a general overview of the approach we have taken to the two sets of case studies.

2.1. Knowledge and technology

Just as Part B of this WP has broadened the notion of what counts as technology through a focus on "mundane" technologies, we intend to expand even further, in this Part, what counts as knowledge. The forms of knowledge dealt with in the case studies that follow may be described as public knowledge, produced in public settings or public spheres through the collaborative or agonistic engagement of a range of institutional and social actors. These include knowledge about the economy, urban planning, the identification and recognition of forms of inequality, health problems and

determinants and environmental issues. Knowledge configurations arising from these public engagements are characterized by the heterogeneity of the forms of knowledge, languages and practical skills brought to debate and decision-making by a broad and diverse range of actors. They are based on the claim for their mutual recognition as a matter of social and cognitive justice. The production and social use of these configurations of knowledge is inextricable from the specific social and political technologies which define who is entitled to come forward with claims and participate in the discussion, elaboration, enactment and monitoring of proposals in the relevant domains of public policy. This means that we take both knowledge and technology in a very broad sense.

2.2. Inequality

Drawing on the general framework of this project, we may define the forms of inequality directly addressed through the above mentioned knowledges and technologies as forms of distributional and representational inequality. This definition, however, does not fully capture a tension that runs across these initiatives or experiments. We may express this tension through what we acknowledge as an ideal-typical opposition: in some contexts, associated with what might be described, in general, as liberal democratic political programs, participatory and/or collaborative initiatives of the kind approached in this set of case studies fail to address the issue of structural inequality. Their condition of "supplements" to the liberal democratic order based on representative institutions and on the unchallenged pervasiveness of a free market capitalism prevents them from moving to the questioning of the causes of structural inequality, thus turning participation and the collaborative production of knowledge into exercises in cooptation.

Distributional inequality encompasses a range of issues related mostly to the workings of markets. As is widely acknowledged, markets do not address questions of equity. Under market principles, products and services associated

with S&T are unequally distributed, favouring the wealthier sectors of the population. Under these conditions, the public sector is expected to address and redress the unequal distribution of the costs and benefits associated with S&T.

A further dimension of inequality is structural inequality. This has to do with questions of gender, race and class and with institutional arrangements which characterize many national and regional innovation systems. In other words, scientific and technological capacity is unequally distributed across regions of the world, but also within specific societies, across regions, places, neighbourhoods classes or groups defined according to different criteria, such as class gender, age, race/ethnicity and others.

The last dimension is related to inequalities deriving from the under-representation of groups affected by developments associated with S&T. These include minority groups, the poor, rural dwellers, etc.).

Drawing on this general framework, we might describe our approach as dealing, first, with initiatives addressing representational and distributional inequality. But under some political conditions, they may as well become challenges to structural inequality.

This framework provides some tools for the exploration of the issues raised in this part of WP3. There are, however, at least three aspects setting some limits to its adequacy:

a) The first question has to do with the very concept of knowledge the framework rests upon. This concept tends to focus on dominant forms of scientific and technical knowledge. Within this WP, a broader understanding of what counts as knowledge is proposed, so that "other" forms of knowledge, and in particular those associated with the poor and with "lay" citizens, are contemplated, as well as their articulations with scientific and technical knowledge. Inequality cannot be adequately addressed without addressing cognitive inequality. The same remarks could be made on the privilege accorded to so-called "material" technologies, ignoring what we call social or political technologies.

b) A second question relates to the tendency to link inequalities to formal institutions and policies and associated processes. This leads to the dismissal or neglect of processes of knowledge production and policy-making which take place in other settings and are likely, under certain conditions, to influence the formal processes of decision-making and knowledge-making. The cases of participatory budgeting and of some of the health initiatives studied in this WP provide exemplars of these "other" processes.

c) Finally, there more attention should be given to how inequalities are experienced. This is crucial to the reconstruction of the "grammars of inequality" which provide vocabularies and modes of justification to those who are affected by or suffer under different forms of inequality.

The case studies included in this part of WP3 offer a complementary view to the general analytical framework of the Project, by focusing on the political and procedural aspects of experimental initiatives addressing inequalities and promoting alternative configurations of knowledge.

In other contexts, associated with projects of high-intensity democracy (Santos, 2006) and solidaristic approaches to economic, social and institutional reform, these experiments appear as exemplars of alternative forms of citizen engagement in the making of both public knowledge and public policy. Their horizon is the transformation of the existing social and economic order through democratic, collective action.

The empirical settings we have studied are run through with this tension. In some cases, the same experiences may point towards one or the other direction, depending on the specific political situation. In others, institutions are themselves fields of struggle, with some sectors or departments displaying a stronger commitment to one or the other type of project.

A final note should be left here on the relationship between inequalities and inequities as seen through these case studies. Although analytically inequality and inequity may be considered as different ways of addressing the same

phenomenon, it is noticeable in the settings we studied that actors do not treat them as separate. Inequality has a high moral charge. It is not only undesirable, but its radical reduction is regarded as a prime objective of all political action. The specific operations through which inequality is constructed as a target of particular public policies are a central topic of the case studies.

2.3. Accountability

Part I of WP3 provides an extended discussion of the conceptual aspects of accountability. In this Part, we intend to explore some of the ways in which accountability as a practice is enacted in relation to processes and settings where inequalities and their effects are directly addressed through initiatives based on the cognitive and political empowerment of citizens and, in particular, of those most affected by the unequal distribution of material and cognitive resources. Accountability, here, means accountability of practices by those engaged in these practices to those affected by them. It goes beyond the promotion of transparency or the provision of publicly accessible information on the actions of the State, of administration or of other publicly accountable actors. The active engagement of citizens, civic organizations and social movements in the processes described in the case studies pushes existing notions of accountability to its limits, until they become one, in some situations, with what actors describe as social control. The latter, in turn, is constitutively linked to the notion of participation.

In her path-breaking article on participation, Sherry Arnstein (1969) provides an useful framework to situate social control in relation to other forms of accountability. Arnstein's discussion of the "ladder of participation" ranks forms of public engagement from "manipulation" to "social control", with intermediate steps identified as information, consultation, co-optation or partnership. In relation to our concerns, the main point made by Arnstein is that the closer one gets to the top of the "ladder", the more citizens are

likely to increase their capacity to exercise some degree of control of participatory procedures (through influence on agenda-setting, involvement in deliberations, capacity to generate binding decisions) and to demand that the whole procedure be accountable to those it is meant to serve. Being accountable in this sense means, among others, providing justifications for decisions and subjecting them to discussion by those affected by them; guaranteeing symmetry or parity of participation for all those affected; defining clear aims for actions and accounting for the success or failure in achieving them; setting up the conditions for the feasibility of these actions through adequate procedures, institutional arrangements and definitions of intermediate and partial goals for the action; and, finally, creating and enacting forms of monitoring and assessment of the implementation of actions and of their outcomes. The broader the degree of inclusiveness in these processes, the more participants will have a stake in ensuring that strategic, procedural and feasibility criteria are clearly defined and subject to recurrent public scrutiny.

In regions like Europe, the separation between institutionalized forms of government and administration and forms of citizen involvement, with some exceptions – namely in participatory procedures associated with urban governance - tends to be strictly enforced. Liberal democracies tend to protect the domain of decision-making from undue "intrusion" by citizens except through strictly regulated forms of participation. This approach is extensive to the activity of certified scientists or experts, thus giving shape to the familiar "double delegation model" (Callon, Lascoumes and Barthe, 2001) of the relationship between politics/administration and science/expertise, on one hand, and citizens on the other. Under this model, citizens are characterized by a double deficit – of political capacity, since they are assumed to be led by private or particular concerns and thus hardly capable of standing for the public good, embodied in the State and in elected officials; and of knowledge, which requires that scientist and experts act on their behalf when technical decisions are at stake. Citizens are thus capable of having opinions, but only through appropriate "education" will they ever be capable of any relevant participation in decision-making. This institutional

architecture has only been marginally changed – except, as mentioned above, in some areas of urban governance - by the recent promotion of more participatory forms of associating citizens with the debate of controversial issues - usually of a formally or *de facto* consultative nature. A more detailed analysis of the constitutive relationship between political-institutional architectures, political projects and participatory initiatives is beyond the scope of this report. But it is instructive to draw on some of the results of recent research on countries in Latin America who have undergone democratic transitions and have rebuilt their constitutional architecture from the 1980s to the present. Some authors have drawn attention to the way the use of words such as democracy, participation or accountability may conceal significant differences in their relationship to specific political projects, endowing them with diverse and often contradictory meanings and leading to significantly different outcomes. The case of Brazil which provides most of the case studies included here, is, from that point of view, of particular interest. To make a long story short, the process of democratization in Brazil in the late 1980s, in the wake of the military dictatorship, had a high point in the 1988 Federal Constitution, which contemplated public participation as an integral part of the new democratic order. This provided the basis for a number of innovative institutional experiments of a participatory nature, some of which will be discussed in detail in the following sections. The formal recognition of participatory procedures as part of the routine instruments of democratic government was to a large extent the outcome of a strong and very active civil society, mobilizing a wide range of sectors of Brazilian society, including those most affected by different types of inequalities. The degree to which "strong" forms of participation were actually implemented varied depending on specific issues and settings. But the constitutional and legal recognition of the right of citizens to be involved in decision-making in relation to issues affecting their lives and well-being nonetheless provided leverage to those who regarded inequalities as a problem to be addressed

through political action, rather than as an irremediable, if not desirable feature of a "modern" society.[1]

It is against this background that "strong" or "high intensity" forms of accountability have surfaced, under the label of "social control". The concept of social control is hardly found in the vocabularies of accountability with currency in Europe or in North America. Let us look at one definition:

> [Social control] was a conquest of Brazilian civil society. It should be understood as an instrument of democracy. The assumptions underlying it are the development of citizenship, the construction of democratic spaces, the benefit for the whole of society and permanent action.
> Democratizing the State means acknowledging that in our society different and contradictory interests exist. This acknowledgment is materialized in the constitution of channels and/or mechanisms/instruments which facilitate the expression of those multiple claims and in spaces for the negotiation of alternatives for action and solutions taking them into account. (ConSaúde, nº1: 7).

A member of a Municipal Health Council provided a more concise definition:

> For us, social control […] is understood as control over the State by Society as a whole, organized in all of its segments. (MRCMSBH, 189-190)

Social control is thus a process which has *society* as its main protagonist, *the State and its action* as its focus and the *promotion of democracy* as its aim.[2] How does it relate to what is more commonly described as accountability? Social control requires, first, that the existence of different and conflicting interests in society be acknowledged. Secondly, that "channels" and spaces allowing the expression and confrontation of these interests be created; and thirdly, that these different interests engage in an exercise of negotiation or composition of adequate solutions to the problems brought to public debate. The pervasiveness of the vocabularies of "interest", conflict and difference signal the prevalence of what may be described as an agonistic approach to democracy and, as we shall argue next, to accountability.

[1] See the contributions to Santos, 2006; Dagnino, 2002; Dagnino *et al* (eds.), 2006

[2] We shall leave aside, for the moment, the contested nature of the terms society, State and democracy and of their framings as part of the procedures associated with or identified as social control.

Whereas the State (and its actions) is regarded as the main target of control, the creation of public spaces which allow a diverse and conflicting civil society to find room for expression, for confrontation and for negotiation place civil society and its protagonists squarely at the centre of a process whereby public actions are no longer the sole province of the State, but rather of configurations of actors which have as their main aim the promotion of democracy. The exercise of control over the actions of the State becomes, under these conditions, a collective exercise of control over the public action of a heterogeneous civil society articulated with the State through specific "channels", including the institutional innovations described in the following sections. Some social and political scientists have labelled these innovations as forms of non-State public spheres (as was the case with participatory budgeting), whereas others have placed them squarely within the institutional architecture of the State (as happens with Health Councils in Brazil).

Whereas more conventional conceptions of accountability assume a well-established distinction between, for instance, the public institutions or bodies subject to accountability and the subjects they are accountable to, social control requires citizens to be both part of the actions to be accounted for and part of those they are accountable to. In short, social control redistributes responsibility for action from the State to new configurations of State and civil society, at all stages from deliberation to evaluation.

2.4. A brief review of current debates

The cases presented here provide inroads into how the making of public knowledge and public policies addressing issues of inequality is articulated and enacted in specific settings. Cases on participatory budgeting processes offer an analysis of how urban planning policies may 'constitutively' involve the mobilization of scientific and technological resources, as well as other kinds of expertise, in the domain of urban planning policies. The second set of cases deals with health and environmental policies. Both sets of cases focus

on initiatives which include in their framings an explicit commitment to the promotion of equality and/or the reduction of inequality.

The cases selected are themselves instances of a number of debates with a broader scope and significance, which we briefly summarize in the following paragraphs. Some of these debates explicitly address concerns at the core of this project and of this work package in particular. These debates are briefly described in the following paragraphs.

a) Equality and inequalities

How are equality and inequalities defined by participants? What counts as inequality? For whom? How does it relate to conceptions of justice? Which inequalities (or degrees of inequality) are seen as (in)compatible with justice as it is framed by actors? Should there be distinctions between inequalities related to problems of redistribution, of recognition and of parity of participation? How do actors frame and formulate these issues?

What difference does it make to:

- focus on *inequalities*, their identification/description and analysis (regarded as the proper focus of social scientific work) and the reduction or mitigation of inequalities as they are linked to S&T as a policy objective, or
- focus on *equality* as the very condition of political action and as the main claim associated with the irruption of the "unaccounted for", of the emergent or "orphan" collectives in the public space?

Are there differences (and what are they) between promoting equality and promoting policies for the reduction of inequalities? How does the active promotion of equality as a key feature of political participation and of the irruption of the demos as a force (Rancière, 1995), i.e., as a condition of "naming" those that are excluded or unaccounted for in the formal political space, differ from policies or actions aimed at the reduction of inequalities

which do not challenge the very existence and fairness or justice of these inequalities?[3]

b) Inequality versus difference

Some approaches to inequality have proposed a distinction between inequality and inequity. The former would refer to a descriptive approach, the latter to a normative approach.

A question that arises in relation to this distinction is whether all inequalities are undesirable or have consequences which are considered as negative. There is no simple answer on this. There have been proposals for treating inequalities as by definition implying consequences that are regarded as undesirable, whereas the notion of difference would allow for positive description of distinctions which would not be regarded as negative (Santos, 1999, 2001; Fraser, 2003).

Political action aimed at addressing issues of inequality would be of a redistributive kind, whereas political action aimed at dealing with difference would be guided by the principle of recognition.

c) Science, technology and knowledge(s)

What do science and technology cover? High-tech, specialized knowledge? Emergent forms of scientific knowledge and technology? Knowledge in the broad sense, including scientific and technical knowledge as well as professional, local and everyday knowledge? Should technology include not only cutting-edge and emergent technologies, but mundane or broadly shared technologies as well? How do different participants define science, technology and knowledge?

Configurations of knowledge associated with situated responses to inequality should be regarded both as resources for processes of empowerment and

[3] An interesting reflection on these issues can be found in Panfichi and Chirinos (2002).

capacity building of citizens as well as an aim of these processes (Santos, Nunes and Meneses, 2004).

It should be recalled that, differently from 'material technologies' which, as stated by Testart (2006), cannot be 'uninvented', political and social technologies like some of those examined in the case studies are always subject to being reshaped and reframed, even though their consequences may be robust and long-lasting.

d) The debate on democracy

Current debates on democracy and on the problems of "democratizing democracy" include the following issues:

- the pathologies of democracy, specified as pathologies of representation and pathologies of participation;
- the attempts at articulating delegation and dialogism, as has been attempted in European countries, through extension of public consultation and deliberation and their incorporation into existing formal political systems;
- the dispute between a "low-intensity" model of democracy associated with neoliberalism and a democratic-participatory conception, which defines the current political dynamics of regions such as Latin America, but which seems as well, although taking different forms and drawing on different vocabularies (such as delegation *versus* dialogism or representation *versus* participation) to pervade current debates and political experiments in Europe and in North America.

For minimalist or "low intensity" conceptions of democracy, usually associated with neoliberalism, the assumption is that there is one inescapable, global model of economic organization which sets constraints to any political process, thus narrowing down the very possibility of choice which is claimed to be central to the competitive dynamics of this type of democracy. Under these circumstances, the definition of a set of formal, procedural rules and institutions that guarantee them are seen as constituting

democracy. Accountability then will mean, above all, electoral and judicial accountability associated with the respect for procedures and information to the public. Although outcomes (of policies, of government) should be relevant, the reference to constraints beyond the possibilities of political action actually reduces their significance. In fact, governing against one's own electoral program is often celebrated as evidence of "realism", "responsibility", etc. "Civil society" is reduced to a "third sector" which takes over many of the policies formerly associated with the state, all in the name of efficiency and cost-effectiveness.

For the democratic-participatory currents, the possibility of change based on the active engagement of citizens in public life means that there are possibilities of participating in the shaping of alternative modes of organizing economic and social life, and participation becomes a central issue in the dynamics of democracy, a means of broadening and strengthening it. Accountability is based not just on following formal rules and procedures, but on outcomes as well, on how public institutions, governments and other actors actually achieve democratic aims. The creation of spaces for the engagement of citizens in the definition of policies and their assessment is a mode of articulating procedures and aims. The political philosophy of liberation (e.g. Dussel, 2001) provides some guidelines on the ways in which three key issues have to be kept together in this approach to democracy:

- the horizon (of equality, justice, etc.) of the possibility of "another world". This approach takes equality seriously, in that it sees its achievement as a goal;
- parity or symmetry of participation, that is, the creation of procedures allowing heterogeneous actors to become active and engaged. This requires dealing with the heterogeneity of knowledges, speech skills, modes of expression, the creation of a diversity of public spaces, etc.
- the definition of viable policies that take into account the situation, but never lose sight of the strategic horizon above stated.

A crucial move here, inspired by a number of authors, ranging from Foucault (1975, 2004a and 2004b) to Santos (2006), Dagnino *et al*. (2006), and others,

is to approach the State as the heterogeneous outcome of a complex history, which can be captured only through an archaeology of the State (allowing access to the different strata that have emerged at different historical moments) and a genealogy of the State through a reconstruction of the attachments that have allowed different parts of the State to emerge within specific configurations of links to a range of entities and actors. Experiments in the creation of new public spaces allow heterogeneous publics to meet, debate and eventually deliberate, and to engage with a similarly heterogeneous State, exploring the possibilities opened up by the convergence of political projects within this heterogeneous State and as they are enacted by societal actors. The issue of cognitive justice (which, in the language of STS, would mean engaging critically with the different versions and guises of the "deficit model"), is a crucial link between issues of social and political inequality and cultural and cognitive inequalities.

e) The debate on citizen action

Citizen mobilization and collective action play a very central role in promoting social and cognitive justice. Whereas the neoliberal model and the deficit model of public understanding of science treat collective action as a threat to or disturbance of the democratic order, the democratic-participatory approach treats it as the very condition of democracy, of the irruption of the *demos* in public space.

As various cases in Latin America show, democratization is dependent on the existence of a strong mobilization of society through associations or movements, but also on the convergences between political projects within both state and civil society (both conceived as heterogeneous configurations of actors, institutions, projects, processes, etc.).

In Europe, two broadly different approaches (variable across countries) seem to point towards diverse ways of relating the State and citizen action. In Northern European countries, citizens tend to be integrated into State-sponsored or -driven processes of consultation and/or deliberation, with variable outcomes as far as their influence on public policies goes. In Southern

European countries, the principle of double delegation (Callon *et al*, 2001) is enforced mostly through discretionary modes of governance, with some space for market and educational modes (the latter especially relevant for the creation of the new interactive subjects, as Andrew Barry (2001) has described them. Science museums and science centres play a very important role, here).[4] Protest and collective action, especially at the local level, become the main form of citizen engagement with public policies and their outcomes.

Whereas in the former model the notion of "upstream engagement" may contribute to displace the traditional distribution of roles and the very workings of accountability procedures as they are carried out within strictly delegative models, the latter is usually based on responses to policies at an advanced, often irreversible stage, thus shutting off citizens from any possibility of contributing to the design or implementation of these policies. Conceptions of the expert/lay divide are correspondingly different, although in practice this correspondence cannot be taken for granted.

f) The co-production of knowledge and social order

There is a limitation in most approaches to the democratic-participatory alternatives to neoliberal conceptions of democracy: the lack of adequate engagement with double delegation. The differences between political and cognitive delegation are not explicitly recognized in most accounts, so there is often an inadequate understanding of how a heterogeneous State, a heterogeneous civil society and heterogeneous spaces of science and expertise intersect and articulate configurations of projects and trajectories associated with the co-construction of the political and the scientific-technological. The challenge here is to extend, expand and complexify the critical approaches to democratization and political processes that have

[4] We are drawing here on the typology of modes of governance of science and technology proposed by Hagendijk and Kallerud (2003) as a contribution to the EC funded STAGE — "Science, Technology and Governance in Europe" Project. The authors have identified a typology of modes of governance, which includes: discretionary governance, educational governance, deliberative governance, corporatist governance, market governance and agonistic governance.

emerged since the 1990s, both in the North (namely Europe and North America) and South (namely Latin America). Crises that reveal the lack of response of the institutional architecture of double delegation to health and environmental hazards, to industrial accidents or to uncertainties associated with scientific and technological innovations are privileged entry points for the exploration of contested vocabularies, grammars and critiques of accountability (or failures of accountability).

The issue of how S&T modify this picture or complexify it should be central. The key role of mediations, such as different scientific and technological entities, health or environment, for instance, may be approached through, for example, actor-network theory (ANT) or co-productionist frames. The issue of accountability requires, here, that topics such as the emergence, coexistence, articulation or confrontation of civic epistemologies (Jasanoff, 2005) be included as a key part of the study.

2.5. Reconfiguring processes of knowledge construction and inequalities

The question of inequality has often been included in general political programs or manifestoes or in policy statements. These references to inequality are often presented as if responses to inequality were to be regarded as outcomes of policies or actions with different aims and purposes. The reduction of inequality and any redistributive effects would thus be by-products of investment or growth.

In most cases, however, it is hard to understand how this issue can be addressed in such a way as to make it publicly accountable both in terms of its processes and in terms of its outcomes.

A range of initiatives that have emerged over the last decades have brought again to the centre of policy and public action the concern with designing specific interventions explicitly aimed at achieving redistributive effects and promoting capacity-building and empowerment among citizens. These initiatives are often local and they involve a collective mobilization and

participation of citizens in different types of fora, deliberative spaces and collaborative research and action. Urban government and decisions concerning the definition and implementation of urban policies, debates and decisions of distribution of municipal budgets, collective mobilization and alliances with experts and officials to address health and environmental issues or different kinds of social problems provide exemplary instances of the potential as well as the limitations of action aimed at addressing inequalities and promoting redistribution in ways that are publicly accountable.

There are four conditions which have to be fulfilled for these experiences to have redistributive and empowering effects and be evaluated through citizen participation and scrutiny. These four conditions are:

1) the explicit definition of the strategic aim of addressing and reducing inequalities and/or actively promoting equality through citizen empowerment;
2) the design of participatory procedures characterized by symmetrical conditions of engagement of all those concerned or affected by the issues under discussion;
3) the definition of viable or achievable aims which can be subject to scrutiny and criticism by those concerned or affected and whose results can be evaluated for their outcomes in terms of redistributive effects and empowerment;
4) these processes require the development of a collective critical capacity which depends on the shaping of configurations of knowledge based on the articulation of different forms of expert and local knowledge.

The case studies selected suit these four conditions. Case studies on participatory budgeting processes include a number of situations and processes across three countries and two continents, which allow for a detailed study of the ways in which accountability procedures are organized and enacted in relation to public policies with constitutive attachments to

specific configurations of knowledge. These cases were selected from Portugal, Spain and Brazil.

Portugal offers a case of strict (though strongly asymmetric, since expertise is often subordinated to political agendas) double delegation (Callon *et al*., 2001), based on a predominantly discretionary approach to governance, "tempered" by educational, market and corporatist contributions, confined deliberation (Parliament, elected assemblies and bodies and some advisory councils) and faced with public protest, mostly at the local level, as the expression of agonistic responses to situations identified with injustice. Under these conditions, formal accountability procedures actually shut off citizens and are a matter for experts and officials. We shall explore an experiment in mobilizing expert and local forms of knowledge in the context of participatory procedures, such as participatory budgeting, more specifically that of São Brás de Alportel (Southern Portugal). The interest of this case lies in the challenge – even if limited – it raises to the prevailing discretionary mode of governance in Portuguese society, and in its exemplary status as a display of the potentialities and difficulties of generating new knowledge configurations associated with the search for more equitable public policies.

Spain displays a range of interesting experiments in urban government and knowledge-based policy-making. The case of Seville, in the region of Andalusia, will be examined in detail. Seville, again, hosts a set of citizen initiatives and an experiment in participatory budgeting.

Brazil offers a significant number of participatory initiatives articulated with representative institutions, and a continuing tension between popular movements and associations and the state. It also provides interesting examples of active engagement of experts and expertise with citizens in areas directly relevant to the issue of inequalities. Participatory budgeting provides a privileged entry point into these initiatives. This will be focused on the case of Belo Horizonte, located in the State of Minas Gerais.

Case studies on public health and environment examine initiatives in health promotion and environmental justice which provide instances of the complex co-production of the cognitive-scientific, the social and the political in the

context of Latin America. These cases offer exploratory approaches to the conditions and processes of co-producing knowledge and social order in the field of public health.

All cases are privileged entry points to the analysis of accountability systems through the identification and characterization of experimental initiatives in capacity building and priority setting aimed at remediating inequalities. A range of key questions will provide the basis for cross-case comparisons:

- How do these initiatives contribute to the production and mobilization of knowledge(s)?
- Is there a division between expert knowledge and lay knowledge?
- Are the types of knowledge mobilized in these processes shared by all the actors involved? And what does "sharing" mean?
- How inequality problems/issues are dealt with?
- What are the main areas of intervention in each process? How are these areas discussed?
- How are priorities defined?
- How are "citizens" defined and how is their participation framed?
- How are redistributive issues identified and how are they translated into the processes?
- How are these initiatives designed?
- How do they promote a balance between knowledge(s) and rights?
- How is a "problem" defined? How do these processes establish a balance between problems defined in a top-down way and those defined in a bottom-up way?
- How is the dimension of social justice incorporated into these processes, and how are redistributive effects identified and assessed?
- How are the outcomes translated into public policies?
- How to define and assess capacity-building in each of the processes?

2.6. Methodology and research design

The methodological approaches to the case studies were designed to strike a balance between the specificity of each case study and their integration through comparison. A range of cross-cutting questions were formulated as a set of guidelines for fieldwork, but each case study is allowed to develop according to specific features related both to the setting and to the dynamics of inquiry. A version of the extended cases study approach (Burawoy, 1991 and 2000) was thus developed, with some modifications, to allow for the detailed investigation of what we have called the "grammars" of inequality and accountability in each setting. The approach can be described in general terms as ethnographic, based on detailed and "thick" descriptions of the cases. Several techniques and methodologies are combined in this approach, including fieldwork — based on trips to field-sites, engagement with actors and observation —, interviews and documentary analysis. For each case, a detailed study of the historical background based on a literature review and on available materials, such as reports, was carried out.

When possible, fieldwork was organized so as to allow the participation of members of the team in key moments of the processes under study. When this proved unfeasible, semi-structured interviews with key-actors were used as the central procedure in empirical research.

For the first set of cases — on the ways in which accountability procedures are organized and enacted in relation to public policies with constitutive attachments to specific configurations of knowledge — fieldwork trips and interviews were carried out for each case. Team members participated in public sessions and meetings which are an integral part of the different processes. Three cases were selected: the experiences of participatory budgeting in São Brás de Alportel, in Portugal; Seville, in Spain, and Belo Horizonte, in Brazil.

Additionally, a comprehensive literature review on the subject was carried out, focusing on topics such as the history of the participatory budgeting process; information on context; main objectives of the procedures; participants and their functions; the dynamics of the process, etc. This has allowed the preparation and design of the data collection and fieldwork procedures on the case studies.

The second set of case studies focuses on public health and environment. This includes initiatives related to environmental health and environmental justice in Brazil, the definition of public policies on health domains and initiatives in health promotion in Brazil, more specifically on campaigns for the control of vector diseases in urban areas, with a focus on Rio de Janeiro. The initiatives dealt with in these case studies engage with the effects of different forms of inequality on the generation of vulnerabilities in specific populations and on the attempts to deal with these through collective action and collaborative interventions in public health.

As mentioned above, in order to achieve the objectives of the project, the research team has completed fieldwork and interviews. All interviews have been transcribed, documents and materials collected have been analysed.

Fieldwork was carried out throughout the whole period dedicated to the production of the report and included specific fieldwork intensive periods:

- December 2006 | Fieldwork in Belo Horizonte: interviews with informants and participants of participatory budgeting process, and visits to organised local groups, interviews and meetings with representatives from the Municipal Council; interviews with informants and members of the Health Municipal Council of Belo Horizonte, and visits to organised local groups (Marisa Matias)
- January 2007 | Fieldwork in Brazil: interviews with informants, professionals and researchers in health domains, and visits to health related organizations (João Arriscado Nunes)
- January 2007 | Fieldwork in Rio de Janeiro: interviews with members of the Brazilian Environmental Justice Network, and visits to

environmental justice organizations; visit to the Brazilian Environmental Justice Network headquarters and data collection (Marisa Matias)

- May 2007 | Fieldwork in Seville: interviews with informants and participants, observation of the process, visits to organised local groups, attendance of participatory budgeting public sessions, interviews and meetings with representatives from the Municipal Council (Ana Raquel Matos and Daniel Neves)
- August 2007 | Fieldwork in Rio de Janeiro: interviews with informants, observation of the process, visits to health organisations, meetings and interviews with professionals from the Department of Endemics Samuel Pessoa (National School of Public Health/Fiocruz) (João Arriscado Nunes)
- November 2007 | Fieldwork in S. Brás de Alportel: interviews with informants and participants, observation of the process, visits to local organisations, attendance of participatory budgeting public sessions, attendance of participatory budgeting thematic sessions, interviews and meetings with representatives from the Municipal Council (Daniel Neves)
- November 2007 | Fieldwork in Seville: attendance of participatory budgeting thematic sessions, attendance and participation at the delivery of the 2007 proposals (the solemn session was hosted by the Municipal Council and several hundred people) (Ana Raquel Matos and Marisa Matias)

Some of the fieldwork expenses were covered through additional funds from Portuguese and Brazilian Research Foundations, especially those related to fieldwork travel to Brazil.

I.

PUBLIC POLICIES, ACCOUNTABILITY AND NEW KNOWLEDGE CONFIGURATIONS

CASE ON PARTICIPATORY BUDGETING PROCESSES

1. Introduction

As stated above, the first set of cases includes a range of situations and processes across three countries — Brazil, Portugal and Spain — and two continents — Europe and Latin America. These cases concentrate the main debates identified in the previous sections and allow for a detailed study of the ways in which accountability procedures are organized and enacted in relation to public policies. The analysis of knowledge configurations assumes here a central role.

Participatory budgeting processes have their origins in Brazil. Later, different models of participatory budgeting were developed in various parts of the world, namely in some European countries (Portugal, UK, France, Italy, Germany, Spain, among others).

The conditions for the emergence of these types of participatory procedures are linked to the democratization process that took place in Brazil during the late 1980s, with roots in the 1970s. In fact, during this period, there was ground for the emergence of experiences of construction of public spheres and for the extension and democratization of State management. Some perspectives characterize this period as the one of the effective foundation of civil society in Brazil (Dagnino, 2002). The discussion and elaboration of the democratic Constitution (1988) is, by itself, a good example of a participatory process, since citizens were able to propose amendments to be included in

the text. As a result, participation was inscribed as a fundamental right of citizens and participatory spaces were considered as part of the architecture of the State.

In the wake of this process, innovative procedures and experiments were launched in a number of municipalities, involving citizens in decision-making processes related to a range of domains of public policy. The emergence of participatory budgeting and Municipal Health Councils are part of this process.

The neoliberal policies of the 1980/1990s had as a major consequence the broadening of social and economic inequalities, but this did not affect significantly the visibility and vigour of many initiatives of organized civil society.

Democratization was, thus, associated with the construction of a sphere characterized by democratic social practices, the revaluation of an ambiguous cultural tradition concerning democracy, and, finally, the reframing of the demarcation between civil society and State (Avritzer, 2002).

1.1. A brief historical introduction

Direct involvement of local populations in decision-making processes associated with urban planning and public investment, widely known as Participatory Budgeting (PB), has its origin in 1989 in the Brazilian city of Porto Alegre. PB is one of the best known innovations arising from the processes of (re)democratization of the 1980s and 1990s in the global South and in Latin America, in particular. It is part of a broader set of social and institutional innovations which have travelled across different continents and are configuring some types of local responses to what has come to be known as neoliberal globalizations.

The position of Brazil in this process is particularly noteworthy. Brazilian civil society was able to organize and promote a range of forms of collective action and participatory initiatives, starting during the period of the military

dictatorship (1964-1985) and spreading with an unseen vigour during the period of democratization. These innovative experiences were largely fostered by the need to address the huge inequalities which made Brazil into one of the most unequal and unjust country in the world and to fight the forms of violence, exclusion and corruption which prevented access to citizenship for all Brazilians (Avritzer, n/d: 6; Santos, 2003; 417).

It is important to stress that PB has its origin in a historical convergence of popular urban movements and a left-wing municipal administration. Most of the initial experiments with PB were, thus, launched by local administrations of the Workers Party (PT) or by coalitions led by PT. The degree of association with social movements was variable and is itself one of the major variables explaining the differential orientations and success of PB initiatives (Santos, 2003: 415; Wampler, 2000: 3). The later dissemination of PB within Brazil, then other countries of Latin America and, more recently, North America, Europe (especially Spain, Italy, Germany, Portugal, France and the United Kingdom), Africa and Asia is an interesting phenomenon in so far as it allowed PB to be appropriated and enacted in association with different political projects and orientations. In fact, PB has become a procedure welcomed by municipal administrations on both left and right, although under different forms and for different reasons, such as the search for a tighter budgetary control or the fight against corruption, but also the empowerment of citizens or the enactment of redistributive policies.

The original impetus for PB in Brazil arose from the need to incorporate the popular classes into the political process and, thus, revert the definition of priorities in the allocation of public resources which tended to disproportionately favour the urban upper and upper middle classes.

Two of the most striking effects of the first experiments with PB were, first, the growing involvement of citizens from the urban working classes in the process over its initial years (despite some difficulties at the start) and, secondly, the capacity to generate a more rational and equitable sharing of the scarce resources for municipal investment through citizen participation and deliberation (Wampler, 2000: 3).

Over the last two decades, PB became a widely celebrated innovation, recognized by the United Nations as one of the best practices in urban government, and even recommended by the World Bank, as an effective tool for budgetary control.[5]

In the domain of participatory democracy initiatives, Latin America has displayed a remarkable capacity for innovation, inspiring experiments in Europe, which has been replicating and adapting some of those initiatives. It should be noticed, however, that the experiences of PB in Latin America and Europe have different features, partly related to a longer historical experience in the former region and, in particular, in Brazil. Some Brazilian initiatives and that of Porto Alegre in particular, have actually set the standards for many of the experiments with PB throughout Latin America and Europe.

Let us look more closely at some of the features of these processes, more precisely at the way PB in Latin America is articulated with the struggles to address large social and territorial inequalities and promote a more equitable distribution of resources. In contrast, the promotion of PB in Europe has been made mainly by politicians and justified by the need to modernize public administration and local government. (Allegretti e Herzberg, 2004: 18).

PB has been constructed through a long but progressive process, marked by steps forward and back. It has become a landmark in the efforts to promote a more democratic form of governance, broadening the space of citizen participation as we know it. As a tool for public policy, PB has been tightly linked to the need to find effective responses to centralized and opaque forms of decision-making. Against the latter, PB appeared as a practice characterized by transparency, clearly defined rules and deliberative procedures calling on all citizens to intervene in process which make them co-responsible for decision-making in matters of public investment.

[5] In 2007, there were 103 PB initiatives in Brazil and 1,200 across Latin America (Avrizter, 2007:4). Boaventura de Sousa Santos (2003: 453) states that the international recognition of PB experiments is often more related to its perceived technical virtues (efficiency and effectiveness of resource distribution) than to its democratic potential (sustainability of a complex system of participation and distributive justice).

Most of the PB experiences are designed as procedures aiming at the promotion of 'high intensity' democratic practices, involving inclusive citizen participation in public deliberative processes oriented to a more fair redistribution of financial resources (Cunha, 2007: 3). PB processes may also be considered as a response to global processes constraining the reorganization of local spaces (Santos, 2003; Allegretti e Herzberg, 2004), an opportunity to give shape to new public spaces where alliances between State and Civil Society are performed creating a kind of 'instrumental complementarity' (Dagnino, 2002).

Although citizen participation may be regarded as the common theme of PB processes around the world, their heterogeneity in respect of its institutional design, territorial scope and amount of resources allocated to it being one of its most remarkable features (Cabannes, 2007: 8).

1.2. Assumptions and goals of PB

PB processes were created to respond to what some authors have described as the pathologies of representation and of participation plaguing democratic regimes designed according to the dominant liberal-democratic model. The direct participation of citizens in the debate and decision-making on the allocation of public resources was regarded as a viable contribution to the reorientation of social policies in accordance with principles of redistributive justice (Avritzer, 2002: 583), creating opportunities to reverse priorities defined by local governments and administrations, often violating the very criteria of redistributive justice.

The specific goals of PB processes are the following:

a) Empowerment for active citizenship

According to Kliksberg (2007), the forms of popular participation promoted by PB must be considered as a value in itself, and its respect an ethical matter.

Public institutions should enforce the respect for that value, and citizens should develop a new civic sense which is expected to foster the correction of political imbalances through news form of redistribution among groups defined according to cultural and socio-economic criteria (Allegretti e Herzberg, 2004: 6). From that standpoint, PB may be regarded not only as a means for the redistribution of public resources, but also as a new procedure for reallocating power of power. These two processes take place in new public spaces articulating articulate representative and direct democracy (Santos, 2003: 385), allowing each citizen to get involved in public domains which are commonly regarded as the "domains of experts" (Allegretti *et al*., 2008: 2).

The original conception of the process emphasized as well the need to create a new, informed and active citizenship; the rigorous upholding of the principle of transparency; the fight against clientilistic relationships between local populations and political and administrative agents; the struggle against social exclusion; and the struggle against forms of corruption associated with representative democracy.

Participation was framed as a genuine empowerment of the population anchored in more conscious, articulated, informed and critical communities, in order to contribute to the design and implementation of political decisions responding to the needs of populations (Wampler, 2000: 2; Kliksberg, 2007: 569).

b) The Reform of Public Administration

PB was originally conceived as an exercise in the social control of public administration, which entailed "strong" requirements for accountability. This amounted to proposing a radical change in the forms of decision-making in local governments and administrations: the co-production of decisions by citizens, politicians and experts (Gomes, 2006: 16; Kliksberg, 2007: 567). The PB process is also a way of addressing the need to introduce new forms of management of public resources, associated with reforms of public administration based upon a reorganization of the local political system and

public administration according to a participatory logic (Wampler, 2000: 2; Allegretti *et al.*, 2008: 3; Kliksberg, 2007).

An alternative way of framing the desirability of introducing PB into local administrations, which can be found in some European experiences is to regard the involvement of citizens in decision-making on the use of some types of public resources as a means of redistributing the responsibility for the financial management of municipalities, especially in periods of financial squeeze.

c) Promotion of social justice promotion and the struggle against inequalities

PB processes are a means of political action to directly address inequalities. This is to be achieved through the design of procedures allowing citizens to identify priorities related to public investment and needs of particular groups or populations on the basis of agreed upon criteria and, eventually, to reverse these priorities o the basis of their comparative assessment of these needs and priorities. In so far as criteria endow the most vulnerable groups with greater visibility, PB has proved to be an effective tool for the implementation of redistributive policies (Wampler, 2000: 2; Santos, 2003: 285). One of the main features of PB is the way it builds into the same process ways of addressing distributional and representational inequalities which, in fact, are regarded as mutually constitutive. This is achieved through mechanisms which make the links between redistributive outcomes and participation visible.

d) Planning of the urban space

PB is part of the repertoire of procedures associated with territorial planning. The process itself requires the active engagement of participants in decisions which amount to contributions to the reassessment and, eventually, redesign of existing planning instruments. Since PB involves decisions on investments in infrastructure, its influence on the (re)design of urban spaces is likely to be considerable and responsive to the collaborative definition of collective

needs. The redistributive orientation of PB also means that principles of social justice are a constitutive dimension of these relationships (Gomes, 2006:8).

1.3. Consultative *versus* deliberative forms of PB

PB processes are means of producing legitimate political decisions. The influence of PB on local governance is achieved through a continuous process of interactive learning about problems and solutions, a form of "civic discovery" (Fischer, 2000). In this sense, PB represents not only a participatory space but also a deliberative space where decisions are made and expected to be binding on the actions of local policy-makers.

The enactment of this capacity for the production of binding decisions is far from simple. Although the existence of internal regulations of the processes co-constructed by the various actors involved, most of the processes take place without being formally institutionalized, on the basis of political commitments by local governments, organized civil society and citizens to keep the process alive. This is taken by some commentators to be a strength of the process (you have to be committed to it and participate for it to survive), other consider it a weakness, putting the process at the mercy of changes in the composition of local governments following elections.

Since the lack of institutionalization is the rule for most experiences, it is important to identify some of the conditions which allow PB processes to be enacted and to achieve their democratizing and redistributive objectives:

a) Deliberations are explicitly oriented towards the reduction of inequalities.

b) Deliberation may have a "demonstration effect", persuading potential participants, especially members of more vulnerable groups, to join a procedure with significant redistributive effects which will be all the more effective the more those claiming for redistribution of resources participate in that procedures. In other words, there is a strong link between deliberations

which address distributional inequalities and a procedure which addresses representational inequalities

c) The proposals debated in PB processes have to be duly justified in order to demonstrate that they respond to some collective need and not to particularistic interests;

d) Accountability, like decisions, is co-produced through participatory procedures and involves both local government and administration and the cItizens who participate;

1.4. Actors and relations

PB processes implies the redefinition of the relationship between State and civil society at the local level, aiming at the (gradual) reconstruction of trust in the democratic system (Allegretti e Herzberg, 2004: 13). The different actors involved in these processes approach them with specific interests, but the dynamics of the processes reshapes their interests and redefines their identities.

Local Political actors

The enactment of PB depends on the political commitment of local political forces and agents. The shape of each particular experience of PB will depend on how political projects dominant at the local level (but also broader commitments at the national and global levels) frame citizen participation and redistribution as political means or as political goals. Local political forces committed to the promotion of transparency in administration and to the fight against corruption and bureaucratic tyranny and inefficiency, or defining inequalities and the political alienation of citizens as two of the main issues they have to address are more likely to converge with other forces in local society interested in the implementation of PB.

The citizens

Within PB experiences, citizens are defined, in a broad way, as either residents in a given territorial unit or registered voters. This, however, does not yet constitute the citizen as a participant in the process. Attendance of assemblies is required for the citizen to become a *participant*. The *participatory citizen*, however, is the one who actively engages in deliberation, and who is willing to take up responsibilities as a delegate elected in an assembly. The procedural norms of PB as a deliberative process rest upon the principle that every participant has the same weight and the same rights as any other. Voting is based on the principle "one person, one vote", thus formally allocating the same weight and influence on outcomes to all those who participate. Although the formal procedures defined for PB do not guarantee that formal symmetry or parity of participation will be translated into substantively equal opportunities for voice (due to availability, material or culturally-based inequalities, rhetorical and communication skills, etc.), the fact of PB being a process designed as cyclical provides citizens with the opportunity to learn how to become participatory citizens through the very practices of participation.[6]

The PB also provides opportunities for participants to understand the complex modes of functioning of the political machine. Information on the latter (including technical and legal information) is made available as part of the process (Wampler, 2000: 19). A possible consequence of this would be the opening of the "political black box".

Citizens are thus provided with the opportunities and the means to engage in horizontal platforms of popular mediation/representation in the relation with the political sphere. These horizontal experiences have been described as forms of "interest purification" (Boschi, 2005: 195). For citizens, PB may thus provide a springboard for accessing decision-making procedures related to the investment of public resources.

[6] Some PB processes allow not only individual participation, but also the representation of associations.

Associations

Local associations have great responsibilities in the consolidation of PB, especially as they constitute a crucial resource for popular mobilization. Some critical voices argue, however, that associations may also block the participation and expression of non-organized individual citizens through the imposition of their special interests.

The technical dimension

The introduction of PB into municipal management has often been equated with a major innovation in the relationships between local government and populations. The technical and administrative staff of the municipalities play a key role in opening up the possibilities for radical reform of the local State.

Experts and managers are often encouraged to make the decision process more clear and intelligible for the population, replacing old authoritarian practices with strategies of persuasion (Santos, 2003). PB is regarded as well as favouring the reduction of the gap between administration and citizens, through its association with administrative decentralization (Gomes, 2006: 14).

1.5. The main debates associated with PB

The debate over participation

A central debate is focused on the participatory question, which implies the accomplishment of two central goals: the larger popular implication of the citizens in a public sphere of decision; and the implementation of a real participatory pluralism in order to legitimate decisions.

It has been observed that participation in PB tends to increase over time as the redistributive effectiveness of the process is visible. In this sense, some authors claim that participation depends on how outcomes are experienced, and thus time is needed for these outcomes to appear (Allegretti e Herzberg, 2004: 21).

It is not only the numbers of participants which are relevant to assess participation, but also the quality of participation (Boschi, 2005: 186). New approaches, such as digital PB, are designed to promote virtual participation of those who cannot be present at assemblies, but it also raises the issue of its lack of a deliberative dimension.

Limitations to participation may be due to:

- pressures to local elites committed to clientelistic pactices;
- corruption;
- technocratic visions which charge participation of being ineffective and time-consuming;
- persistence of a political culture which despises participation, especially that of practice deprived groups (Kliksberg, 2007: 572, Irwin, 2006).;
- instrumental use of PB by the population.

The debate over democracy

The range of debates encouraged by PB symbolize the urgency of rethinking democracy, and to the effective political participation of all the citizens, becoming a central human value (Sen, 1999: 10).

Civil society is regarded as the most fertile ground for the new senses of democratization, which are pursued through popular participation practices. PB represents one of the most innovative experiences of high intensity democracy (Santos and Avritzer, 2002), based on a broader conception of citizenship opening up new public spaces associated with participatory

practices, empowering citizens and allowing the inclusion of excluded or discriminated groups in society (Dagnino et al., 2006: 14).

Electronic democracy or virtual democracy

The discussions over democracy have highlighted the emergence of a more complex relationship between representatives and the represented. Electronic democracy appears in this debate as a new form of democratic engagement. New Information Technologies become the tools of an emerging electronic democracy or e-democracy (Allegreti *et al*., 2007). They are increasingly influencing political, administrative and management practices which consequences are still to be assessed (Hacker e Dijk, 2000: 1).

Some critical perspectives on this issue argue that electronic democracy is a privileged mode of promoting "instantaneous" interactions, but it involves inevitable constraints, namely the absence of face to face interactions, which occur in privileged spaces of dialogue, argumentation and consensus. Within the scope of PB, this is a sensible question, because it is argued that PB should constitute, above all, the opportunity to repair the absence of dialogue, the loss of social ties, and to recapture interrupted and "polluted" relations between political and citizen spheres (Allegretti *et al.*, 2007: 4).

ICT's also imply that what Beck (1992) calls "political displacement", suggesting a deep penetration of the political system into society, enabling its transformation into a polycentric system based on a more dispersed and fragmented decision-making process which becomes part of participatory democracy (Hacker and Dijk, 2000: 6).

The debate over inequality

A key concern of PB is inequality. The reduction of inequalities and the inclusion of marginalized and excluded groups is thus a central goal of PB. The latter is thus oriented three basic principles: autonomy, participation and equality (Cunha, 2007).

The more basic strategy to reach the equality is implemented through the basic presupposition of universal participation of the population in the process, and the possibility to reverse the hierarchy of policy priorities according to social justice principles. In this domain many redistribution criteria can be defined and applicable in order to resettle equality, social justice and social inclusion (such as urban maps of exclusion; equality indexes; criteria favouring a large list of potential unequal situation, namely on gender issues, related to minority groups, LGBT discrimination, deprived social groups, etc.). Methodologically, the PB ensures the intention of make every single person an empowered citizen, doted with sufficient power to change the routes initially designed by the political social actors to distribute public financial resources, and so, creating more equitable social policies.

2. The cases

2.1. Participatory Budgeting in Seville (Spain)

The participatory budgeting process in Seville defines as its main purpose the management of the municipal budget, conducted through the active and direct participation of citizens, and not only elected politicians. This procedure was created in 1994, after an agreement between two left-wing parties.[7] After the first year of its application, the decision was made to broaden the experience, through the implementation of a specific participatory budgeting conducted by youngsters and focusing on their interests or needs.

Assuming that every citizen is acquainted with the most pervasive daily needs of his/her residence area – and thus framing the citizen as a resident in a neighbourhood with a commitment to the improvement of collective life in that neighbourhood -, the aim of the process is to promote a broader participation in decision-making related to the investment of public resources. As a consequence, citizens thus defined become part of the actions involved in city planning through the identification and proposal of means to address their needs.

[7] Detailed information on Participatory Budgeting in Seville can be found at: www.presupuestosparticipativosdesevilla.org

Participatory budgeting in Seville aims at: transforming citizens into protagonists of urban planning; finding ways to achieve the actual needs of the population; improving capacity-building for citizens; promoting public accountability and transparency of local government; and, finally, creating a space for dialogue and for decision-making involving citizens, elected politicians and technicians committed to the promotion of justice and equality within the municipality.

The procedure is organized at different levels:

1) municipal districts (linked to public spaces and infrastructure in the domains of education and culture);

2) citizen participation (promotion of activities within the context of organized civil society);

3) Sports (sports infrastructures and sports activities);

4) urbanism (structuring urban intervention).

For the purpose of participatory budgeting, the city was divided into different zones, called Civic Centres, which have emerged from the already existing 6 districts. In each zone, public assemblies are organized to promote discussions and decision-making. Everyone living in the neighbourhood is entitled to participate in public assemblies. In each zone there is also a "Motive Group" (Grupo Motor), composed of inhabitants aimed at promoting the process and the participation in public assemblies. Finally, there is a technical committee coordinating the whole process, making the connections between politicians, experts and the various "Motive Groups".

Proposals and decisions take place in public assemblies. Everyone can present a proposal and every proposal has to be voted. The proposals getting most votes are assembled and discussed in a general assembly. Both experts from the municipal government and citizen representatives assign a weight to each proposal, in order to incorporate a social justice dimension into decision-making. The final decisions on how and where public resources are to be invested is thus the outcome of a definition of proposals and their weighting in order to address the collective needs and priorities of each neighbourhood.

2.2. Participatory Budgeting in Belo Horizonte (Brazil)

The experience of participatory budgeting in Belo Horizonte was launched in 1993.[8] In 2006, a complementary process was created: the digital participatory budget, running in parallel with the original procedure.

Participatory budgeting in Belo Horizonte is steered by the Municipal Secretary of Planning. Every two years, a slice of the municipal funds for investment is allocated to participatory budgeting. Decisions taken under this process have to be submitted to the discussion and deliberation of citizens and civic and social organizations. Citizens are defined, for the purpose of participation in the process, as residents of specific regions or neighbourhoods.

The municipality of Belo Horizonte is divided into 9 administrative regions[9], each of them organizing public regional assemblies to discuss the budget proposals.

This procedure is organized in three phases: first, the Secretary of Planning presents in each regional area the results of the previous round of the process (namely, the number of approved proposals and the phase of enactment of each approved proposal); secondly, the Municipality publicizes the available resources for participatory budgeting and the proposals for discussion and voting are presented; thirdly, regional assemblies are held.[10]

The distribution of available resources belongs to the second phase. Half of the amount is equally distributed among the 9 regions. The other half is

[8] In 2004, Belo Horizonte was awarded, by the United Nations, the "Public Services Prize" for its role in contributing to the improvement of public services.

[9] These regions are: Venda Nova, Norte, Nordeste, Leste, Centro-Sul, Oeste, Barreiro, Noroeste and Pampulha.

[10] A detailed description of the different phases of the process can be found at http://portal2.pbh.gov.br/pbh/index.html?id_conteudo=12266&id_nivel1=-1. Every two years, the municipality publishes the methodology of participation and the guide for the next two years (Prefeitura de Belo Horizonte, 2006a and 2006b) which are distributed to the whole population.

distributed according to a "Quality of Urban Life Index"[11]. This Index tries to balance the number of inhabitants in each region against the level of income *per capita* in such a way that the higher the Index rate, the lower the amount of resources to be made available. The creation of the index was intended to improve the redistributive capacity of procedures such as participatory budgeting.

In the third phase — regional assemblies — the proposals presented in the previous phase are subject to discussion. During the assemblies delegates who will participate in the voting process are elected.[12] After the first round of regional assemblies, nine "Priority Caravans", one for each region, are constituted — composed of elected delegates. These caravans will visit all the sites related to proposals voted as priorities. After this process, the proposals are finally voted at the "Regional Priorities Forum". In the last round of regional assemblies the delegates are elected, who will constitute the "Overseeing Committee of the Approved Proposals" (COMFORÇA). The role of this committee is to oversee the enactment of each approved intervention, to accompany the process of public contest for each approved intervention, and to discuss the technical problems that may emerge during the enactment of each approved proposal.[13]

In 2006, the municipality of Belo Horizonte started the implementation of a complementary process of participatory budgeting: digital participatory budgeting. This is the first experience of its kind in the world. In the document prepared by the municipality to promote this new procedure it is stated that, considering the success of participatory budgeting as an instrument of integration of popular participation in urban planning, the time

[11] The calculation of the index is based on the following formula: E*1/y (E = number of inhabitants in the region; E = 2.7182818; y = average income of the region). Fifty four indicators are considered for the calculation of the index, which are then organized in ten groups of goods and services linked to quality of life: supplies, culture, education, sports, housing, urban infrastructures, environment, health, urban services and urban safety.

[12] One delegate is automatically elected by each region and each community association has the right to propose one delegate. The other delegates are elected according to the following method: assemblies with 1 to 200 participants elect 1 delegate for every 10 participants; assemblies with 201 to 400 participants elect 1 delegate for every 15 participants; assemblies with over 401 participants elect 1 delegate for every 20 participants.

[13] This committee meets every month with the Municipality.

had come to broaden the process through the inclusion of actors who do not participate in the "traditional" way (Prefeitura de Belo Horizonte, 2006).

The method chosen for the digital process differs significantly from the traditional one in several ways:

1. people do not participate in assemblies and do not elect delegates;
2. the proposals are selected through an online voting process;
3. each citizen is able to vote for proposals in the 9 regions (in the "traditional" procedure, the discussion and voting process is territorialized, which means that a citizen is allowed only to participate in the selection and voting of proposals in his/her region of residence);
4. the proposals subject to voting are chosen by the Municipality and the COMFORÇA (in the "traditional" process, citizens choose the proposals that will be voted in each region);
5. each person can vote only once, since there is only one electoral round.

To implement this procedure, the municipality installed ca. 180 voting points in the city and provided training courses to those who would attend to those points, helping people to vote. These voting points were strategically situated in the areas with lower income population (namely in the slum quarters). Everyone with access to a computer could vote from home. Information on the location of the voting points was distributed through mail to the entire population.

2.3. Participatory Budgeting in S. Brás de Alportel (Portugal)

Differently from the case of Belo Horizonte, participatory budgeting in S. Brás de Alportel is a consultative process. Decisions made under this process have the status of recommendations to the municipal government, with no binding power.

One of the interesting features of this particular experience is that it was launched as a result of a EU-funded project, under the EQUAL programme, named "S. Brás Solidário". The project partners include Portuguese and European teams. From the Portuguese side, the participants are a local development association (In Loco), the Municipality of S. Brás de Alportel, an industrial association of cork oak producers, a fire brigade and the Youth National Association for Household Action. The main objectives of the project are the promotion of active citizenship and the individual and collective capacity building of the local population, through: the implementation of participatory budgeting as an instrument of participatory democracy, citizen empowerment and the strengthening of citizenship; the organization of a volunteer network to assess and deal with local needs in the social and environmental domains; the implementation of a social trade and solidaristic exchange system aimed at reducing social disparities.

Participatory budgeting in S. Brás de Alportel has a municipal scope and there is no place for the election of delegates. Participation is individual: one person, one proposal.

All the resources available for investment related to urban planning are discussed under this procedure. As a consultative experiment with no binding power, the final decisions are made by the municipal government. However, given the public political involvement of the municipal government, this pioneering experience is likely to be consolidated as a mechanism for the empowerment of local populations.

The process is organized in four main phases: 1) definition of the model and general guidelines of the procedure; definition of assessment procedures and instruments; 2) creation of instruments for the consultation; organization of the first round of public meetings; 3) Analysis and incorporation of the approved proposals; definition of proposals for investments; devolution of the final results to the population; 4) global assessment and preparation of a new participatory budgeting cycle.[14]

[14] A more detailed description of the participatory budgeting cycle can be found at http://www.saobrassolidario.com/index.swf or at http://www.cm-sbras.pt/

Participatory budgeting, public knowledge and cognitive justice

Early experiences of participatory budgeting explicitly aimed at both the redistribution of resources in order to address inequalities and the empowerment of citizens to participate in deliberation and decision-making. Both aims are strongly associated with the production of public knowledge. The elaboration, implementation, monitoring and assessment of budgets has been traditionally conceived as specialized activities, requiring a type and degree of expertise which is beyond the capabilities of non-experts or "ordinary" citizens. Participatory budgeting starts form the premise that citizens have not only the capacities and the experience-based knowledge required to define needs and priorities through forms of collective and collaborative engagement, but that it is in vulnerable groups or communities that the skills to manage and balance scarce resources based on a hierarchization of needs are more likely be developed. But participatory budgeting does not simply devolve the debate, design, implementation, monitoring and overseeing of budgets to citizens. It draws on their skills, capacities and knowledges to generate an innovative form of collective production of new configurations of public knowledge. The process is not without its tensions and contradictions, but it allows municipal experts and staff and citizens to interact and work together to redefine what "needs" and "priorities" mean, how they are assessed, what types of inequalities are present in the community, how to describe and compare them and how to act in order to address them through the redistribution of resources. Throughout this process, a decanonization of economic, sociological and administrative knowledge becomes possible, through a triple dynamics of recognition of local or experienced-based knowledge and of its relevance, of the sharing and collective appropriation of specialized forms of knowledge and of the collective production of the capacity for public participation and decision-making. Participatory budgeting may thus be regarded as a resource for the

portal_autarquico/sao_bras_alportel/v_pt-PT/menu_municipe/servicos_municipais/orc_participativo.

promotion of both social and cognitive justice, as a tool for addressing social and economic as well as cognitive inequalities.

3. Comparative analysis of participatory budgeting processes

3.1. From the recognition of inequalities to capacity building

The three cases, albeit in different ways, focus on the ways of addressing both questions of unequal access to participatory procedures (representational inequality) and of reducing inequalities trough a more just redistribution of public funds (distributional inequality). Participatory budgeting articulates these two concerns through a design that deliberately links redistributive effects with participation. These experiences may be described as exercises in the creation of public spaces promoting the inclusion of residents within a specific territory through their constitution as *new publics* or as *subaltern counterpublics* (Avritzer and Costa, n/d), the former referring to emerging actors and the latter to those usually silenced by and excluded from the formal political decision-making arenas. Common to these participatory experiences is the principle of "one citizen/one vote". By considering the parity of all participants in the decision-making process, this principle appears as a declaration of the fundamental equality of all those who decide to participate, that is, to join one of the local assemblies which give shape to the participatory budgeting process.

However, subtle variations in the implementation of this principle have to be accounted for. Age, for instance, may be a qualifier of the claims of universality of that principle. In Seville, all residents, including youngsters and children over 3 years of age can participate in the process, albeit within specific spaces created for them. In São Brás de Alportel the participation is restricted to voters over the age of 16. And it should not be forgotten that the same conditions that generate inequality also influence the capacity or

willingness to participate. This is visible in the absence of the very poor and of those living in areas strongly affected by exclusion and deprivation are less likely to be part of the process.

Each of the experiences addresses distributional inequalities in distinct ways. In Seville, for example, the Participatory Budgeting process is formally committed to the promotion of the principle of social justice inscribed in the Spanish Constitution through redistributive criteria based upon principles of solidarity across the territorial units composing the Municipality of Seville. These criteria go beyond those based on the territory to consider differences between social groups or collectives. These "expanded" criteria include gender (women); age (children, youngsters, the elderly); marginalized groups (immigrants, unemployed, ethnic minorities); psychically and physically disabled persons and LGBT (lesbian/gay/bisexual/transsexual) groups. This positive discrimination of proposals that benefit marginalized populations takes place both through the application of criteria to the definition of priorities and needs and through voting in assemblies. More precisely, at a first stage, the proposals from the voting assemblies are hierarchized and, in the next stage the criteria defined in the *autorreglamento* ar applied to these hierarchized proposals.

This is one of the possible ways to correct existing inequalities between neighbourhoods/zones/districts. Even so, it would be hard to ignore that beyond the evaluation/prioritizing of the proposals based on pre-established criteria, the actual outcome of the struggle against inequalities is in the hands of those who participate and of the delegates they elect, through their deliberations and their voting for specific proposals, which may or may not determine an inversion of the priorities defined at each stage of the exercise.

In Belo Horizonte, procedures were designed to identify urban areas according to their relative vulnerability, in order to allow a more equitable distribution of resources based on the rating of the different areas as more or less vulnerable. In comparison with Seville, PB in Belo Horizonte is more strictly based on territory-based criteria. The combined use of the Index of Quality of Urban Life and of the "map of exclusion" of the city allow these territory-

based criteria to be translated into operational measures, priorities and interventions. The PB process has built-in procedures to evaluate how close its interventions are to the groups defined as the most affected by inequality, as illustrated by the following table.

TABLE 1| Redistributive effects of PB

Equivalence in monthly minimal wages	Total number of Households in Belo Horizonte	Households at less than 200 meters of PB works	%
0	43 402	20 461	47
0 a 0,5	2 510	1 360	54
0,5 a 1	69 195	35 091	51
1 a 2	101 936	50 885	50
2 a 3	69 194	31 486	46
3 a 5	93 598	36 700	39
5 a 10	116 266	36 366	31
10 a 15	41 176	10 562	26
15 a 20	32 012	7 452	23
+ de 20	53 659	10 200	19
Total	**622 984**	**240 563**	**--**

Source: Cabannes, 2007

Vulnerability is here defined taking households as the relevant units and classifying them according to their total income measured in terms of number of monthly minimal wages (a common measure of income in Brazil). Lower income households will thus be defined as the most vulnerable. Redistributive effects will be measured, in this case, by the spatial proximity of initiatives voted and implemented within the PB process to these households. The result depicted in Table 3 is taken as a demonstration that the PB process is an effective way of reaching the poorer and more vulnerable sectors of the population in so far as most of the investments launched through the process target neighbourhoods where the poorest households are located.

The concern with inequalities, however, is not confined to the simple application of criteria defining priority territorial zones where inequalities are more visible. The very organization of the procedure aims at addressing the

effects of both representational and distributional inequalities on the outcomes of PB. But these are also expressed in forms of articulating PB with other public policies, an explicit commitment of local government. The following list illustrates how these concerns are addressed both within the PB process and in its articulations with other municipal policy initiatives:

- The requirement of a minimal number of people attending assemblies;
- The creation of sub-regions that capture in a more adequate and equitable way territory-based inequalities, and actions intended to foster participation in these smaller territorial units as a form of gaining leverage for accessing resources;
- The articulation of the territory-based interventions associated with PB with other policies designed and promoted by the municipality, specifically targeting areas identified as being more vulnerable or having higher concentrations of poverty;
- The banning of informal partnerships and lobbies for certain demands, thus imposing more transparency on the definition of proposals and on the process of their approval and implementation;
- The pressure for effective implementation of existing legislation concerning accessibilities for the disabled people, children and elderly people, thus putting pressure on local authorities to create adequate infrastructures and improve public equipments;
- Avoiding, whenever possible, of expropriations associated with public interventions, in order to avoid situations where some citizens are forced to give up their property, even for the benefit of the collective;
- The creation of employments related to the proper working of social equipments, and the definition of rules applicable to these situations.

In São Brás de Alportel, and considering the still short experience with the process, its different approach to the territory and its consultative character, the question of inequalities is dealt primarily as a question of addressing representational inequality through the promotion of conditions for participation. This includes, for instance, the creation of spaces for child care

which allow young adults with children (and women in particular) to participate in PB public sessions or migrant communities to attend meetings designed to promote their inclusion in the process:

> Let us say that the question of inequality, being at the origin of this PB, I do think that it is gradually moving to focus on some groups that normally do not participate, not so much because of social inequality, but more in terms of the implications of participation, the inequality in participation. And her, we have women, immigrants and young people. (Local Development Association, Member 2, 238-243)

Addressing inequalities in the conditions for participation is thus a recurrent concern affecting the design and implementation of PB. This can be achieved though different types of actions and initiatives, depending on how the target groups of these actions and the obstacles to their participation are defined. Some groups are explicitly defined as "excluded" and thus become the target of specific actions. They include women, immigrant communities, retired people living on pensions or the unemployed. The concern with the promotion of participation is expressed as well in the initiatives to create new publics for PB. An interesting example of this is the creation of a PB process specifically designed for children and youngsters. Representational inequality appears, in fact, as the greatest concern of the promoters of PB at the current stage of the implementation of the process. Reducing inequality in active engagement in the debate of public policies, through the promotion of access to decision-making spaces in urban governance, even if only in a consultative capacity, is regarded as a crucial step in the empowerment of publics to make possible their active engagement in the political struggles for the implementation of redistributive policies addressing distributional inequalities.

The three experiences provide important insights into the way concepts such as transparency, responsibility and accountability are reframed within participatory processes. At the core of each of the experiences are attempts at the redefinition of the relationships between experts, political officials and administrators and citizens within a frame that moves away, albeit to different degrees and varying effectiveness, from the "double delegation" model of public policy-making and public accountability. Transparency,

responsibility and accountability tend to be reframed, within PB processes, as *co-production*, *co-responsibility* and *mutual or participatory accountability*.

The cases of Seville and Belo Horizonte draw on the production of internal regulations as a process to move from the situation where experts and political and administrative agents draft regulations and make them fully available to citizens (and sometimes consulting citizens on the outcomes of a process they control in its entirety), thus enacting the principle of transparency, to a situation where these regulations are co-produced by experts, officials and citizens, the latter being not only engaged "upstream" in the process, but also exercising the power to make decisions on the formal aspects and substantive contents of these regulations. This process should be, ideally, one of symmetrical and mutual engagement of all parties with the task of producing a new framework for the relationships between citizens and local government. In fact, the outcome of these exercises depends on the way the parties involved mutually redefine their identities and roles as they struggle with the need to produce documents which inscribe compromises or compositions between the contradictory requirements of justice and effectiveness, with the additional difficulty that both are likely to be framed and to be balanced against each other in different ways by the different parties. Once the document is produced, it becomes an obligatory point of passage (Callon, 1999, Latour, 1987), endowed with the authority of an item of public knowledge co-produced by the legitimate participants in the process. Transparency, understood as disclosure to a public distinct from the administration of the outcomes of the actions of the latter (Fung *et al*, 2008), becomes co-production by the public of the very objects or processes which are to be disclosed. These regulations are themselves subject to evaluation, redefinition and extension within each cycle of PB. Publics are involved in PB not just as co-producers of the procedural rules of PB, but as co-authors of the proposals presented and voted in assemblies and, as such, they are co-responsible for the decisions made on priorities and investments. This means that a legitimacy conflict may emerge between elected officials and, more generally, those who, as experts, administrators or officials, have a mandate to act on behalf of the public good, and citizens who are likely to see their

legitimacy to participate in decisions collectively affecting the population of the municipality attacked on the basis of their propensity to parochialism and self-interest. In its "binding" versions, PB represents, from that point of view, a departure from the type of legitimacy associated with double delegation and "low intensity" versions of representative democracy. But the principle of co-responsibility is not a denial of the legitimacy of those who have a mandate to act on behalf of the community and of the public good, but a reframing of responsibility as *distributed* among all those who co-produce decisions, including those who will be affected by these decisions. As long as the participation of publics or citizens remains within the boundaries of consultation, the possible threat to the legitimacy of the representatives of common interest as they are defined through elections or specific mandates is turned into a possibility for actually finding in consultation a supplement of legitimacy without interference in what is seen as the elected politicians' turf. Once decisions are co-produced, however, conflicting framings of the legitimacy of officials and of citizens are likely to emerge, and only a common reframing of the democratic process, based on an articulation of participatory and representative procedures, will provide an adequate settlement of those conflicts (even if an unstable one, being dependent on the uncertainties of electoral outcomes and of the political projects of the winners).

Co-responsibility is procedurally translated into mutual or participatory accountability. In other words, all participants in the process are, at the same time, producers of accountability and those to whom actions are to be accounted for. This, again, departs from notions of accountability as entailing a strict separation of roles. In fact, an objection that could be made to the way accountability is framed in PB processes (as in other participatory procedures aimed at producing binding decisions) is that the rigour, fairness and effectiveness of accountability may be jeopardized by the fact that those who are responsible for the actions to be accounted for are the same who evaluate those actions. Again, the rationale behind this form of mutual or participatory accountability is based on the idea that those who are affected by decisions not only have a right to influence these decisions, but to assess their effects as well. This argument is compounded by a cognitive one: the

local and experienced-based knowledge brought into decision-making by publics or citizens is a significant, if not decisive, input into adequate and effective decisions, as long as it is effectively incorporated into the configurations of public knowledge associated with the PB process. Because of the dominance of "deficit model"-type conceptions of publics upheld by experts and officials, the likelihood of these contributions being incorporated into decision-making depends on the effective capacity of publics or citizens to exercise some control over the process through their participation at every stage of it. Hence the notion of "social control", used to describe this type of approach in contexts like that of Brazil, where the historical role of the State has been very far from that of a benign provider and keeper of citizens' welfare and citizens' rights. Within this frame, redistributive justice is inextricably linked with cognitive justice and representational justice.

When interviewed on these topics, participants stress some of the features of PB that make it more transparent and more accountable than conventional decision-making: the long and intense debate that any decision within PB implies, which encourages the explicit justification of diagnostics and proposals and the open confrontation of these through a dialogical procedure; the reduced margin of manipulation that the process allows, due to its close scrutiny by all parties involved; the normative rigour of the process, inscribed in the self-produced regulations and applied to each PB cycle. These regulations also serve other purposes, besides providing a normative framework for the process: they provide a benchmark to assess the compliance of all the successive stages of the decision-making processes on municipal investments; they establish the rule of making accountable any decision made during the process; they oppose secrecy involved in decision-making; they promote a pedagogy of participation associated with the requirement of making all decisions accountable, leading to a collective responsibility of all those engaged in the process. The constitution of spaces of representation within the process through the election of delegates is conceived as a further means of reinforcing this "strong" farming of accountability. The iterative and cyclical nature of the process introduces an additional dimension of control, since the outcomes of each cycle are subject

to scrutiny and assessment at local assemblies gathering all citizens who want to participate. The process in São Brás de Alportel, is again, different in so far as it does not entail the election of delegates nor the involvement of citizens in the actual implementation and evaluation of proposals. The intervention of publics/citizens is confined to a consultative role, even if proposals can be actually formulated. But these are taken by local government as recommendations or suggestions, not as binding decisions.

It should be noticed that PB processes are not always easy to assimilate by the actors involved. Thus, beyond the well-identified problems of how to shape participatory citizens and broaden the inclusiveness of the process, other obstacles of different kinds may stand in the way of the effective implementation of PB, even when it is formally recognized by all parties involved as a positive and desirable resource for local government and urban planning. There is, first, the issue mentioned above of the legitimacy of the process and of the decisions arising from it, which is even more likely to arise when the executive and legislative bodies of the municipality have divergent positions towards PB.[15] Another type of resistance is related to what may be described as political-administrative resistance to what is regarded by officials and experts as a dangerous drift of processes of decision-making towards potentially irresponsible or non-viable proposals. Where the process is consultative, as in São Brás de Alportel, strong institutional control over the process and a more outspoken conception of the asymmetry between the competence of officials and experts and the incompetence of citizens has more ground to develop. But these resistances may appear as well where PB is consolidated as a process producing binding decisions.

Let us move now to the issue of how PB Works as a space for the mobilization and production of knowledge. As long as PB is framed as a process of co-production of binding decisions, there will be room for the often intensive

[15] This kind of situation arose, for instance, in Porto Alegre, where PB was upheld and promoted by the municipal government and the "Câmara de Vereadores", the legislative body of the municipality, put into question the legitimacy of displacing to a non-elected forum the right to make decisions on the allocation of municipal resources. The position of the local government prevailed, but PB was not formally institutionalized as part of the regular workings of municipal governance, unlike what happened in other cases.

work of articulating in new configurations the expert knowledges conventionally associated with specialized topics such as designing, implementing, monitoring and evaluating a budget proposal, the administrative forms of knowledge needed to integrate budget proposals into public management, the scientific/technical knowledges associated with urban planning and the local or experience-based knowledges of citizens. We have evoked earlier the assumption behind procedures such as PB that these forms of experience-based knowledge provide significant inputs to the debates and deliberations on proposals, but also the notion that those who have to live on tight budgets are those most likely to be good managers of scarce resources. This would place members of the popular classes and the residents of the more deprived neighbourhoods in the position of "lay" experts in budgeting. This approach, however, has to tackle a further problem. Just as expert and administrative forms of knowledge and the technical assemblages associated with them generate the invisibility of those experiences which cannot be formulated in their specialized languages, so are local or experience-based forms of knowledge prone to being blind to what happens beyond the boundaries of the neighbourhood people are familiar with through their everyday experiences. This phenomenon has often been described, in studies of environmental issues and conflicts, as the NIMBY (Not in My Backyard) syndrome. Although concerns with local problems are recognized as legitimate, if they are not reconfigured within a broader frame (in this case a territorial frame), the likelihood of redistributive effects being achieved through PB will stumble on the lack of knowledge of and understanding of the predicaments of other neighbourhoods and regions, and exercises in comparing, prioritizing and hierarchizing proposals in relation to an agreed upon hierarchy of needs will be compromised. The articulation of these different forms of knowledge and experience is achieved through the mediation of the local government officials in charge of providing information covering all territorial areas and allowing participants in local assemblies to have synoptic views of the relative situations of the different regions, areas or neighbourhoods in regard to their social situation and needs that can be satisfied through the redistribution of resources assigned to PB. The very

organization of the different stages of the process allow this continuous work of comparative assessment to be sustained, through actions ranging from the distribution of the information prepared by the municipality to the deliberative procedures at the different levels of organization of the process and through the in-site visits of those in charge of monitoring the process. The resulting configuration of knowledges and experiences is inseparable from a process of mutual "interessment" (Callon, 1999) of the various participants, whose aim is to make every participating citizen and every delegate into a spokesperson for his/her own neighbourhood or region and for the reduction of inequalities within the whole municipality. Assessing the extent to which this is achieved would require a form of inquiry far beyond the time and resources available for this project. But as far as can be judged from available materials, this is one of the main concerns associated with the notion of PB as a tool for the pedagogy of participation.

3.2. Citizen empowerment and social control

The topic of citizen empowerment leads us back to one of the key concepts by Sherry Arnstein (1969) in her already evoked pioneering contribution to the characterization of public participation. Do PB processes allow citizens to move up from the "lower" steps of Arnstein's ladder all the way to the top, to social control?

To start with, deliberative PB processes associated with binding outcomes such as those of Belo Horizonte and Seville) should be strictly differentiated from consultative models, such as that of São Brás de Alportel. The latter is clearly designed to empower citizens in the sense of creating spaces for the building of their capacities to engage in fora where public problems are debated. But building the capacities required for citizens to become "participatory" citizens of the "deliberative" kind takes more than the creation of spaces where citizens are welcome to practice their skills through the discussion of problems of public interest or through the debate on topics

associated with urban government. The participatory citizen is expected, first, to have the skills necessary to acquire the knowledge needed to engage in informed debate and bring his/her local or experience-based knowledge to public fora. These skills are to be developed both through the provision of materials by the promoters of PB processes and through the apprenticeship of discussion and deliberation which is acquired through the practice of debating and deliberating. This means that not all citizens who come to assemblies correspond to the model of the participatory/deliberative citizen. Some will listen, others will speak out often using expressive resources which are not those associated with deliberation based on "communicative rationality". Story-telling or the description of situations and, in particular, of those involving perceived injustices are likely to be more common, in some instances, than the use of discourse based on arguments. Becoming the deliberative citizen who participates in PB requires a continuous engagement in the process, which is conditional on aspects such as availability and interest. This means that not all those who are construed by promoters as the main beneficiaries of PB are likely to be those participating. The same holds for the delegates. A delegate is expected to have, again, the availability but also, from the point of view of those who elect him/her, the skills required to be an effective advocate of the interests of a region or neighbourhood. From the standpoint of the promoters of PB, this should be compounded with the capacity to engage in informed exchanges with other delegates, to listen to their arguments or positions, to be sensitive to considerations of solidarity or social justice, to be able to change his or her positions as a result of the very process of deliberation… These requirements usually lead to a process of self-selection, whereby certain categories of citizens (men, more literate and with more available time, like retired people or the unemployed) are more likely to become delegates. Constructing the participatory/deliberative citizen thus requires more than granting equal access to the fora of PB. It is itself an exercise in addressing the inequalities which prevent the achievement of the principle of the symmetry or parity of participation. And these inequalities are, in turn, the target and its reduction through redistribution the *raison d'être* of PB…

Does this mean that PB processes are caught in, at worst, a vicious circle or, at best, a spiral which allows some redistributive effects to be achieved, but at the cost of falling short of its ambition of democratizing decision-making and citizen control over public policies? Such a conclusion would ignore two crucial points. The first is that experiences of PB are usually articulated with other forms of citizen involvement, often targeted at certain groups or sectors of society through specific types of fora, and/or through grassroots initiatives which often work as contexts for the apprenticeship of participation, namely through the work of associations and movements. Local populations and groups may thus be involved in different settings and forms of collective action, where they may acquire skills and capacities which they may put to use in PB processes. This diversity of spaces for the exercise of different forms of active citizenship often provides the breeding ground for the more marginalized groups and persons in local society to create their own subaltern public spheres, as Santos (2006) has called them, without being exposed to the unequal relations of production of discourse and decisions they are likely to encounter in more heterogeneous fora. In different ways, the municipalities and promoters of PB in Belo Horizonte and Seville have found ways of opening up spaces for the claims of specific groups to be brought up and discussed without the constraints of a territory-based process such as PB, which in turn frame the participatory citizen in different ways, according to different criteria and through different procedures.

São Brás de Alportel, again, displays significant differences in this respect. The local population is allowed only to intervene "downstream", after budget proposals have been drawn by the municipal government, and, since the PB process is consultative, any intervention, even if framed as a proposal, will amount to a comment or suggestion, with at best a very limited capacity to influence outcomes. In fact, the acceptance of any of these proposals depends on a technical evaluation by the municipality, and only if this hurdle is overcome will they eventually be included in the final budget proposal. What counts as a technical evaluation is not open to discussion or negotiation, and thus the authority of experts and administrators is reasserted. Interestingly, when the possibility is raised of moving the process forward

towards a deliberative version of PB, institutional actors tend to respond negatively, in the name of the need for a "coherent" and "rigorous" management of public resources. The process as it exists is thus justified through appeals to technical-administrative rationality, coupled with na explicit dismissal of the capacity of citizens to have more than a consultative role. Any notion of social control is alien to this approach to PB.

This call for technical-administrative rationality as the firm ground on which municipal government should rest upon is not without its influence in the two other experiences. To be sure, in both cases decisions made through the PB process are binding. But in Seville it is possible to revoke a decision on the basis of "technical criteria". This broad and vague definition, which brings back the logic of "double delegation", is, of course, an open door for reverting decisions for reasons which may be framed by the municipality as "technical" and by participants in the process as "political". The existence of these devices makes the actual outcome of PB as a process of democratizing decision-making and of promoting redistribution contingent on how far these aims are compatible with the winning political project in local elections. And they are thus vulnerable to alternative framings of accountability.

3.3. Some additional remarks

One of the main features of PB processes is the way it enables the contact with huge amounts of information. Those who participate have access to specific types of technical information which are available only through participating in the process. The same type of information is difficult to access and is not available in the majority of the 'regular' relationships between municipal governments and citizens living in the municipalities. In this sense, one of the features of this type of processes is their promotion of the mobilization and disclosure of technical knowledge produced under the regular functioning of local government structures.

Furthermore, through the involvement of a range of different actors, and various phases of debate and deliberation, these processes create the

conditions for the emergence of new configurations of knowledge. These configurations may take on different shapes, depending on the specifics of each case, and on the different levels of involvement of the different actors.

Another key feature is the way different power relations between actors involved in the processes interfere with the outcomes of the debates.

Seville and Belo Horizonte show a strong involvement of local populations even in the very definition of the rules of the processes. As for São Brás de Alportel, the rules are defined by local government together with other partners of the "S. Brás Solidário" project and then presented to the population. If the first two cases are continuously reopening the possibility for adapting the rules from cycle to cycle, in the third case constraints are tighter. One should not conclude, however, that processes of co-learning do not occur within the São Brás de Alportel PB process.

An interesting result of our research is the way these processes 'contaminate' modes of community organization beyond the boundaries of PB. Through their experience of participating in the latter, some groups of the local population manage to create synergies with other groups which are then deployed in other domains of public intervention. A number of examples show how local populations organize themselves to come up with proposals which were not considered under the PB process and present them to other institutions or to different departments of the municipalities.

In the context of this discussion, a reference to the organized learning contexts promoted by this type of processes is inevitable. In Seville, a 'School of Citizenship' was created, and in Belo Horizonte a 'School of Participation'. The latter was a result of a partnership between local and international organizations. Its main aims were defined as promoting the capacity building of local populations and training local leaderships.

Both Seville and São Brás de Alportel have specific PB processes involving children and youngsters. In the case of São Brás de Alportel it works mainly as a pedagogic tool aiming at education for citizenship and as a means of bringing children's families into the process.

As for the spaces of dialogue created through PB, specific activities for their publicity and promotion were created in all three cases, with public assemblies being a high point. These are, in fact, the spaces where all actors involved can discuss proposals and interact with each other.

Another important feature is the process of election of delegates developed both in Seville and in Belo Horizonte. In fact, these delegates act as mediators between local populations, technicians and decision-makers. They are, at the same time, spokespersons for and disseminators of the processes.

TABLE 2| Comparative analysis of PB processes

	PB Belo Horizonte	PB Seville	PB São Brás de Alportel
Year of creation	1993	2004	2007
Periodicity	Two year cycles	Yearly	Yearly
Deliberative power	Yes	Yes	No
Binding power	Yes	Yes	No
Minimal age for voting	16 years	16 years	16 years
Condition for voting	Being registered as a voter in BH	Living in Seville	Living in SBA
Type of proposals accepted	Construction and maintenance of infrastructures	Construction and maintenance of infrastructures; programs and activities	
Thematic/Sector-based PB processes	Housing PB; Digital PB	Children and Youngsters' PB	
Territorial organization	Planning units Sub-regions Regions	Neighbourhood Zone District City	Municipality
Supervising organs	COMFORÇA	Follow-up committee	-
Areas for the submission of proposals	Education; Health; Infrastructures; Leisure; Sports; Culture	Municipal districts; Citizen participation; Sports; Urbanism; Culture; Education; Youth; Employment; Equality; Health and consumption; Environment	Health and solidarity; sports and leisure; education and youth; culture and heritage; territorial planning; roads and transportation; environment and green spaces; water and sanitation; economic development; tourism; municipal services
Criteria for prioritizing identifying inequality	IQVU Exclusion map Specific Global Plan	Higher rates of basic needs Program criteria (gender, age, disfavoured collectives) Public works	-

II.

PUBLIC HEALTH, ENVIRONMENTAL JUSTICE AND ACCOUNTABILITY

1. Introduction

The Brazilian Constitution defined health as a "right of all and a duty of the State", and several laws passed by Congress in the 1990s provided the institutional and legal basis for the creation of a national, Single Health System (Sistema Único de Saúde or SUS) which embodied the principles underlying the conception of health as collective health.

Health promotion became the cornerstone of the whole design and implementation of policies in the field of health (Gerschman, 2004). In a society displaying huge inequalities as is Brazilian society, however, the implementation of a comprehensive health policy aimed at ensuring health care for all citizens proved to be a huge task, its successes being unevenly distributed across the national territory. The decentralized and place-based design of the health system — which rests largely upon the provision of care and the promotion of health at the municipal level — made it easier to identify regional and group-based inequalities in health conditions and in access to health care. These inequalities are class-based, disproportionately affecting low-income or poor populations; they are associated with exclusion — of the homeless, especially of children —, and with ethnicity and race, especially in the case of indigenous populations. There is a strong association between inequalities in health and access to health care and situations of environmental racism – which was the trigger for the rise of movements for environmental justice. These situations generate specific forms of

vulnerability which are not adequately addressed through "downstream" provision of health care or through more traditional approaches to preventive medicine. As a response to these situations, a range of initiatives was launched, some of them originating in health professionals and health institutions, others in popular mobilizations and movements or in a convergence of both. These initiatives provide exemplary instances of the complex co-production of the cognitive-scientific, the social and the political explicitly addressing issues of inequality as these are revealed by the violation of the right to living in a healthy environment.

The case studies on public health and environmental justice summarized in the following sections display specific configurations of public knowledge-making and forms of publicly accountable interventions addressing problems that affect in an unequal way different sectors of the Brazilian population and generate different profiles of social and institutional vulnerability. The cases include the creation of the Single Health System as part of a political, cognitive and institutional project aimed at promoting equal access to health and the conditions for a healthy living for all citizens; an instance of social control related to the decision-making process within the Health System; the way the system works to address unequal vulnerabilities in the face of endemic diseases; and, finally, the complex configuration of actions developed to deal with a threat to environmental health associated with international trade.

1.1. The creation of the Single Health System in Brazil

From the last quarter of the 19th Century onwards, public health in Latin America evolved from a concern with the detection and control of cases of infectious, communicable diseases focused on the surveillance of ports and of travellers and the use of quarantine as the main tool for preventing the spread of disease to a more complex and more effective system of monitoring, prevention and control which, in the latter decades of the 20th

Century took shape in a specific brand of public health, inspired by social medicine and critical approaches to epidemiology and to preventive medicine, explicitly addressing the social, economic and environmental conditions of health and disease (Paim, 2006). The Pan-American Health Organization, namely through the efforts of Juan César Garcia, one of its officials in charge of human resources, in the 1960s and 1970s, had a strong influence in the recognition of the specificities of the health and disease profile of the countries of the region and of the crucial role of what came to be called social determinants of health in defining that profile (Cueto, 2007). One of the consequences of this approach was a reconfiguration of knowledge related to health, from the unchallenged hegemony of biomedicine to a more diverse and complex conception of the causes of health and disease as a process associated with a range of conditions which went beyond the biological and pathological factors focused on by the biomedical model. Although the biomedical model of health and disease retained a strong grip on the policies and modes of intervention in public health across Latin America, it had to contend with both the difficulty it experienced in addressing some of the most common diseases and, in particular, the endemic diseases which affected the majority of the populations of the region, but also the growing evidence that health and disease were strongly related to social, gender and racial inequalities, to income, to place of residence, to employment and labour conditions, to housing, availability of urban infrastructures, access to school, to health care and to social services and environmental exposures. In short, poor people were more vulnerable to infectious disease, to exposure to environmental contaminants, to health problems related to harsh living and working conditions, to lack of material, cultural and educational resources. In Brazil, this approach gave rise to a particular mode of defining public health which came to be known as collective health. The shaping of collective health in Brazil form the 1970s onwards was inseparable from a political project – Reforma Sanitária (Sanitary Reform) - and an institutional project – the creation of a national, public health system providing coverage of the whole population. The co-production of a cognitive, a political and an institutional project – which gained momentum, from its origins in the late 1960s, during

the struggles for democratization during the final years of the military dictatorship, up to 1985 and the ensuing process of (re)democratization, aimed at changing the conditions associated with health through collaborative and participatory projects and initiatives. More recently, health promotion and environmental health figure prominently in the agenda of collective health (Czeresnia and Freitas, 2004).

Through the mobilization — going back to the 1960s and 1970s — of health professionals, social movements, sectors of the Catholic Church and — from the 1980s onwards — of public institutions as well, a movement for health (Movimento Sanitarista) took shape in Brazil, which played a crucial role in inscribing the right to health and health care as a fundamental right in the 1988 Constitution, opening the way to similar processes in other Latin American countries. The 8th National Conference on Health, organized by that movement in 1986, drafted a set of proposals on the definition of the right to health and health care which were included, to a significant extent, in the 1988 Constitution.

In sum, if during the 20th century, access to health in the Brazilian context went through very different configurations, from the 1970s onwards, social actors organized themselves collectively to claim access to health as a right to every citizen; the Catholic Church, concerned with low income populations, and the movements that came to be known as "health movements", gathering health professionals and social organizations, launched a struggle for health for all (Avritzer *et al*., 2005). During the latter period, debates over health opened up a field of conflict (Melucci, 1999), finally leading to the institutionalization of health as a "right of all and a duty of the State" (1988 Constitution of Brazil).

This was a significant shift from a view of society as a passive actor or as object of intervention through state programs of health and endemic disease control actions, to a situation of public participation of multiple social actors actively engaged in health. This is a new reality generated with the population through a two way dialogue about the conditions of everyday access to healthcare by the common citizens, and about the everyday

production of health and disease, taking into account the social, economic, cultural, environmental and health conditions of the Brazilian population.

The Single Health System is organized on a territorialized basis, with decentralized services and participatory management, devolving to the municipalities and their local systems a crucial role in granting universal access to health services. After 1985, laws on participatory practices in the health domain were issued, creating the conditions for the implementation of health municipal councils. It should be added that this period was characterized by a paradigm shift: health intervention became focused in prevention and later promotion of health, health became subject to social control, and collective social practices were established as part of the national health system (Avritzer *et al*., 2005). A national committee for the reform of the health system was created, with a balanced representation of government and civil society. Health municipal councils have the following characteristics: plurality of actors; commitment to the reduction of inequality in access to health public services; intervention for reducing inequality through participatory and deliberative arrangements. Within this case we illustrate how structures like health municipal councils were integrated as part of the Single Health System.

1.2. The control of endemic diseases in Brazil: The case of dengue

This case addresses public responses to a major type of health problem: endemic, vector-transmitted diseases. These responses have changed throughout the 20th Century, but they have tended to move, over the last two decades, towards different forms of multi-level, decentralized, community-based approaches to the monitoring and control of disease vectors, such as mosquitoes. We shall deal here with the case of initiatives aimed at the control of dengue, a major public health problem throughout Brazil and, in particular, in large cities. Dengue is an infectious disease caused by an arbovirus which is transmitted to humans through the bite of mosquitoes. The

most common vector of dengue is Aedes Aegpti, also the vector of urban yellow fever. Four different types of dengue have been identified. Infection by one type provides immunity against that type, but only for a short time against other types. The most serious form of dengue is haemorrhagic dengue, which may be lethal. The lethality of the most common form of dengue, however, is low if appropriate care is provided. Since no vaccine is available yet, the eradication and, later, the control of the vector were regarded as the only available strategies for dealing effectively with the threat of the disease. Surges of dengue, sometimes turning into epidemics, have been recorded in most of the States of Brazil since the late 1960s. The latest and most serious surge is the ongoing epidemics in Rio de Janeiro.

In Brazil, efforts to eradicate dengue stumbled on the resilience of the vectors and lead, in the 1990s, to the widespread adoption of new strategies for the control of vector-bourne pathologies. These new strategies were based, first, on a move from trying to eradicate pathogens or vectors (namely though chemical means, which had significant negative side-effects on the environment and on human health and were generally of limited effectiveness) to the design of place-based, collaborative and participatory approaches to the control of the vector, namely through interventions in the environment, so as to remove conditions favourable to the creation of niches for mosquitoes to live and reproduce.

Programs of this type involve the articulation of a range of different disciplines and forms of knowledge, including, for instance, the collaboration between public health specialists and entomologists, but also local communities and their knowledge of local ecologies, construction materials and social organization. At the same time, the effectiveness of these approaches requires the monitoring and evaluation of its successes and failures, which, in turn, lead to the design of participatory forms of accountability by those involved in the programs, and based on criteria to assess collective health, including ecosystem criteria and criteria based on social determinants of health.

We explore here the cases of campaigns addressing the dengue fever in Rio de Janeiro (Southeast Brazil) and Recife (Northeast Brazil), two areas exemplary of the strong regional inequalities characterizing Brazil, but also displaying great inequalities in vulnerability to endemic health problems (Augusto *et al.*, 2005).

In the case of Recife, and starting in the mid-1990s, initiatives were launched as part of a Program for Environmental Health, involving the municipal government and its Secretary of Health, public health institutions and a range of social organizations and movements. The initiatives were largely inspired by eco-system approaches to health, defining health and disease as an emerging outcome of eco-system and eco-social dynamics. Its main features were the following:

- actions oriented towards environmental sanitation (provision of fresh water and control of its quality, sewage, household waste management, management of used tyres);
- health education and collective mobilization of populations and communities for actions of health promotion and vector control
- replacement of chemical control of the vector by mechanical and biological control (through the use of larvicides, like Bti, for instance), elimination of unprotected pools of still water which provide niches for the mosquito to lay its eggs, or cleaning and physical protection of water reservoirs;
- These actions required the development and appropriation of entomological knowledge, namely of the life-cycle of the vector, the process of its reproduction and the ecological conditions associated with each stage. But they demanded as well detailed knowledge of local social and environmental conditions and of local configurations of social and institutional vulnerability, which largely provided through the work of local agents recruited for the program in communities or neighbourhoods;

- the promotion of integrated and participatory processes of health surveillance, including epidemiological, environmental and entomological surveillance.

In spite of the positive assessment of this initiative and others inspired by the same approach, eco-system or eco-social approaches to the control of dengue and other endemic diseases are still far from dominant within Brazilian health policy. But they point towards a strategy which may become more influential as other approaches demonstrate their failure, as is happening with the recent epidemic in Rio de Janeiro, still raging at the time of writing.

The most significant features of the Rio epidemics of the spring of 2008 are, first, its severity, with about 90 deaths, its apparently uncontrollable spread and the responses that are being organized to it. Besides actions which are very similar to the ones just described for Recife, an unprecedented effort for creating an inclusive, multi-level, decentralized and participatory organized effort to control the dengue vector has been launched, which has resulted up to now in a massive mobilization of communities, neighbourhoods and volunteers. A movement called "Union Against Dengue" called for the collaboration of health authorities at the federal, State and municipal levels with members of health councils at the three levels, health institutions and social movements and organizations and for the launching Popular Committees against Dengue. Among the initiatives announced by the office for the coordination of the campaign against dengue are the reinforcement of strategies of local health care, including the hiring of Commmunity Health Agents (as in Recife). The actions for the detection and elimination of foci of mosquitoes has been carried out through a massive effort involving, besides health institutions, public authorities and community-based movements and organizations, the army and *mutirões* (mobilizations of citizens for mutual help).

It is still too early to assess how successful this strategy will prove to be, but it is possible to point out some of the common features of the cases of Recife and Rio. Both rely on the definition of the control of the vector as the main objective of actions against dengue; both promote a decentralized and

participatory approach to the control of dengue, based on a broad alliance of actors and institutions; both focus on the need for local action as the condition for an effective strategy; both rely on forms of public knowledge emerging from the mutual involvement of actors in the health system, in public administration and in communities and neighbourhoods; and, finally, both move towards an approach based on social control.

1.3. The import of retreated tyres as a threat to environmental health: the EU and Brazil

The last case introduces a different type of approach to environmental health problems, through the local, national and international mobilization of a network of environmental justice organizations and movements.

The Brazilian national environmental justice network was created in 2001 through the convergence of social movements, NGOs, trade unions and researchers. Its main field of action is centred in the articulation of environmental struggles and/as for social justice. Health issues, as privileged entry points into the identification of specific forms of vulnerability, figure prominently in the movement's initiatives and campaigns.

The specific action that will be examined in detail here is the campaign launched by the movement, in July 2006, against the plans to allow the import of used tyres from the European Union to Brazil. Brazil is a large market for "reformed" tyres, and business interests have pressured both Government and Congress to pass a law allowing those imports. Faced with opposition to the passing of the law by Congress, the EU threatened to sue Brazil at the WTO for violation of free-trade agreements.

Opposition was spearheaded by environmental organizations and by the environmental justice network invoking the right of Brazil to refuse becoming a dumping site for waste form Europe or elsewhere, and highlighting the public health problems arising from the accumulation of used tyres in dumping sites, which would create a favourable environment to the creation

of niches for the reproduction of disease vectors, such as the mosquito *Aedes Aegyptae*, associated with dengue fever.

This process, still underway, is an exemplary instance of a struggle for addressing issues of inequality between countries and regions (North-South) and their implications for within-country inequalities. It provides a privileged observatory of how a repertoire of citizen initiatives and collective action is mobilized to create alliances and coalitions with public institutions (such as the public prosecutor's offices at both the State and Federal levels, acting as promoters of "diffuse rights", such as those related to the environment and health, but also Congress, the Government and political parties), as well as networks of international solidarity.

A central concern of the ongoing campaign is the struggle to make the Government and Congress accountable to citizens as far as decisions likely to have negative effects on environment and health are concerned.

A further issue is how to create accountability systems which address inequalities between North and South justified by the respect for free trade, where Northern countries impose on the South the acceptance of measures they would not allow in their own territories. The mobilization of citizen movements both nationally and transnationally appears, in this case, as a condition for successful coalitions in order to promote accountability as social control of public policies by citizens. As the latter engage, through their organized movements, with different sectors of the State to formulate and implement actions directed at threats to environment and public health, we witness again the emergence of specific configurations of actors co-producing public knowledge. This type of engagement places collective actors such as the environmental justice networks at the core of State-civil society coalition which takes up the task of fighting political and legal battles on a transnational stage, in this case the WTO.

II.1. The creation of the Single Health System in Brazil

0. Prelude

In the last decades of the 19th Century, Domingos Freire, Oswaldo Cruz, Carlos Chagas, Adolfo Lutz and their colleagues and disciples attempted a remake of what Bruno Latour (1984) called "Pasteur's coup": to colonize Brazil through a science which, though coming from Europe, must find in Brazil and in its scientists new protagonists, creating the conditions for the transformation of the country into a modern society and, at the same time, allowing Brazilian scientists to have their contributions sanctioned by the major scientific centres of Europe[16]. The success of these initiatives was limited and unequal, and Brazil became, throughout the 20th Century, a country which was far from the dream of an "Europe in the tropics", coming out of the enlightenment through science and modernization. The turn taken by the epidemiological transition in Brazil had as its consequence the coexistence of infectious diseases, namely endemic ones, of their agents and vectors - which the *sanitaristas* had promised to eradicate – with so-called diseases of civilization ». In the 1960s, Europe, the United States and the scientific tradition Henrique Cukierman (2007) named "Disembarked Science" were no longer, for many health professionals, epidemiologists, public health

[16] It is impossible, within the limits of this case study, to do justice to this hghly complex and rich history. Several excellent studies are available. On the history "Pasteurization" in Brasil, see Benchimol (1999); Löwy (2001); Cukierman (2007). On the relationships between Institut Pasteur and FIOCRUZ, see Lima and Marchand (2005).

specialists and researchers, the models to be followed to respond to the situation of health in the country. Rather than imitating European and North American (but not rejecting them liminally either), they sought the resources to reconstruct the knowledge and practices of public health in the experiences of Latin America. The critique of the "dominant biomedical model", within a framework heavily influenced by marxism, required health to be thought in its inextricability form social, economic and political conditions, which subordinated health and medical practice to the demands of capitalist order and of the liberal conception of medicine. The identification and characterization of « social determinants of health » thus became the core of a reflection coupled with a political intervention aiming at the transformation of those determinants. Currents like Latin-American social medicine or critical epidemiology tried to put together projects seeking the reconstruction of both public health (and of the role of biomedicine) and the social and political order. The relations between health, social inequalities, poverty, lack of sewage and of regular access to fresh water and to adequate housing; the inexistence of, or lack of access to public health care, social security and educational systems for the majority of the population; situations of gender, racial and class discrimination; regional asymmetries and political oppression were identified by these currents as determining health conditions which the dominant approach, centered on biomedical knowledge and practices and on conventional epidemiology, was unable to grasp, except through "proximate" determinants (agent, host, vector, environment) of health and disease as they were specified in approaches such as the natural history of diseases.

Supported by initiatives of the human resource sector of the Pan-American Health Organization (namely through the action of Juan Cesar Garcia), the movements seeking alternative definitions of health and disease and of their determinants and struggling for changes in the training, practices and organizations of medical and public health agents and institutions were to put up a new dynamics which seemed, in fact, to design a sort of « inversion » of the logic of Pasteurization: instead of bringing the laboratory and science to every corner of society, society was to be brought into all the sites where

health was a subject of refection, research, teaching and training, professional certification, policy-making, organization or intervention. During the Brazilian democratic transition of the 1980s, the movement for Health Reform (Reforma Sanitária) and the project of Collective Health became the expressions of this "inversion" of Pasteurism in its "tropical" version. Ironically, one of the centers of this process was the very institution founded by Oswaldo Cruz.[17]

In the following sections, we offer an account of the construction of health as co-production of the order of knowledge and the order of politics through the process of Health Reform and the constitution of Collective Health as a field of knowledge, collective mobilization and institution-building. Following the steps of Latour's analysis of Pasteurization in France or Cukierman's of "Disembarked Science", the entry point to this account will be the trajectory of one of the central protagonists of the process, Sérgio Arouca.

Sérgio Arouca was a specialist in Preventive and Social Medicine and a member of the Communist Party who would become, from the 1970s to his death in 1993, one of the main promoters of the Health Reform, advisor to the Pan-American Health Organization, the person in charge of the national health Plan in Nicaragua, under the Sandinista government, president of the Oswaldo Cruz Research Foundation (FIOCRUZ), a candidate to the vice-presidency of Brazil, a member of the federal Chamber of Representatives, Health Secretary of the State and of the municipality of Rio de Janeiro and National Secretary for Participatory Management of the Brazilian Ministry of

[17] « Inversion » does not mean the reversion of the achievements of the *sanitaristas*. Even though the results were not those expected by the « pioneers » of the late 19th-early 20th Century, they were nonetheless significant and are at the origin, for instance, of an unique institution (with it regional « antennae »), the Research Foundation Oswaldo Cruz (FIOCRUZ). FIOCRUZ is a public institution which has been active, since the creation of its first units, in biological, clinical, epidemiological, pharmacological and toxicological research, with a more recent expansion towards the social, historical and political sciences and the management of health systems and institutions. It has as well a significant activity in teaching, training activity and public intervention. With some other institutions and social movements, FIOCRUZ was a key participant in the Health Reform movement and in the building of the project of Collective Health. Speaking of « inversion », here, means walking back through the path followed by Pasteurism: the objective is no longer to transform society through science ad its laboratories, but to transform science through its exposure to other forms of knowledge and to social movements and initiatives. The history of "sanitarism" in Brazil is made of convergences, ruptures, interferences and inter-connexions of heterogeneous processes.

Health. Arouca's intellectual, professional and political trajectory conspicuously articulates the dynamics of co-production of a domain of knowledge and practices on health, Collective Health, and a political project, Health Reform. Arouca was a researcher and health professional trained within the dominant "biomedical paradigm", but he was as well a political activist, engaged in movements and initiatives promoting the right health as a basic right of citizens.

In July 1976, under the military dictatorship, Arouca was examined for his doctoral thesis at the School of Medical Science of the State University of Campinas. The thesis focused on the dilemmas related to the expansion of preventive medicine as a new model for the organization of health care and of medical education. The author drew on heterodox readings of Marx, Gramsci and Althusser, Foucault and Canguilhem, as well as on the theoretical contributions of currents like Latin American social medicine and critical epidemiology, community medicine and other emerging approaches within public health (Arouca, 2003). Arouca's thesis inscribes associations which could be described, drawing on a more conventional vocabulary, as inseparably intellectual and political. In fact, the thesis was heavily indebted to a collective work going on since the late 1960s, at the "Meetings of the Departments of Preventive Medicine of the State of São Paulo", but also to Arouca's interest in social science, which he became familiar with through his attendance of sociology courses at the University of Campinas. The publication of Arouca's work, shortly before his death in 2003, was preceded, in fact, by a significant circulation of typescript versions, which contributed to its becoming a key intellectual contribution to the Health reform movement.

The critique of the links of preventive medicine to the capitalist/liberal order and the need to dissociate the resources of the approach of that order - thus allowing the construction of new associations of medicine and society and of a new conception of health which would not be dominated by the « biomedical paradigm – was at the heart of Arouca's text. In its concluding chapter, Arouca presents his work as a contribution to a « Social Theory of Medicine »,

defining the latter as a "Social Practice among others, with its own historicity" (Arouca, 2003: 250). Although the explicit target of the thesis is medicine and its "preventivist" turn, Arouca's arguments push him towards an "expanded" conception for the domain of disease and health, through the proliferation of the associations of medical practices with the "conditions" defining its "own historicity". An inventory of those associations allows the passage from a description and critique of medicine as a domain of knowledge and practices to the theoretical and political reconstruction of *health* from the interferences, intersections and articulations of heterogeneous actors, entities and movements, which will take shape in health reform and in the project of Collective Health.[18]

As a movement, Health Reform emerged from the convergence, on the one hand, of a range of movements within the field of health, critical of the dominance of the "biomedical model", which were mentioned above. Health Reform rested upon a historical redefinition of health and of the health domain, understood as a process, and on the claim of the inseparability of the production of knowledge and intervention in society. The latter was based upon transdisciplinary collaborations and participatory procedures, namely those allowing the population to intervene in the design, implementation and assessment of health policies and, more generally, of public policies. This dynamic would take shape, above all, in an academic environment, through an effort towards scientific and intellectual renewal involving the convergence of health professionals and social scientists within the Sanitary Movement (Escorel, 1999). The creation, in 1976, of the Brazilian Center for Health Studies, CEBES (Fleury, Bahia and Amarante 2007), gathering mostly academics, provided an organizational infrastructure for the movement at its early stages. From there followed a convergence with other collective movements, emerging from other experiences, either from popular struggles

[18] On the Health Reform, see Fleury, Bahia and Amarante, 2007; Escorel, 1999; Gerschman, 2004. For detailed presentations and discussions of the project of CIlective Health, see Paim and Almeida Filho, 2000; Paim, 2006; Lima and Santana, 2006; Campos *et al*, 2006. An useful and detailed survey of the different orientations of social science research on and engagement with health projects in Latin America can be found in Minayo and Coimbra, Jr, 2005.

for the right to health, such as Popular Movement in Health, or from unions and professional organizations in the field of health, such as the Medical Movement.

Beyond the internal heterogeneity and the divergences among movements, which cannot be dealt with here, the latter had a decisive influence on the promotion of Health Reform, which was to become one of the most significant and long-lasting inititiatives for the democratization of society and the State in Brazil (Gerschman, 2004). A detailed description of these movements and of Health Reform drawing on an approach like actor-network theory would reveal not their heterogeneity in terms of composition, but also in terms of the resources deployed to build alliances and translate interests (Latour, 2005). One of the most important expressions of Health Reform was the creation of the National, State and Municipal Health Conferences, a kind of hybrid forum (Callon *et al*., 2001), which is still in existence in an institutionalized form The holding of the 8th National Health Conference in Brasília, in 1986, lead to the drawing of a document which, turned into a popular amendment presented to the Constituent Assembly, resulted in the inscription in the 1988 Federal Constitution.

The Conference gathered over 4,000 participants, following a long preparatory work within pre-conferences held in all States and in most municipalities. The Conference thus emerged as the end stage of a broader process that mobilized civil society, academics, health professionals, the private sector and civil servants in a debate, which was meant to be as broad and inclusive as possible, on a new project for public health and health care in Brazil.

In his contribution to the Conference, Arouca advocated an approach to health which extended the reflections he offered in his thesis, stating that

> [t]he problem here is not looking for a health model that would be adequate to our Brazilian culture, which you can draw out of your pocket any time, but search for a health system whose experience will be born from everyday community work in neighbourhoods, from the practices of trade-unions, of the Church, of the Health Secretariats of States and municipalities, who ahev done so much to change the prevailing system, drawing upon the very knowledge of people who, because they had been involved more instensely with this perverse

> system, went elsewhere in the country and, there, started a concrete experience, trying to modify the system (Arouca, 1986 : 39).

In the same speech, Arouca recalled the definition of health – converging with an increasingly influential conception within international organizations such as the World health Organization and the Pan-American Health Organization - which would be used in the documents produced within the Health Reform process: "(…) health is not simply absence of disease, but physical, mental, social and political well-being" (Arouca, 1986 : 37).

This definition was to be developed in the final report issued from the Conference:

- health is the "outcome of conditions related to access to food, housing, education, income, environment, work, transportation, employment, leisure, access to land tenure and access to health services (...), the outcome o forms of social organization of production, which may generate large inequalities in living standards".
- a conquest of the population, defined within "the historical context of a given society and at a given moment in its development, and it has to be conquered by the population through its everyday struggles.".
- a right, which takes shape in the guarantee, by the State, "of dignified living conditions and universal and egalitarian access to actions and services of promotion, protection and recovery of health, at all levels, for all those inhabiting the national territory, leading to the full development of the human being in his/her individuality".
- this right is formalized in text of the Constitution, but it is enacted, above all, through a health policy that has to be "consequential and integrated with other economic and social policies", with the means necessary to their enactment and guaranteeing the control by the population of the process of formulating, managing and evaluating social and economic policies. (Oitava Conferência Nacional de Saúde, 1986: 04).

In the wake of the constitutional article on health, laws were drafted defining the objectives and the architecture of s ingle health system (*Sistema Único de Saúde*, a universal health care system based on the promotion of health through acting upon the determinants of health, integrating care and prevention, and enacted through a decentralized organization and participatory management at all levels (federal, State, municipal). In spite of the turbulence which left its mark on the process of creating, organizing and consolidating SUS, of the unequal development of the process across regions and within regions, and the steps forward and back associated with changes in government, SUS became a key actor – an internally heterogeneous one, to be sure – as the institutional support of a project which, drawing on the contributions to the debates on Health Reform had in its horizon the redefinition of health, of its forms of knowledge, of organization and of intervention.

The project of *Collective Health* thus takes shape through the convergence of the scientific reinvention of health as a domain of knowledge and of ongoing practices since the 1960s, the Health Reform movement and institutional dynamics within SUS and different participatory procedures in the health sector. New master and doctoral programs, scientific meetings and professional and scientific organizations, such as *Associação Brasileira de Pós-Graduação em Saúde Coletiva* (ABRASCO), founded in 1979 (Lima et Santana, 2006), configure a renewed territory of knowledge, articulating the contributions of « heterodox » currents, critical of the « dominant biomedical model », and of the social sciences – whose role and weight in the process are significant. A broader and more complex conception of health will be inscribed in the final report of the 1986 National Health Conference, which will be promoted through a variety of movements for health Reform and though the institutionalized hybrid fora created as part of the democratic reconstruction of the State and of the organization and management of SUS, namely the councils managing sectorial policies, among which figure prominently the Health Councils, whose status as decision-making bodies at the federal, State and municipal level. A more detailed account of Municipal Health Councils is offered in the next section. Even though the composition

and workings of these Councils may vary considerably across municipalities and States, all Health Councils, at the three levels, are formally defined as spaces for the participation of citizens, officials and professionals or experts in the co-production of health policies. Parity in the composition of the councils (at least 50% of its members should be representatives of citizens and/or of civil society organizations or associations) is mandatory.

Collective Health thus emerges as an attempt at expanding and renewing the knowledges and practices of public health. Two of the most visible consequences of this project deserve to be stressed. First, the expansion of the human actors and forms of knowledge involved in the project, which redefines what counts as an actor or agent of public health. These include clinicians, nurses, epidemiologists, local or community health agents, health and biomedical researchers, health educators, production engineers (dealing with issues like urban infrastructure, health in the workplace or environmental hazards associated with industrial units), social scientists, social workers, environmental scientists, entomologists, toxicologists, health managers, health councilors... Secondly, new entities emerge which are enacted by the practices of these actors, and namely through eco-system or eco-social approaches to health or new approaches to the promotion of health, redefining the boundaries between the biomedical, the epidemiological, the political, the social and the environment.[19]

The project of Collective Health may be framed as a project of heterogeneous, situated and collaborative construction (Taylor, 2005) of the knowledge of he range of conditions, which established disciplinary or professional divisions of forms of knowledge and expertise and of their objects would describe as biological, epidemiological, environmental, sociological, institutional or political. These are at the origin of differentiated experiences of *vulnerability* which approaches based upon the "biomedical model" are unable to identify. This appears as of particular relevance in Brazil, one the world's most unequal societies, where the most serious health problems affecting most of the population include exposure to endemic and

[19] Czeresnia and Freitas, 2003; Carvalho, 2005.

communicable diseases such as malaria, dengue, tuberculosis, Chagas disease or HIV/AIDS. These diseases are commonly associated with inequalities in income, employment, housing conditions, availability of urban infrastructures (like sewage and provision of water) and access to education and health care. These problems are compounded by violence, which disproportionately affects the poorer populations and the neighbourhoods or territories they live in. Responses to these problems have as obligatory points of passage public policies in the fields of health, education, social security, employment, housing and urban planning. The availability of these responses is largely dependent on the capacity of those affected to collectively mobilize. Under these conditions, normative commitments, drawing on the vocabularies of rights, democracy and active citizenship, and the production of knowledge become mutually constitutive and pervade the discourses and practices of actors in public health.

The practices associated with Collective Health may be described as forms of *ontological politics* (Mol, 1999) In this case, the production of multiple realities associated with these practices suggests the need for an examination of the transformations of medical objects and entities – health, disease, causes or agents of diseases, diseased bodies, diagnoses, therapies – which are the outcome of operations that "socialize" practices in the health domain, or, in other words, different ways of enacting (bio)medical entities. But one might as well explore the heuristic power of the concept of ontological politics for the description of the processes through which collectives come to existence which enact « health » as a heterogeneous entity. The subjects or entities associated with this redefinition of health should not, however, be simply described as "demedicalized". In fact, the demand of access to all forms of medical care is a central tenet of Health Reform, Collective Health and the definition of SUS. The challenge appears to be rather, in a first step, that of dissociating – through specific forms of critical work – the « biomedical model » from its attachments to a given social, economic and political order, to undo the attachments between forms of knowledge, practices and institutionalized ways of « enacting » disease and diseased persons, but also with the order of capitalism and liberal medicine. The second step entails the

creation of new attachments, allowing biomedical knowledge and practices to be reconfigured through their associations with other forms of knowledge and other practices and to modes of collaborative production of both knowledge and decisions. Through this redefinition of attachments and the mutual reconfiguration of the territories of knowledge and practice involved, health and disease will themselves undergo a redefinition, through the intersection, inter-connection and proliferation of new collectives and practices. In the process, what Latour christened the "sociology of the social" (and the entities whose existence it postulates, such as society, institutions, social classes and groups or culture)[20] becomes part of a repertoire of resources for the critique of attachments created in and through the knowledges and practices of biomedicine. But the co-production of the new "health order" postulated by the project of Collective Health entails new forms of association generating assemblages which the "sociology of the social" is not equipped to identify or follow in the process of their constitution or emergence. Health promotion, eco-system and eco-social approaches to health, the political ecology of health but also the institutionalized forms of participation and the non-institutionalized forms of collective action appear, under these conditions, as forms of both (co)producing the emerging "health order", its actors and multiple realities, and contributions to what Latour (2005) describes as a "sociology of associations".

1. The constitution of the Single Health System and the move towards health promotion

The 8th National Health Conference was the breeding ground of the movement for the Popular Amendment to be presented to the Constitutional Assembly aiming at the integration of the proposals of the Health Reform Movement in

[20] On the difference between a "sociology of the social" and a "sociology of associations", see Latour (2005).

the future Constitution of Brazil[21]. The Popular Amendment movement arose from the confluence of a number of left-wing political movements and several health groups, such as *Movimento Sanitarista*, the Medical Movement and the Popular Movement for Health. The Popular Amendment, articulated with several other participatory mechanisms – such as the possibility to deliver suggestions or to promote public hearings to thematic subcommittees – resulted in the presentation of 122 amendments, supported by 12 million signatures. Of these 122 amendments, 60% were approved and included in the text of the Constitution.

The success of *Movimento Sanitarista* was acknowledged by the inclusion in the Constitution of the main guidelines of the health reform program it proposed:

> Health is a right of All and a duty of the State, granted through social and economic politics aimed at the reduction of the risk of disease and other injuries and at universal and egalitarian access to actions and services for its promotion, protection and recovery. (Brazilian Constitution, article 196)

The sanitarian maxim "Health is a right of All and a duty of the State" meant that access to healthcare ceased to be conditional on having a labour contract. It became a right associated with citizenship and extended to each and every citizen. The statement of this principle required, in order to become effective, that a national, public health system be created. As health became a matter of citizenship, citizen participation in the definition of health policies and in the monitoring and control of the system came to be viewed as a crucial condition of the enactment of health as a right (Guizardi e Pinheiro, 2006). The creation of a decentralized and regionalized system, with an increasing role for municipalities, was inscribed in the Constitution:

> All actions and public services on Health integrate a regionalized and hierarchical network constituting a single system, organized according to the following guidelines:
>
> I – decentralization, with a single direction within each sphere of government;
>
> II – integral care, giving priority preventive actions, without hindering the provision of medical care;

[21] More detailed information about the Brazilian Constitution can be found at http://www.planalto.gov.br/CCIVIL_03/Constituicao/Constitui%C3%A7ao.htm.

> III – community participation.
> (Brazilian Constitution, article 198)

The Constitution of 1988 sanctioned citizen participation as a key structural element of the future Single Health System. This came as a significant break in the conception of health care in Brazil, along with a transition from an emphasis on healing based on what critics called the dominant biomedical knowledge, and on the control of State and medical science over society, to an approach emphasizing prevention and promotion of health. Control was to move, according to the new model, from the medical establishment and the State to "society", through its representatives. This would allow effective participation of citizens in the definition and control of health policies.

Society moves, under this framing, from a passive entity, recipient of medical care and of public health interventions, to an active force in the design, monitoring and assessment of the actions of the health system. The assumption behind this move was that citizens, as users of the health service and as having to live with the consequences of health policies, were capable of meaningfully interacting with health professionals and public health agents as long as these used a language comprehensible to all:

> We, of the health sector, know that health is determined, above all, by the economy, by politics, by society, and we have the huge responsibility of constructing this project. It is up to us, professionals, technicians, to break the wall and open channels of communication with Brazilian society, even learning how to speak with it. We have to start changing our language and changing the way we hear, for when a neighbourhood association or a trade-union speaks, we can understand. And when we say that it is important to fight communicable diseases in this country, this can be said in a simple and objective way that our people can really understand. (Arouca, 1986: 41)

The Single Health System was created by the organic law 8.080 (1990), which defined, in its article 36, the conditions for budgetary allocation to the different levels of the system. Municipal Health Councils were created, together with the official recognition of Health Conferences, through organic law 8.142 (1990). This law concerns "community participation in the governance of SUS governance and intergovernmental financial transfers in Health" and creates, in each sphere of government sphere - municipal, State and federal -, and without any loss of functions of the legislative power, the

Health Conferences and Health Councils. Both Councils and Conferences have to guarantee the parity of representation of users of the health system and other actors. A mandatory feature of the composition of Health Councils is thus that the representatives of users must correspond at least to 50% of all members, with 25% allocated to health workers and another 25% to service providers and representatives of local government.

There are two different principles at work in the allocation of seats to representatives of users: the first is based on a territorial criterion, and the second on the inclusion of risk groups and user associations.

The same law determines that Health Councils will be permanent and the main deliberative space of the Single Health System within each of its three spheres of governance. Councils will act upon the formulation of health strategies and upon the control and evaluation of their implementation within their respective sphere of governance. This includes the governance of economic and financial aspects. All decisions by the Council have to the ratified by the leading political official within each sphere of governance. This means that Health Councils do not govern directly the health system, but they are responsible for defining parameters of public interest that will have an enormous influence on government and on the design and implementation of health politics (Bravo e Matos, 2007). But the actual importance and power of Municipal Health Councils in the organizational structure of SUS becomes more visible when one takes into account their key role as mediators in the transference of financial resources from the federal and State governments to the municipalities. The Health Conferences, in turn, which take place every four years to give voice to the organized segments of civil society, have the responsibility of evaluating evaluate the health situation and discussing the guidelines for the formulation of health politics within the corresponding levels of government.

2. The Municipal Health Council of Belo Horizonte[22]

The Municipal Health Council of Belo Horizonte (CMSBH) is often presented in both political and academic discourse as an exemplary case of success of the democratization and municipalization of decision-making in the field of health. The Council was created by Municipal Law Nº 5,903 (1991), later modified through Municipal Law Nº 7,536 (1998). These two laws an architecture of institutionalized spaces allowing public participation at the different levels of territorial organization within the municipality: the Municipal Health Council, the District Health Councils, the Local Health Commissions and the Municipal Health Conferences. Specific competences were allocated to each of these institutional spaces. The Municipal Council operates within the territory encompassing the whole city of Belo Horizonte. District Councils have authority within specific health districts, corresponding to existing administrative regions within the city.[23]. Finally, a Local Health Commissions exists within each Community Health Centre, in neighbourhoods. These three institutional spaces are linked hierarchically.

In terms of health care infrastructure, the Municipal Health Network of Belo Horizonte is composed of 131 Community Health Centres, 6 Emergency Units (UPA), 6 Health Units (PAM) and more than 40 private hospitals with agreements with the public sector.

[22] This section summarizes part of a study of Health Municipal Councils as forms of participatory democracy by Marisa Matias and Daniel Neves.

[23] On the administrative division of Belo Horizonte, see *supra*, Part I

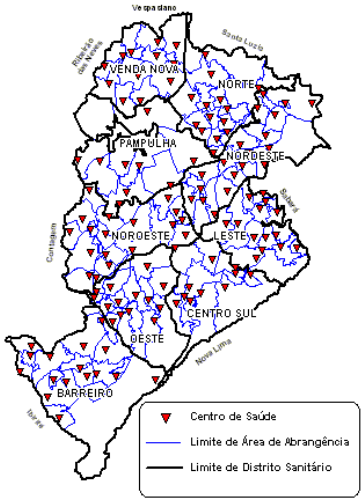


IMAGE 1
Belo Horizonte's Municipal Health Network[24]

The BHHMC has 36 seats distributed between users, workers in the health sector, representatives of health care services and public managers representing the municipal government. The distribution of seats follows a distributive formula defined in Municipal Laws 5,903 (1991) and 7,536 (1998), allocating 50% of the seats to users, 25% to workers, with the remaining 25% to be divided between representatives of the municipal government - public managers - and spokespersons for the public and private health care providers.

Of the 36 seats, 18 are thus occupied by the representatives of users. The distribution of the seats follows two different but complementary distributional logics. The first is territorial, allocating one chair to each health district and thus guaranteeing the representation of an user from each district, 9 in all. A second distributive logic allocates seats to representatives of interest or risk groups or other organizations of users of SUS. The actual distribution is as follows: one representative of Associations of Handicapped Persons and Carriers of Chronic Diseases; four representatives of trade unions of the industrial and service sectors; two representatives of popular and community movements; one representative of the Women's Movement; and

[24] Information available at the Health Municipal Secretary's site: http://portal.pbh.gov.br/pbh/index.html?id_conteudo=3165&id_nivel1=-1.

one representative of pensioners' movements. Users are thus defined according to a logic of residence and to a logic of membership in a heterogeneous set of groups, associations or movements, based on different criteria (such as being carriers of certain types of diseases or handicaps, or belonging to minority groups). A logic of inclusion is thus combined with a logic of territoriality to ensure that all the potentially affected groups or sectors of the urban population will be represented in the Council.

The remaining seats are distributed in order to include representatives of the municipality with links to the health system, health professionals and different interest groups or entities who engage in different types of interactions with the system.

The main competences of the Health Municipal Council were defined as:

- defining strategies and controlling the enactment of municipal health policies;
- defining guidelines for the elaboration of health plans (taking into account the epidemiological characteristics of the population and the model of organization of health services);
- approving criteria and wages salaries for different health services;
- proposing criteria for the definition of standards for health care;
- monitoring and assessing the performance of public and private health services;
- monitoring the development process and incorporating scientific and technological innovations into the field of health;
- approving, assessing and evaluating the Municipal Health Plan;
- approving, assessing and monitoring the management of municipal health resources;
- establishing permanent channels of dialogue with civil society.

Both district councils and local commissions were assigned their own competences and roles.

The organs of the Municipal Council are:

- The plenary (which is the deliberative instance);
- The steering board (composed of 2 users, 1 worker and 1 service provider);
- The executive secretary (who provides administrative support)
- The technical chambers (Human Resources, Financing, Control, Assess and Municipalization, Communication, Sanitation).

To sum up, Health Municipal Councils appear as hybrid institutions that associate direct democracy mechanisms with those of representative democracy (van Stralen, 2005).

2.1. The struggle for the "soul" of Health Reform

In the second half of the 1990s, an attempt was made to launch a neoliberal reform of the healthcare system pointing in a direction opposed to that consistent with principles that had been at the origin of SUS. The reforms, proposed by successive governments until the rise to power of President Lula da Silva in 2002, defined the market as the main mode of regulation of the health sector and of the public health system, and promoted private health corporations as the main providers of health care. The private sector, in contrast, would offer a full range of medical care services to all those capable of paying for it (Bravo e Matos, 2007).The role of the State was to be limited to the provision of care to the most vulnerable groups in society through a basic package of medical care services. This ran against the project of universal health coverage of the Single Health System, which was to become the target of measures of "rationalization" and reduction of costs. The private health sector would be offered, at the same time, political and fiscal incentives to invest in its growth, either through the dissemination of private hospitals or through the increasing numbers of health private plans and insurances made available on the market. The planned administrative reform

of the public system were to be based upon new organizational and governance models, bringing together a range of public and private actors, Social Organizations (OSs) and Civil Society Organizations of Public Interest (OSCIPs).

The plans for this reform brought to the surface two conflicting models of the role of the State in the provision of health care, but also different framings of the "users" of the health care system. One is that of the user as *citizen* and the other that of the user as *consumer*. According to the first framing, citizens, as subjects of rights inscribed in the Constitution, not only are entitled to have access to health care according to their needs and regardless of their socio-economic status, but they are entitled as well to participate in the definition and control of the Single Health System regarded as a collective project aiming at the welfare of all. If framed as consumers, users will have an active role in influencing the system only through their choices exercised in a market of health goods and services. Access to health care would thus not be universal, but dependent on economic capacity. Whereas the first framing rests upon a logic of inclusion and equal rights for all, the second generates or perpetuates inequalities and exclusions. Those excluded from access to private health care would still have access to a "minimal" package of basic care delivered by a strongly reduced public service, but the would be deprived of access to more specialized or complex forms of care. The reform would thus compound existing situations of social and environmental vulnerability with institutional vulnerability.

While the original project of SUS was premised on a logic of inclusion which incorporated citizens and civil society organizations into particular forms of hybrid forum – health councils –, constituting spaces that would constitute them as political actors with a voice in the definition and control of health policies, the reform labelled by its opponents as neoliberal would displace participation to the marketplace and redefine users as consumers, who would choose between whatever services and goods would be on offer, according to their capacity to acquire them. This project generated a vigorous opposition from different civil society organizations and movements, which restated

their support of the right public health care as an inalienable citizenship right and, therefore, the State should fulfil its constitutional duty of promoting equality and universality of access to all forms of health care within the Single Health System. What was at stake in this episode was not only how each of the two models performed users of health care services, but the way individuals recognize themselves through their relation with health and health care as consumers or as citizens (Mol, 1999).

The history of Health Reform and of SUS since the 1990s is one of a contested terrain, where "managerialist" approaches to the system and its reform coexist with the commitment to the universalistic and participatory conception associated with the Health Reform, and where approaches centered in biomedicine –, though still dominant, are challenged by the constellation of alternative directions developed within Collective Health. Pressure to pursue the decentralization of health care and the comprehensive coverage of the whole population are still the horizon of federal health policies and they have been implemented, though with unequal results throughout the country, often stumbling on the inadequate provision of basic health care and, more generally, of public health care in a number of States and municipalities. Recurrent crises associated with surges of endemic diseases, like the 2008 dengue epidemic in Rio de Janeiro, put the system and the current practices of its managers under strong pressure to respond to the demands for an effective enactment of a system based on the priority to the promotion of health and on decentralized, basic health care. In the following sections, we shall focus on two of these crises and on the responses of institutions and collective actors. These cases provide entry points into the way the objective of providing health care for all and protecting public health is made accountable to society.

II.2. The control of endemic diseases in urban settings in Brazil: The case of dengue

1. Introduction

Endemic diseases have been a major concern of public health systems since their inception in most countries in the late 19th Century. In tropical countries in particular, infectious diseases such as malaria, yellow fever, dengue, Chagas disease, tuberculosis and, more recently, HIV/AIDS, among others have thus figured prominently as objects of research, epidemiological surveillance and public health interventions in countries of the Southern hemisphere. Despite the recognition by international organizations that these diseases are among some of those claiming more lives across the world, only a small fraction of the resources dedicated worldwide to biomedical research deal in a sustained and systematic way with the causes, etiology, epidemiological chains and ways of dealing with these pathologies. There is broad consensus within organizations such as the World Health Organizations and within its regional branches that most of these diseases are strongly correlated with inequalities, poverty and lack of access to basic medical care (Farmer, 1999). In the case of Latin America and the Caribbean, the Pan-American Health Organization has been stating, since the 1960s, that the successful struggle against these diseases require an active engagement with has come to be described as the social determinants of health Cueto, 2006). This view, which has become prominent within the PAHO and within public health bodies of most countries of Latin America and the Caribbean, has been influential in redirecting interventions related to endemic diseases from at

best marginally successful strategies aimed at their eradication to strategies of control. This move is not without broader consequences for public health strategies across the world, including Northern countries which, up to now, have been spared (or have succeeded in eradicating, even if only temporarily) most of these diseases, or have managed, in cases like those of tuberculosis or HIV/AIDS, to control their spread. Both changes in climate and the increasing possibilities for infectious agents or vectors of infectious diseases (such as mosquitoes) to travel fats and across great distances, as stowaways well hidden in people's bodies, clothes or other personal belongings, as well as with animals, plants or food, increases the likelihood Northern hemisphere countries being threatened by pathogenic agents against which people have little or no immunity, and which neither scientific institutions nor health agencies are prepared to face in an effective way. The current concern with (re)emerging diseases, which in fact amounts to the "return of old diseases and the appearance of new ones (Lewontin and Levins, 2007), is an expression of this sense of threat. The study of the current and emerging strategies deployed in Southern hemisphere countries to manage endemic disease is thus of particular interest for regions of the world which have developed biomedically-centered health systems, which are likely to provide a limited capacity to respond to surges of infectious and, in particular, vector-bourne diseases.

In Brazil, efforts to eradicate these diseases, including dengue, malaria or Chagas disease stumbled on the resilience of the vectors and lead, in the 1990s, to the widespread adoption of new strategies for the control of these endemic problems. These new strategies were based, first, on a move from trying to eradicate pathogens or vectors (namely though chemical means, which had significant negative side-effects and were generally of limited effectiveness) to the design of place-based, collaborative and participatory approaches to the control of the vector, namely through interventions in the environment, so as to remove conditions favourable to the creation of niches for mosquitoes to live and reproduce.

Programs of this type involve the articulation of a range of different disciplines and forms of knowledge, including, for instance, the collaboration between public health specialists and entomologists, but also local communities and their knowledge of local ecologies, construction materials and social organization. At the same time, the effectiveness of these approaches requires the monitoring and evaluation of its successes and failures, which, in turn, lead to the design of participatory forms of accountability by those involved in the programs, and based on criteria to assess collective health, including ecosystem criteria and criteria based on social determinants of health.

As the experience of Brazil and, more generally, of Southern hemisphere countries suggests, the management of endemic disease is thus not just a matter of producing and deploying appropriate biomedical knowledge. What counts as adequate knowledge of the disease, of what causes it and how, of the epidemiological chain, of how it is detected and diagnosed is as much at stake here as the definitions of what counts as appropriate action to face the disease, who are the actors involved in this action, how interventions are designed and implemented, how they are evaluated and according to which criteria and, last but not least, how responsibility for the success or failure of interventions is allocated. The case study presented in this section provides an exemplary instance of how the framing of endemic disease in Brazil changed over the last decades, how different framings came to coexist and how they allowed different ways of "bounding" the problem and of defining appropriate modes of intervention. These, in turn, are crucial for the definition of how responsibility for interventions is allocated. Interventions followed a path leading from a focus on the eradication of diseases through the eradication of its causes and vectors to self-described strategies of control of the diseases through the control of their vectors. Throughout this move, the broadening of the range of actors (human and non-human) involved and the number of attachments that bring them together, the forms of action allowed by their new configurations and the ways in which those forms of action are made publicly accountable were all part of a process of "heterogeneous construction" of the control of the vectors and of new

instantiations of the social control of health policies (Taylor, 2005). Along this process, both the definition of what is "inside" and "outside" the frame of the problem and of those human or institutional actors who may be defined as responsible for action and its outcomes are inextricable, and are subject to controversy and contestation. Levins (1998: 582) provides a striking enumeration of the tasks that the protagonists of the control of endemic diseases are faced with, as they attempt to frame their definitions of the situation and of the very ways of acting upon it: " a framework for solving a problem should be construed large enough to accommodate an answer; should reject the false dichotomies that fragment our understanding; should acknowledge wholeness and the inseparability of internal and external explanation; should include history; and should be self-consciously partisan". As we shall see in the following sections, Levins's approach provides an interesting tool to explore the ways the struggle for the control of dengue in Brazil has been framed over the last decade. His last point (on partisanship) is of particular relevance for understanding how the constitutional principle of "health as a right of all and a duty of the State" was enacted, through controversies and crises, to face situations of both "routine" endemic manifestations of the disease and crises (described as epidemics) such as the one currently affecting Rio de Janeiro.

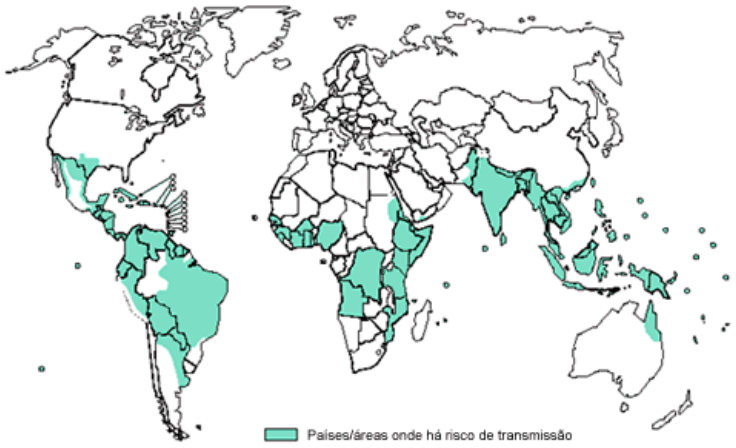
Matters of accountability are clearly paramount in this case. They emerge both in relation to the ways in which the adequacy and validity of the knowledge produced on dengue and how it affects human populations is recognized, by whom and under what conditions, but also in relation to the ways of defining who is accountable to whom and by which procedures for the actions taken. The two mutually define each other, they are co-produced (Jasanoff, 2004).

2. Dengue as a public health problem in Brazil[25]

Throughout the world, over 3.5 billion people are exposed to the risk of transmission of the dengue fever through its vectors, such as the mosquito *Aedes Aegypti* (WHO, 2001). Dengue is defined by international organizations (World Health Organization, Pan-American Health Organization) and by national health agencies in Southern hemisphere countries as a major health problem, which may become even more widespread as the populations of regions which were free of infestation by the vector are now at risk, namely associated with climate change, of being infested or re-infested by the vector, The seriousness of the situation is further underlined by the fact that in these regions human populations are deprived of immunity towards the dengue virus. Additional sources of concern arise from the uncertain evolution of the different strains of the virus. In the absence of a vaccine and of limited effectivity of therapeutic means in dealing with the more severe cases of haemorraghic dengue fever, strategies aimed at the control of the vector are the best available means for dealing with this endemic disease. The Oswaldo Cruz Institute, in Rio de Janeiro, expects to deliver an effective vaccine against all four types of dengue by 2012.

In Latin America, a campaign for the eradication of the vector was officially initiated in 1947, with a relative success over the following years. In 21 countries of Latin America and the Caribbean, successful control of the vector was claimed in the 1950s. Starting in 1962, however, there was a considerable growth in the density of the vector population, which lead to the reappearance of *Aedes Aegypti* in urban settings in all countries (Santos and Augusto, 2005; Pereira, 2000)

[25] The account that follows relies heavily on Augusto e tal, 2005, and, in particular, on Santos and Agusto, 2005. We drew as well on official documents from the Brazilian Government and on WHO materials. Paulo Sabroza, from ENSP/FFIOCRUZ, in Rio de Janeiro, generously shared with us his knowledge and experience in the field of control of endemic disease and of dengue in particular.



Fonte: Gubler, Comp.Immun. Microbiol. /infect. Dis. 27 (2004) Fonte:OMS 2004

Although the dengue vector was introduced during the colonial period, dengue was not regarded as a significant public health problem until the 1980s, when for the first time important outbreaks of the disease, especially in urban settings, were confirmed. In fact, *Aedes Aegyptae* was the target of eradication campaigns, centralized and resorting to chemical means, but because it was the vector of urban yellow fever. In the wake of that campaign, A. Aegyptae was declared eradicated in 1955. During the decade that followed, however, Brazil went through a resurgence of the vector. Since neighnouring countries, including Guyana and Venezuela, but also the USA, Cuba and several central-american countries had significant levels of infestation, it is likely that this re-infestation was the result of cross-border travelling of the mosquito. In Belém (Pará, in Northeats Brazil), A. Aegyptae reappeared in 1967, and in Rio de Janeiro it was detected again in the late 1970s, and in Roraima in 1981, where the first epidemic manifestation of dengue was recorded in the city of Boa Vista, with 7,000 cases. A department of the federal government in charge of the supervision of public health campaigns launched an emergency intervention in Boa Vista aimed at eradicating the vector and providing vaccines against yellow fever.

From 1986 onwards, a number of epidemics of dengue were recorded in several areas of the country. Rio de Janeiro was affected by epidemics in 1986/87 and 1990/91, and again in 2002 and 2008. Alagoas and Ceará had epidemics in 1986, Pernambuco, Bahia, Minas Gerais and São Paulo in 1987, Mato Grosso do Sul and, again, São Paulo in 1990, Tocantins in 1991, mato Grosso in 1992. Different States in the Southeast and the Northeast were hit as well in 1998 and 2002. In late 2006, a dengue outbreak was recorded in Belo Horizonte, and at the time of writing Rio de Janeiro is undergoing one of its most severe epidemics, which has prompted a strong mobilization of the Federal, State and Municipal Governments of the army and of the population in an attempt to control the spread of the vector. More than 60,000 cases have been recorded with about 70 fatalities. One of the results of the massive effort to control the disease in Rio was the reinforcement of community-based responses. We shall come back to this aspect later.

Dengue was defined as a public health problem in Brazil in the early 1980s. Since then, different strains of the vector have spread throughout the country, thus raising a huge challenge to the health authorities as to how to respond to the problem. But what does it mean to define dengue as a public health problem? Who can legitimately produce this definition? Is there one "right" definition? What counts as adequate knowledge of the problem? For whom? What are the consequences of defining "the dengue problem" one way or another? And how is the responsibility for dealing with the problem distributed?

In the following sections, different framings of dengue as a health problem are presented and discussed.

3. The biomedical framing of dengue

A common biomedical definition of dengue is that of an infectious disease caused by an arbovirus. In fact, in order for the biomedical entity "dengue" to exist, other entities have to get into the picture. The first is a vector. The

arbovirus has t be carried and transmitted through one of several possible vectors, the most important being the mosquito *Aedes Aegypti*, which is also one of the vectors of urban yellow fever. Only Aedes Aegypti females are carriers of the virus. Dengue fever is thus, under this first definition, the outcome of the successive encounters of a virus, a mosquito and a human being. But there is more to the biomedical definition than this triangle. There are four different types of dengue virus, DEN1, DEN2, DEN3 and DEN4, named after the order of their identification. Only the first three are found in Brazil. These different types are identified through serotyping. When a human host is infected by one of the types in its benign form, and provided timely treatment, he/she acquires temporary immunity against all types, but permanent immunity against only the type he/she was infected with. Dengue has thus become a more complex entity. Under the noun "dengue" are included, in fact, different types, which may be identified through serotyping. The biomedical activities required to identify the presence of the virus and its type are thus constitutive of the definition of an entity which, otherwise, would be recognizable only as a disease through the symptoms exhibited by human patients.

The symptoms of dengue include headaches, pain in bones, joints or muscles, skin eruptions and leucopenia. If no care is provided, symptoms may become more severe, and may hint at the presence of haemorraghic dengue, a less benign form of dengue than the most current form. The main symptoms of haemorraghic dengue are: high fever, significant haemorragy, generally associated with hepatomegalia and, in the most serious cases, circulatory failure. Whereas lethality for the more benign forms of dengue is low if appropriate medical care is provided when the disease is detected, haemorragic fever may generate dengue shock syndrome (associated with loss of blood) which may result in the death of the person affected (WHO, 2001: 1).

As for the treatment of dengue, let us turn briefly to the advice given in a website dedicated to the current dengue epidemic in Rio de Janeiro. No specific treatment for the benign or "classic" form is available. This means

that biomedical interventions will consist of treating symptoms like headache or pain in the body, with painkillers and antithermics like dipiron. Salicilates (like Aspirin) should be avoided, since they may favour haemoraghies. Rest and the consumption of fluids is another major indication. Those patients affected by haemorraghic dengue fever should be carefully observed for the identification of early signs of shock, like the fall in blood pressure. "The critical period is the transition from the stage of high fever to the stage without a fever, usually after the third day with the disease. The person no longer has a fever, and that leads to a false feeling of improvement, but the clinical condition of the patient then deteriorates" In less serious cases, if there is a danger of dehydration due to vomiting, rehydration may be made at health care units. The text we are quoting from conclude with the warning that some of the symptoms of dengue can be diagnosed only by a physician (http://www.riocontradengue.com.br/).

Dengue has thus become an even more complex entity: the outcome of the successive encounters of a virus, a vector and a human host; a set of four different types of virus, identifiable through a specific type a biomedical practice, serotyping; a set of symptoms, some of them recognizable and describable by "common" people and some identifiable only by medical professionals though specific diagnostic acts, and which allow the distinction between a benign forma and a more serious, potentially deadly form of the disease; and finally, a set of therapeutic procedures, appropriate to the stage of the disease, to the degree of its severity and to its form (common or haemorraghic). This set of features configures what we may call the biomedical framing of dengue. We could add to this the recent attempts to produce a vaccine against the dengue virus, and the difficulties in achieving this aim due to the need for the vaccine to be effective against all four types of the virus. This would extend the biomedical framing towards prevention. For the time being, however, prevention is mainly enacted through procedures which are not framed as biomedical. In fact, within the biomedical frame, action is directed towards the patient and, in the case of

research associated with vaccines, towards the virus. A conspicuous absence of this picture is the vector. Although it is recognized as the means through which the virus is transmitted, biomedical practices do not focus on the vector. Clinicians will diagnose patients and provide whatever treatment is available, but it is beyond their reach as clinicians to engage the vector directly. The development of vaccines, in turn, engages biomedical researchers directly with the virus and its various types. Patients, framed as such, interact with medical professionals who diagnose the disease through relevant symptoms and administer treatment. It would be inaccurate, however, to say that physicians and patients do not engage the vector or act "upstream" on the epidemiological chain, as we shall see. But this requires that "dengue" be framed in different ways, and that these human actors be "enrolled" in different networks (Callon, 1999). The biomedical frame is just one of several ways of framing dengue as a health problem.

4. From epidemiology to health surveillance

Epidemiological approaches to dengue are closely related to the biomedical framings discussed above.[26] Epidemiological knowledge depends, in fact, on the diagnosis of cases through clinical interventions. The range of entities and relations it considers within its purview, however, are broader, and entities like the virus or patients are redefined through different attachments (Latour,

[26] For reviews of the epidemiological studies of dengue, see Teixeira *et al* (1999) and Guha-Sapir and Schimmer (2005).

1999). Epidemiological approaches rely on two critical devices: the epidemiological chain and representations of the spatial distribution of the disease and its correlates. Not all currents within epidemiology enact these in similar ways. A review article in an official publication provides an useful overview of recent developments in the field. What counts as being part of the epidemiological chain has gone all the way from the sequence infected mosquito – susceptible person – infected person – infected mosquito and its repetition (which was formulated in the early 20th Century) to more complex approaches where "factors modulating the circulation and transmission of the dengue virus" are arrayed under the three categories of "vector", "human host" and "virus". The "vector" category focuses the distribution, dispersion, density and quantity of mosquitoes and of eggs of mosquitoes, which determine "vectoral competence". The variables pertaining to the "human host" include susceptibility, individual and collective immunity, "individual factors" such as race, nutrition, health status and previous exposure to infection, and variables related to the "organization of social space", such as population density or "habits and modes of living"; the interaction of these variables determines the probability of becoming infected. Finally, the "virus" category includes, among others, differences in serotypes (including genetic differences), virulence and several variables related to the viral load in the infected person and the circulation (and its sequence) of different types; these variables determine the probability of transmission of the virus. Complex explanatory models of the "production of infection" are constructed on the basis of this arraying (Teixeira, Barreto and Guerra, 1999: 7-11). As for spatial representations of dengue and its distribution, this is commonly achieved through a set of conventional approaches to the mapping of the geographical distribution, incidence, prevalence and a number of correlates of the disease, including so-called "social determinants of health" and other information on the health conditions of the populations under study. What all epidemiological approaches have in common is their definition of the disease as an entity whose manifestations are inscribed in space. What "space" means here may, in turn, vary considerably. In some cases, it is defined through a set of coordinates which can be plotted on a two-dimensional map following a set

of conventions and thus allow comparative overviews of the relative impact of the disease on different populations or groups reduced to their spatial location. In other cases, space is associated with the territorial inscription of the particular populations or groups or of the conditions defined as relevant to the study. "Territorial" here means that the density and complexity of the relationships inscribed in space are taken into account as relevant contributions to what counts as an appropriate description/explanation of patterns of distribution of the disease. Beyond the differences between epidemiological strains or "schools", what is striking about their approaches is the increasingly broad focus on a range of entities and relations which are absent from biomedical framings, as well as the specific way these entities and relations are handled within explanatory frameworks, themselves of variable complexity. Epidemiology, especially through its association with "surveillance" was to become a major building block of a redefinition of preventive approaches.

5. Enacting dengue in public health

For organizations and institutions in the field of public health, dengue has been a problem to be dealt with through health policy interventions. The notion of "strategy" has often been used by actors to describe these framings. It may be useful to start with an account of the shifts in strategies that occurred over the last three decades.

5.1. Strategies for fighting/controlling dengue

By the mid-1970s, international organizations such as WHO and PAHO moved on to redefine and broaden their strategies to deal with the obvious failure of approaches based on the attempt to eradicate the vector of dengue. The emerging strategies focused on control of the vector, rather than eradication. Effective control required that it be enacted at all stages of the life-cycle of the vector, and that epidemiological surveillance be coordinated and

articulated with the promotion of actions aimed at integrating the affected or vulnerable populations and communities. This integration included, but also went beyond, initiatives of health education and education for prevention.

Let us look more closely, first, at how epidemiological surveillance was organized. The Organic Law on Health (1990) defined epidemiological surveillance as "the set of actions which provide knowledge, detection or prevention of any change in the factors that determine or condition individual and collective health, with the aim of recommending and adopting measures for the prevention and control of diseases and negative events".

Proposals were drafted aimed at broadening the concept of epidemiological surveillance, which would become part of a more inclusive Health Surveillance. The latter would explicitly consider environmental and social factors, as well as the effects of the organization and actions of the health care and health promotion services and the situations of vulnerability associated with specific populations and communities. The concept of vulnerability itself was to become a "concept in progress", increasing both its range and its specificity. Vulnerability was thus to be understood not just as a biomedical or epidemiological concept, but as an account of the configuration of biological, environmental, social and institutional conditions associated with the health/disease process and, more broadly, with the well-being of citizens (Porto, 2007). In relation to dengue, this broadening definition of vulnerability had as one of its consequences a growing focus on the socio-ecological conditions associated with the disease and with exposure to the vector.

5.2. The National Plan for the Control of Dengue (PNCD) and its critics

The passage from a strategy based on eradication of the vector to a strategy aiming at the control of the vector was progressively made during the 1990s, but the new strategy was officially turned into a National Program only in 2002. In 1996, a Program for the Eradication of Aeges Aegypti (PEAa) was announced by the Ministry of Health. The claim that the Program was a significant shift in relation to previous initiatives was based on the allegedly

"integrated" approach it proposed, through the simultaneous intervention in health education, the construction or renewal of infrastructure (sewage in particular) and actions aimed at the eradication of the vector through the use of physical, chemical (insecticides, used both against larvae and adult forms of the mosquito) and biological means. These actions would be performed through agreements with municipalities. Despite the ambitious formulation of a "science-based" approach which should lead to the eradication of *A. Aegypti* by the year 2000, the result was, again, a failure to meet the objectives of the program. In fact, the actions aimed at education and information and at the improvement of sewage, provision of fresh water and management of waste were not implemented. As for the actions aimed at the vector, the approach used, relying almost exclusively on chemical means, did not take into account the side-effects and harm to eco-systems and to human health arising from the use of the chemical insecticides. As critics of this program wrote, the possible effects of the insecticides on the health of human beings were hardly the object of specific studies prior to their application, and were likely to generate other, "hidden" public health problems (Santos and Augusto, 2005: 119-120). A further problem with the strategy deployed was that there was little acknowledgment of the possible or likely harmful repercussions on ecosystems and on humans who are part of these eco-systems, in a tropical or subtropical setting such as Brazil, of the eradication of a species of mosquito. In fact, and still according to the same authors, the problem with the strategy was not just that of the means it relied on, but of its very aim, that of eradicating *A. Aegypti*. Even if the latter were viable – which experience suggests it was not – one should question its desirability, based on its possible effects on eco-systems. In fact, this debate did not end with the subsequent change in strategy, since it was claimed by some that a viable alternative to insecticides would be biocides with no harmful side-effects for humans (Santos and Augusto, 2005: 120). The latter position relied on the claim that the vector is the central element in the chain of transmission, and that any effective action towards the control of the disease would have to be based on that assumption. As we shall see, this claim was still strong even as a shift in strategy took place, and it was one of

the main targets of the proponents of alternative, eco-systemic or eco-social approaches to the control of endemic disease. The PEAa was to be "adjusted" twice through two other measures taken in 1998 and 2000, respectively, but without significant effects on its operationality or success.

A significant turning point in the strategies for addressing the problem of dengue in the face of the lack of success of existing policies was the issuing In 2001**,** by the Pan-American Health Organization**,** of a document proposing a new strategy. The new orientation was based on the notion of integrated control of the vector

The strategy to be pursued, according to the PAHO document, should give priority to actions promoting the integration of health, environmental and educational policies. Integrated meant, first of all, intersectorial coordination, involving the different areas of government and administration associated with the conditions and determinants of the infection and of its spread. Of particular relevance was the call for effective policies addressing the need for adequate sewage systems, environmental management (namely waste disposal and management) and availability of fresh water and control of its quality. The document included a critical discussion of the reliance on chemical means, such as insecticides, focusing in particular on their effects on both human health and the environment. The problem of the possible creation of resistant types of the mosquito through exposure to insecticides was added as a further critical argument.

The PAHO document had a significant influence on the reorientation of strategies towards the control of dengue Latin American countries. In Brazil, one of its effects was the establishment by the Ministry of Health, in 2002, of a strategy for the struggle against dengue which departed from the previous eradication-oriented initiatives. The National Plan for the Control of Dengue (PNCD) was endorsed by the National Health Council, the national deliberative body for health policy, in May of the same year, through its Resolution 317. The Plan acknowledged the need for a change in the strategy to face dengue as a public health problem. The change was called for due to the failure of

previous strategies. The aim of those strategies, the eradication of the vector, proved to be elusive, and its lack of viability was recognized.

The Program was based on the replacement of what the Ministry of Health now described as "campaign-based" strategies with a "permanent" strategy of control. The control of dengue was still regarded as a responsibility of the health sector, rather than a transversal duty of all sectors of the State, and in spite of some de-concentration, it continued to rely on a strongly "verticalized" approach. One of the implications of this was the narrow definition of the forms of knowledge required to fulfil the tasks associated with the control of dengue. Health professionals associated with the dominant biomedical and epidemiological forms of knowledge and specialists in the different domains related to the various actions outlined in the Program would thus be the main agents of the new strategy.

In spite of the significant changes associated with the Program, it soon became the target of criticisms, which underlined the persistence of what, according to critics, were some of the most problematic features and limitations of the strategies and programs it was meant to replace.

5.3. The criticisms of "old" and "new" strategies

The first major criticism of both old strategies and of the new program were of an epidemiological nature. The new program retained one of the central assumptions of previous strategies: the assumption that the vector was the only vulnerable link of the chain of transmission, towards which all the efforts towards control should be directed. This focus on the vector tended to ignore, first, the biology of the vector, the different features and vulnerabilities of the vector at different stages of its life-cycle. The actual disregard of the biology of the vector was related to the minor role of entomology in assessing the conditions for effective action, and the consequent lack of a significant role for entomologists. A further problem, related to the first, was the disregard for the social and environmental conditions in which the vector survived and reproduced itself and was allowed to become part of the proximate living environment of humans. Physical barriers to access of the

mosquito to water reservoirs or other containers of water, for instance, could become a very effective strategy, when combined with biocides, for preventing mosquitoes from laying their eggs and thus reproducing.

A second line of criticism, which has already been evoked focused on the use of chemical insecticides without due regard for its potential for harm to humans and to the environment, but also to their possible of resistance to insecticides by the vector.

The third line of criticism relates to the tendency to rely on an ex post notification of cases of dengue, rather than on the need for anticipatory or precautionary strategies, aimed at the control of environmental and social conditions. These include appropriate changes in materials and construction of dwellings; adequate sewage systems; regular provision of fresh water; when necessary, adequate protection of water containers or reservoirs; surveillance and elimination of water pools or other potential niches for the vector; place-based initiatives of health surveillance and health promotion.

A further criticism is aimed at the tendency to focus initiatives in health promotion, health education or information on individuals, often ignoring the social, economic and cultural conditions and power relations which are constitutive of the differential vulnerability of individuals, communities, groups and populations. Adequate knowledge of these conditions, which require community-based and collaborative forms of health promotion, are necessary to identify the conditions affecting the success or failure of public policies and interventions, be they of a precautionary or preventive nature, or responses to actual situations of exposure to the disease.

Excessive centralization and insufficient integration of actions are another target of criticism. Centralization and "verticalization" lead to a lack of recognition of the diversity and specificity of local conditions, and thus fail to base local action on appropriate knowledge of the conditions and experiences under which exposure to the vector takes place and effective action is viable. Decentralization corresponds to involvement of local populations and communities and to a broadening of the scope of both the forms of knowledge and the actors involved. Integration, in turn, means that a broader conception

of health problems and the conditions of both their emergence and the responses to them is required in order for these responses to be adequate to the specific settings and situations. According to the conception of health associated with collective health, health policies are necessarily articulated with social welfare policies, education policies, economic and labour policies, science and technology policies… Addressing health problems means articulating health problems as transversal problems, cutting across the spectrum of the "specialized" policies.

These criticisms seemed to be vindicated by the apparent lack of effectiveness of the different strategies implemented over the last decades. The vector resisted all attempts at eradication. The disease became endemic, and epidemic outbreaks have occurred (and are still occurring) in several regions, some of them quite severe (e.g.., 1986, 1998, 2002, 2008). The most aggressive serotypes of the disease agent are spreading, and clinical outcomes are becoming more serious, namely those associated with haemorragic dengue.[27]

6. The emergence of alternative framings

The approaches that emerged over the last years as alternative to what was perceived by critics as the shortcomings and weaknesses of successive national programs actually developed over a period of more than a decade. Rather than constituting a single, unified strategy, they emerged from specific criticisms and different types of actions based on those criticisms. They did not necessarily coincide in their proposals, but they converged on the diagnosis of what had gone wrong with previous programs. Their protagonists were a heterogeneous set of actors, both human and non-human, and their actions explicitly addressed issues related to knowledge and organization. But they raised questions related to the politics and, in particular, to the politics

[27] For a summary of the main criticisms, see Santos and Augusto, 2005, especially p. 132, table 2.

of health. For the sake of clarity, we shall proceed by identifying three groups of approaches, although, in practice, they tended to mesh and generate a range of configurations associated with specific, place-based dynamics. Before that, however, it will be relevant to recapitulate the main criticisms of existing strategies that were widely shared by critics, regardless of whether they were articulated verbally or through specific forms of action.

Some of the criticisms echoed (or were echoed by?) the concerns expressed in the PAHO 2001 document: the aim of eradicating the vector rather than controlling it; the lack of an integrated and intersectorial approach; the reliance on chemical means rather than action on the social and environmental determinants of the problem. But they took further steps towards a more radical departure from previous policies and approaches. The notion of control was broadened, so as to redefine the control of the vector as part of the social control of the strategies, of the policies, of their design, implementation and evaluation. This required a broadening as well of the definition of integration. Integration came to be understood not just intersectorial coordination of State agencies, but the articulation of different disciplines and forms of knowledge, of collective actors beyond the policy fields involved, including local communities. And, finally, the control of dengue was to be pursued as a political process, giving shape to the view of health inscribed in the Constitution and other legal documents and embodied in the Health Reform Movement, the Popular Movement for Health and the Single Health System. Not all alternative approaches were explicit about all these aspects, but the convergence of their diverse views generated responses which allowed the issue of dengue to be turned from a health problem framed in biomedical and epidemiological terms and requiring administrative and technical responses to a major problem of society, inextricably political, scientific-technical and institutional. Let us look more closely at the main components of this constellation of alternative approaches.

7. Local knowledge and place-based interventions

During the 1990s, there was a growing interest by public health agents in understanding in a more precise way the obstacles that stood in the way of the effective deployment of the strategies aimed at the eradication of dengue. Explanations drawing on the lack of information or education of the populations were typically translated into the need for more education and information. These were to be promoted through a one-directional flow, from experts (including experts in communication and education) to local communities and neighbourhoods, schools, organizations or churches. Fieldwork by some of these agents evolved into sustained interaction with the communities, movements and organizations they were "targeting" and allowed them to identify, through collaborative and participatory forms of what may be described, for all practical purposes, as action-research. The understandings by experts and local actors of what was going on in these actions was not always coincident, but convergence could be built on the need for the production of information and for the creation of forms of action adequate to local settings, taking into account the specificity of each favela (slum) or neighbourhood. But perhaps the most important outcome of these actions was the recognition by researchers of the need to articulate and revise their knowledge of the situations they were trying to act upon through treating community and neighbourhood residents, activists and leaders as experts on their local settings and conditions. New configurations of knowledge emerged from these experiences of mutual engagement, allowing not only problems to be identified or redefined, but new responses to be designed and implemented. Beyond that, it also raised the issues of how and to whom actions were to be made accountable. Rather than reporting to their organizations or to the State agency in charge, fieldworkers were faced with the responsibility to bring back to the communities and neighbourhoods the outcomes of actions designed through collaborative processes and affecting these communities and neighbourhoods. These experiences ranged from "weak" forms of participatory or collaborative engagement, close to Sherry

Arnstein's "information" step in her "ladder of participation" (Arnstein, 1969), to effective partnerships. It is still far from clear whether the move towards "control" has actually happened. But the achievements of these approaches were no less significant for their results as a way of broadening and complexifying the configuration of knowledges required for effective action. A major contribution of these forms of place-based action research was the change in the way the accumulation of water by residents of poor neighbourhoods or of *favelas* (shanty towns) came to be understood. The accumulation of water in recipients or containers was denounced by information materials produced in the contexts of campaigns for the prevention of dengue as a bad practice, attributed to lack of information or to low educational levels. Research conducted in these neighbourhoods lead to a very different view of this practice: in the absence of regular provision of fresh water through a public system, residents were forced to hoard water and thus expose themselves to foci of mosquitoes appearing in the containers or recipients they used. This was one of the crucial data on the conditions generating differential vulnerability to dengue. One of its consequences was the definition of the regular provision of fresh water as a key action in programs for the control of dengue, thus attaching the dengue vector to lack of urban infrastructure, poor housing conditions and poverty (Oliveira, 1998; Oliveira and Valla, 2001).

8. Eco-system approaches

Eco-system approaches to health and to endemic diseases in particular have been proposed since the 1990s by prominent Brazilian researchers in the field of public health like Paulo Sabroza or Lia Augusto. They converge in many points with approaches developed in countries like Canada and in several Latin American countries, such as eco-system health. The starting point of eco-system approaches is the definition of health and disease as a process and a feature of eco-systems, not of individuals. Disease and health are thus regarded as emerging properties of complex systems. Rather than locating the

origin of a disease in a single cause or associating its etiology with conventional factors studied by biomedicine and epidemiology, researchers focus on the ways in which the complex interactions (or, rather, intra-actions) of complex eco-systems generate the outcomes which will be described as health or disease. Health is thus a category which may be applied not only to the eco-system as a whole but to some of its constitutive parts as well, such as organisms. In the case of infectious diseases such as dengue, an eco-system approach will redefine notions such as those of host vulnerability or vulnerability of the vector. Rather than acting upon the vector as the sole or main vulnerable link in the epidemiological chain, an alternative form of intervention will be to act upon the environmental (including the social) conditions which generate an appropriate ecology for the settling and reproduction of the vector. A key requirement of these approaches is the integration of environmental, epidemiological and entomological surveillance and the collaboration of the relevant disciplines and specialities. Actions may be directed towards the water pools where mosquitoes find a niche to reporduce, but also towards infrastructure, water provision and quality control, organization of surveillance (namely at the local level), information and educational activities on health and environment through intersectorial interventions.

The viability of interventions or actions based on eco-system approaches depends on their decentralization and territorialization. Adequate knowledge of the local conditions is required to design and implement effective actions. This knowledge is constructed through different forms of action-research. There is thus a close relationship between the development of these approaches and the action-research initiatives mentioned in the previous section.

Eco-systems approaches face the challenge of defining what the "system" is. Different definitions have different consequences related to what is included in and excluded from the system, to the extent to which processes defined as

"social" or "political" are included.[28] This stands out when the relationship between eco-system approaches and participation is examined.

The question of participation is often mentioned, but sometimes left implicit in some of the formulations of eco-system approaches. A closer look at initiatives based on this perspective allow both this central role of participation to be recognized, but it also reveals the many ways in which participation may be built into these approaches. It is unclear how far a "strong" approach to participation and involvement of local communities which may take the form of social control, characterized by participation in deliberations and decisions over agenda-setting, design of interventions, their enactment and their evaluation, is constitutively built into eco-system approaches. A decentralized approach is not identical to a "bottom-up" approach, where power and control are built up from the local settings where actions are to be deployed or is devolved to these local settings. Decentralization may be achieved through the local recruitment of personnel community residents, who become certified agents of the health system. This does not stand in contradiction with the participation of local organizations, movements or citizens. But the type of involvement may be variable. It may occur at different stages (construction of new configurations if knowledge, design of interventions, decision-making at several stages of the implementation of interventions, active involvement in actions, assessment…). Eco-social approaches to health and environment offer an extension of this approach which focuses more explicitly on issues commonly associated with the "social", the "economic" and the "political".

9. Eco-social approaches

Eco-social and eco-systemic approaches share their commitment to a conception of health and knowledge as a process and as a property of complex

[28] On this point, and on its implications for explanation and attribution of responsibilities, see Levins, 1998.

systems. One of the differences between the two approaches, however, lies in the explicit focus of the former on the ecological, social, economic and political history of complex systems and territories. A further difference is the extension of the notion of vulnerability. Where infectious disease is concerned eco-social approaches deal with not only with the vulnerability of the epidemiological chain, displacing the focus from the vector to socio-environmental conditions, but it deals as well with the vulnerability of human collectives and individuals as part of complex and dynamic eco-systems with a history and their partially common, but also differentiated life-trajectories.

Eco-social approaches are further based on a commitment to participatory interventions in public health anchored in specific territories, including participatory action-research and different forms of collaborative, community-based production of knowledge and practices.

In the case of the control of dengue, proponents of eco-social approaches advocate integrated and territorialized actions, including:

- actions oriented towards environmental sanitation (again, provision of fresh water and control of its quality, sewage, housing waste management, management of used tyres;
- health education and collective mobilization of populations and communities for actions of health promotion and vector control. These include collective, solidaristic actions known as *mutirões*;
- replacement of chemical control of the vector by mechanical and biological control (through the use of larvicides, like Bti, for instance), elimination of foci (*criadouros*) or cleaning and physical protection of water reservoirs

These actions require the development and appropriation of entomological knowledge, namely of the life-cycle of the vector, the process of its reproduction and the ecological conditions associated with each stage. But ir demands as well detailed knowledge of local social and environmental conditions and of local configurations of social and institutional vulnerability

Finally, a a major feature of eco-social approaches is their advocacy of integrated and participatory processes of health surveillance, including epidemiological, environmental and entomological surveillance.

Some versions of eco-social approaches have evolved towards an explicit political ecological commitment, which will be explored in more detail in the next case study (Porto, 2007).

10. The social and institutional conditions for eco-system and eco-social approaches

Despite their differences, eco-system and eco-social approaches require some common conditions for their viability as the basis for strategies in collective health.

These conditions include the articulation of heterogeneous actors and forms of knowledge; the existence of a health system capable of promoting intersectorial actions of health promotion; the decentralization and municipalization of the health system; a territorial basis for health policies and interventions in collective health; the mobilization of populations and communities; the co-production by the actors involved of adequate and relevant knowledge; and, finally, the monitoring and evaluation of territorialized initiatives and interventions.

11. The cases of Recife and Rio de Janeiro

Since the mid-1990s, several attempts were made to incorporate eco-system or eco-social perspectives into actions aimed at controlling dengue. In spite of some influence achieved at the national level through the presence of proponents of these approaches in deliberative and advisory bodies associated with health policy, the actual enactment of these approaches met with some

modest success in a number of municipal programs, the most interesting being those of Recife, Fortaleza and Niterói (Interview with Paulo Sabroza).

After a brief discussion of the experience of Recife, we shall focus on the current dengue epidemics in Rio de Janeiro (still an open case) and on the approaches being deployed for its management. The contrast between Rio de Janeiro, in Southeast Brazil, and Recife, in the Northeast, provide an exemplary instance of the strong regional inequalities, which are a feature of Brazil, but also of commonalities in relation to great inequalities in vulnerability to endemic health problems (Augusto *et al.*, 2005).

In the case of Recife, and starting in the mid-1990s, initiatives were launched as part of a Program for Environmental Health, involving the municipal government and its Secretary of Health, public health institutions and a range of social organizations and movements. The initiatives were largely inspired by eco-system approaches to health, defining health and disease as an emerging outcome of eco-system and eco-social dynamics. Its main features were the following:

- actions oriented towards environmental sanitation (provision of fresh water and control of its quality, sewage, household waste management, management of used tyres);
- health education and collective mobilization of populations and communities for actions of health promotion and vector control
- replacement of chemical control of the vector by mechanical and biological control (through the use of larvicides, like Bti, for instance), elimination of unprotected pools of still water which provide niches for the mosquito to lay its eggs, or cleaning and physical protection of water reservoirs.

These actions required the development and appropriation of entomological knowledge, namely of the life-cycle of the vector, the process of its reproduction and the ecological conditions associated with each stage. But they demanded as well detailed knowledge of local social and environmental conditions and of local configurations of social and institutional vulnerability,

which was largely provided through the work of local agents recruited for the program in communities or neighbourhoods.

Finally, a major feature of eco-social approaches is their advocavy of integrated and participatory processes of health surveillance, including epidemiological, environmental and entomological surveillance.[29]

In spite of the positive assessment of this initiative and others inspired by the same approach, eco-system or eco-social approaches to the control of dengue and other endemic diseases are still far from dominant within Brazilian health policy. But they point towards a strategy which may become more influential as other approaches demonstrate their failure, as is happening with the recent epidemic in Rio de Janeiro, still raging at the time of writing.

11.1. The 2008 dengue epidemics in Rio de Janeiro

In January 2008, an epidemic of dengue broke out in the State of Rio de Janeiro. 17,193 cases were registered on that month alone. Over the following months, the number of those infected went up steadily (23,510 in February, 57,735 in March) until April, when a significant drop (23,418 cases) was recorded. The total number of cases recorded in the State during those months was as high as 121,586. Most of the cases were identified in the largest municipality of Rio de Janeiro (over 67,000), but other municipalities were strongly hit by the epidemics, including Angra dos Reis and Nova Iguaçu (over 7,000 cases), Campos dos Goytacazes and Duque de Caxias (over 4,000 cases), Niterói (over 3,000), São João de Meriti, Magé and Belford Roxo (over 2,000) and São Gonçalo, with over 1,000 cases. Over half of those infected were within the age range 15-49. 209 deaths were registered (32 from haemorraghic dengue fever), of which 62 in the municipality of Rio, and over 100 additional deaths were still under investigation at the time of writing. About 40% of the casualties were of children under 15. 7,715 people were hospitalized and, again, almost half of them were children under 15

[29] This account summarizes the contributions included in Augusto et al, 2005).

(www.riocontradengue.com.br). One of the major differences of this epidemic with previous ones, in 1996, 1991 or 2002, was not the number of cases – in fact, there were more cases in earlier epidemics -, but rather an important change in the epidemiological profile of the cases, with both a large number of cases in children under 14 and a greater number of fatalities (Sabroza, 2008)

Other significant features of the Rio epidemic are its apparently uncontrollable spread throughout the early months of 2008 and the responses to the epidemic that are being organized. Besides actions which, in their design, are very similar to the ones just described for Recife, initiatives aimed at the mobilization both of public resources (including the army and the fire service) and of communities, neighbourhoods and volunteers for the control of the vector were launched. A movement called "Union Against Dengue" called for the collaboration of health authorities at the federal, State and municipal levels with members of health councils at the three levels, health institutions and social movements and organizations and for the launching Popular Committees against Dengue. Among the initiatives announced by the office for the coordination of the campaign against dengue were the reinforcement of strategies of local health care, including the hiring of Community Health Agents (as in Recife). The actions for the detection and elimination of foci of mosquitoes has been carried out through a massive effort involving, besides health institutions, public authorities and community-based movements and organizations, the army, the fire service and *mutirões* (mobilizations of citizens for mutual help).

It is still too early to assess the medium- and long-term outcomes of this strategy, which seems to be producing some results in the short term, with a significant reduction of the number of new cases. It is possible, however, to point out some of the common features in the formal design of responses to dengue in Recife and Rio. Both rely on the definition of the control of the vector as the main objective of actions against dengue; both define their approach as based on the promotion of decentralized and participatory actions, involving a broad alliance of actors and institutions; both focus on the

need for local action as the condition for an effective strategy. Beyond the commonalities of the cases of Recife and Rio, what is striking about the latter is the multiplication of the attachments that define dengue-as-a-threat as a focus of social mobilization, but also the way the severity of the epidemic has led to a reframing of dengue which draws on the available biomedical and public health framings for resources and reconstructs them in order to create a new frame, where experts, institutions and "publics" are defined as part of a single collective whose existence depends on the definition of dengue as a common threat. Issues of responsibility and accountability are themselves redefined through this reframing, as we shall see further on. This reframing can be read through the websites which have appeared or were mobilized as resources for responding to the current crisis. We shall focus here on one website in particular, "Rio Contra Dengue", which was created by the Government of the State of Rio de Janeiro, through its Secretariat for Health and Civil Defence (www.riocontradengue.com.br).

The site offers continuously updated information on the crisis and on actions undertaken by a range of different actors, both in Rio and in other parts of Brazil and of the world, as well as videos on the transportation of patients by helicopters of the fire department, materials with information to be downloaded and distributed, an emergency number for citizens to inform authorities of foci if mosquitoes, a call for physicians to enrol in the effort to deal with cases (with an online form), and a number of sections including an archive of news, links to other sites on dengue, frequently asked questions, information on where to donate blood, downloadable forms for the registration of cases and information materials. The first section, "Join us in the struggle against dengue in Rio!" provides one of the most comprehensive examples of the new framing of the citizen as a member of the collective of fighters against dengue.

The first sentence defines dengue as a "problem of all", and calls for the reader to "take care of his/her home, but whenever you can encourage your neighbours, friends and relatives to join this struggle". The reader is thus called upon to become a recruiter for the struggle against dengue among his

neighbours and closer relationships. This is followed by a list of the actions any citizen can perform: diffusion of the website, through the addition of an "electronic bottom", containing the logo of the site and a link to it, to emails or blogs. It is stated that "You will help increase the number of visits to the site and, in this way, more people will be informed with tips on the prevention of the disease".

The next type of action suggested by the site is the distribution of stamps and flyers, again among "neighbours, friends and relatives". These materials can be downloaded as well. Stamps may be used on shirts, to show that its user is an adherent to the campaign, and the flyer can be either posted on walls or murals or distributed. There are similar materials for home and car.

Further materials, including videos, banners and publications, are available through a link to the site of the Ministry of Health. Again, the reader is expected to distribute these materials or to make them available to others in different ways, and educators are asked to use them in the classroom. Finally, another link provides information on how to donate blood, stating that "blood is crucial for the treatment of dengue".

The citizen-fighter against dengue is here framed as, above all, a receiver and distributor of information. It is through his/her attachments to those who are closest (neighbours, friends and relatives) that effective action in circulating information is expected to occur. Most of the actions required of the citizen as he/she is framed here do not require him/her to undertake any action beyond those associated with the spread of information he/she has received, be it through electronic distribution, interpersonal relations or distribution or posting in public spaces. The citizen-fighter against dengue is identified both through stamps worn in shirts, in cars or posted at home. The one exception to this action through the spread of information or the wearing of a sign of adherence to the struggle against dengue is the donation of blood. This requires direct engagement with biomedical or public health entities.

Apparently, this mode of framing reproduces much of the notion of the citizen as a passive receiver of information, albeit with the injunction of acting as a distributor of that information. There is no reference to any capacity the

citizen may have to actively contribute in other ways both to the construction of knowledge on the problem or to more active engagement in other actions against dengue besides the spread of information or the donation of blood. Something like Paulo Freire's "banking" concept of education seems to be at work here (Freire, 1970).

Another apparent limitation of this approach derives from the very means used, in this case a website. The effectiveness of a campaign based on electronic means depends on access by citizens to these means. In Rio de Janeiro (both the municipality and the State), access to computers and to the internet is likely to be reduced or non-existent especially among the poorer sectors of the population and, in particular, those living in shanty towns (*favelas*), who happen to be among the most vulnerable to dengue and to endemic diseases in general. The effectiveness of the campaign depends, in this case, on both the capacity of local communities, civil society organizations and public institutions to provide access to information and to enrol new "fighters" through other means (some of which are recommended in the website, such as posting, interpersonal relations, distribution of flyers, etc.), but also through direct presence of public health agents in communities and neighbourhoods.

Junte-se a nós na luta contra a Dengue no Rio!

A Dengue é um poblema de todos. Você deve cuidar de sua casa, mas sempre que puder estimule seus vizinhos, amigos e familiares a entrar nessa luta.

O que você pode fazer?
Divulgue o site Rio Contra Dengue na Internet.
Baixe aqui um bottom eletrônico que você pode anexar em seus emails ou publicar em blogs. O bottom contém um link para o site Rio Contra Dengue. Você ajuda a ampliar o número de visitas ao site e, com isso, mais pessoas vão se informar com dicas de prevenção contra a doença.

RIO CONTRA DENGUE
PARTICIPE

Distribua selos e folhetos entre vizinhos, amigos e parentes.

Você pode baixar aqui um selo e um folheto com dicas de prevenção para imprimir e distribuir. O selo serve para grudar na camisa como forma de adesão à campanha e o folheto pode ser afixado em murais e paredes, além de poder ser distribuído de mão em mão. Você baixa ainda um adesivo para imprimir e colocar em casa ou no carro.

Envie vídeos e ringtones. Use cartazes, banners e outdoors na campanha contra a Dengue. No site do Ministério da Saúde, você encontra vídeos e ringtones para enviar aos amigos e parentes. Lá você encontra também para baixar uma cartilha educativa, cartaz, banner e outdoor. Todo esse material pode ser impresso e colado em paredes, pendurado em ruas e exibido em locais com muito trânsito de pessoas em sua vizinhança. Existe ainda um material voltado especialmente para educadores usarem em sala de aula.

Sangue é fundamental para o tratamento da Dengue.

Saiba aqui onde doar sangue.

Source: www.riocontradengue.com.br

At the peak of the epidemic, other initiatives were taken, which, through their design, might allow these limitations to be overcome. One of these initiatives was a public event, held in early April, gathered "State, municipal and district Health Council members, members of the metropolitan committee for health, the leadership of social movements, managers and directors of federal, State and municipal health institutions". The aim of the event was to mobilize "civil society… to fight dengue through the leadership of social movements, health council members, NGOs, among others", through the organization of "permanent action to eliminate the foci of mosquitoes and prevent future epidemics". During the gathering, "the actions of the Government" would be displayed and "the actions of the movement "Union against Dengue defined". Over the three sessions of the gathering, a new collective took shape, constituted by health institutions and health policy-making bodies (through their spokespersons), community representatives and social movements (represented by their leaderships). On of the aims of the meeting was the public presentation of the strategies and actions aimed at the control of dengue within the metropolitan area of Rio de Janeiro. In fact, this amounted to an exercise in public accountability by the coordination of

the Office for the fight against dengue. The two main commitments restated on that occasion were, on the one hand, the "strengthening of Primary Care, with the immediate hiring of Community Health Agents", and "permanent communication" and the updated and continuous production of information on the evolution of the epidemic on a territorial/regional basis). The last session of the meeting proposed the broadening of the action against dengue through the formation of "popular committees for fighting dengue" and the "articulation of strategies to broaden continuous mobilization and activities until total reduction of risks is achieved". Beyond the difficulty in defining precisely what "total reduction of risks" means, the framing of the fight against dengue coming out of this event redefined the actors and entities involved in that fight, and in the process reframed dengue as a target of popular mobilization.

How does this reframing relate to the framing provided by the "Rio contra Dengue" website? Interestingly, the website itself provided continuous and updated accounts of how this change in framing was associated with the emergence (or, rather, re-emergence under new conditions) of forms of collective action which broadened and transformed the figure of the citizen-fighter against dengue. The opening section of the website, under the title "Plantão da dengue" ("plantão" is the Portuguese word for members of the police, armed forces, fire service, medical personnel or other services who are on duty), offers updated news on the epidemic, on the actions against it and on other events of interest to it. One of the most striking features of these news is the recurrent description of collective actions aimed mostly at the detection and elimination of foci of mosquitoes. These actions are undertaken in neighbourhoods, and they mobilize a number of volunteers which may be as high as several thousand people, together with public health agents. These mobilizations are modelled on a form of collective work undertaken mostly in poor communities, known as "mutirão". A typical instance of this type of action is the "Mutirão da Cidadania", organized on April 12 in one neighbourhood in Rio (Chatuba, in the municipality of Mesquita), involving agents from the State Secretariat for health and Civil Defence and from the municipality, 200 volunteers and the "junior brigade"

of the local neighbourhood association. During this action, households were visited to identify possible foci of the mosquito and 200 protective screens for water containers were installed. This action was described as part of the broader mobilization against dengue in 96 communities throughout the State.

These actions rest upon, on the one hand, the notion by health authorities and public health agents that residents in communities and neighbourhoods are the best possible conveyors of the scientific and health policy messages produced by the health authorities. But they also draw on the specific forms of local knowledge and experience-based knowledge arising from living with the threat of the disease.[30] But their consequences are broader. Whereas public institutions, and health agencies in particular are conventionally held accountable for the effectiveness of preventive measures as well as of the responses to sanitary crises, the enrolment of communities, neighbourhoods and their members in the actions aimed at controlling dengue redistributes responsibility for the success of these actions and redefines citizens as being, at the same time, those being accountable to and those held accountable for those actions. We are back here to the notion of social control, whereby the empowerment of citizens through increased capacity for acting upon a problem displaces the distribution of responsibility which is characteristic of the "double delegation" model associated with liberal democracy (Callon et al, 2001).

It is necessary, at this point, to probe the effects of this form of reframing of dengue as a problem on the transformation of the health conditions of the populations involved in these mobilizations. In the short term, improvements in the capacity to reduce the number of new cases of dengue seem to be a given. But as dengue is an endemic disease, and as its eradication seems neither possible nor, if possible, desirable due to its possible negative effects on the balance of local eco-systems, long-term considerations have to be brought into the assessments of the process by the various actors engaged in it. In a recent interview, Paulo Sabroza, an expert from the Department of Endemics Samuel Pessoa of ENSP/FIOCRUZ, forcefully brought up the view of

[30] Both these notions were often stated in conversations with public health experts in Rio.

the need to articulate the short-term concerns of fighting the current epidemic with moving towards a strategy more oriented towards dealing with persistent inequalities and vulnerabilities which are expressed in the differentiated health conditions of different sectors of Brazilian society. Sabroza's contribution is particularly relevant, since he is currently the major spokesperson in Brazil for eco-system and eco-social approaches in health and, in particular, for the relevance of these approaches for the control of endemic diseases.

A first point raised by Sabroza is what he describes as the "incapacity of health actions in the municipality of Rio to prevent the installation of the epidemics", due to the neglect of two indicators based on observations form 2007. The first was the occurrence of many serious cases, especially among children, due to the circulation of type 2 dengue (which is the type reintroduced by the current epidemics) in the Northeast region of the country. The second was the "persistence of pockets of high transmission of type 3 dengue in some areas of the city, during the years following the great epidemics associated with the introduction of type 3 in 2002". This showed that the potential for transmission was still there. Other indicators, such as the high levels of infestation by the mosquito in several areas of the city, converged with these two to suggest that the epidemics would occur sometime in the near future, even if not necessarily in 2008. Sabroza adds to this his concern that the epidemic based on type 2 may spread to other areas of the State and to other States and affect disproportionately, namely through high mortality, areas with less access to adequate health care and a drought of health professionals. His criticisms extend to the inadequate response of the municipal health system to provide adequate sorting of cases according to their seriousness. These biomedicine/epidemiology-based criticisms are complemented by comments drawing on eco-system/eco-social and political ecology framings. According to Sabroza, "it is socio-environmental conditions which determine the concrete possibilities of the occurrence and magnitude of an endemic-epidemic process like dengue. The presence of these determinants is always mediated by the density of the vector, and the relationships between socio-environmental conditions and the conditions for

the production of the disease are always complex". And he adds: It is not just because the population is poor that the mosquito will always reach the ideal conditions for its development. In a large city like Rio de Janeiro, it is public policies, or their absence, which define the possibilities of sanitizing the urban space (…) only when we succeed in reducing socio-environmental vulnerability and social injustice in the occupation of urban space will we be heading towards the resolution of the dengue problem". The example he gives of how social inequalities increase the vulnerability of populations to dengue is that of access to water: "one of the main factors in the proliferation of *Aedes Aegypti* is the irregularity in the supply of water, making it necessary to keep many water reservoirs in households. Since water is distributed in an unjust way, nothing is more just and necessary that the population hoards it. And this makes it possible for the mosquito-vector to occupy the city". The high number of vacant buildings used for real estate speculation is pointed out as well as one possible source of foci of mosquitoes, difficult to detect by public health agents.

Sabroza adds two additional comments which bring his framing to completion. The first relates to the spatial dimension of the dengue endemics/epidemics. The focus on the house-by-house elimination of foci is pointed out as an ineffective way of dealing with a collective problem which should be dealt with on a broader territorial basis. In fact, as he discussed in detail on another occasion[31], the problem is not the number of foci of mosquitoes, but rather the possibility that some foci, especially larger ones, are not found. As long as there are any foci, the possibility of infestation exists and the problem of dengue will persist. Actions should thus be redirected to provide adequate, frequent and public information on indexes of infestation by neighbourhood, allowing popular mobilizations and pressures to redirect control actions", and public policies should be defined for broader territories and for different spatial levels.

The final point concerns the responsibility of the Single Health System (SUS) in the epidemics: "The responsibilities of each manager of SUS and of society

[31] Interview with J.A. Nunes at ENSP/FIOCRUZ, Rio de Janeiro, August 6, 2008.

are clear. Everyone is responsible". He then goes on to specify the different levels of responsibility for specific kinds of action. Although the municipality is singled out as the level at which "direct actions of control of endemics" are carried out, such as the control of vectors, the provision of basic health care and epidemiological, vector and environmental surveillance, he stresses the role of other instances, such as the State and the Federal Government, as having specific responsibilities regarding the provision of resources (including the training of staff), funding, the production of norms, coordination of actions or the overall evaluation of these actions. This notion of responsibility thus focuses in particular on the accountability of different levels of the state and of its institutions, but it also hints at the concept of social control underlying the design of the relationship between the health system and society, as when he speaks of the responsibilities of society or when he states that "everyone is responsible".[32]

Sabroza's framing of dengue and of the dengue epidemic draws on resources from biomedical, epidemiological and eco-social framings. He brings into this framing what might be described as the "absences" from official accounts of the epidemic and of the fight against the epidemic and, in particular, he is explicit about the inadequacy of the configurations of knowledge on which these accounts rely. His framing explores the multiple attachments between vector, virus, human hosts, habitat, economic organization, health policies, urban policies, the health care system and popular mobilization. In his account, Sabroza brings together the three themes at the core of this workpackage: knowledge, inequalities and accountability. The account has at its core the question of what counts as appropriate knowledge of dengue and of the dynamics of the epidemic. "Appropriate" means, here, a configuration of knowledge(s) satisfying Levins's criteria for the capacity of that knowledge to define a problem in ways which allow the construction of "a framework (…) large enough to accommodate an answer", the rejection of "false dichotomies that fragment our understanding", the acknowledgment of "wholeness and

[32] All quotations are from http://www.ensp.fiocruz.br/visa/pagina-inicial/entrevista2.cfm

the inseparability of internal and external explanation", the consideration of history and a "self-consciously partisan" approach (Levins, 1998: 582). The "large enough" framework is provided by the definition of a multiplicity of attachments, which bring together what would be described, within the other frameworks which have been discussed, as "internal" or "external", as well as processes which are commonly placed on different sides of dichotomies such as biology/society or nature/culture. The strong attachment between inequalities – structural, distributional and representational[33] - and vulnerability to dengue is an exemplary instance of this redefinition of the boundaries of the problem and of the "internalization" of what biomedical or epidemiological framings would treat as "external" factors. Sabroza goes as far as stating that the response to dengue as a problem will depend, above all, on the capacity to deal with the socio-environmental issues generating inequalities and unjust distribution of resources. The recovery of the history of both Brazilian society and dengue adds a major resource to Sabroza's frame, building into it both a longer timeline and a pool of past experiences which are expected to highlight both the specificities of the current epidemic and its similarities and continuities with past events.

The question of accountability is brought into Sabroza's discourse through his treatment of *responsibility* for managing the problem of dengue. There are clearly three tiers in his allocation of responsibility. The first places responsibility squarely in both the health system and the whole of society: "everyone is responsible". This is in line with his notion that appropriate responses to the problem of dengue will require broader changes in society, addressing issues of socio-environmental vulnerability and social injustice related to the occupation of urban space. Urban public policies and, more generally, social policies would be the means for providing adequate, long-term responses to the predicament of urban populations, especially of poorer sectors of those populations.[34] The second tier focuses on the health system and on the responsibility allocated to its different levels, associated with

[33] On these categories, see the overall framework of the ResIST Project.

[34] Some of the resources and procedures for implementing such policies are discussed in the section of this report on experiences in participatory budgeting.

their respective tasks. Within this tier, "society" will presumably be brought in through its representatives in health councils at all three levels.[35] The third tier is more circumscribed, addressing the way responsibility for the direction followed in the fight against dengue depends on popular mobilization, which in turn requires the regular provision of reliable information by health authorities on indexes of infestation in neighbourhoods. Each of these tiers frames the objects and protagonists of accountability in different ways. The first tier addresses broader issues of inequality, vulnerability and social and environmental injustice, for which governments (federal, state and municipal) can be held accountable. The second tier focuses on the management and performance of the health system. The agents of the system at its different levels are held accountable for these. Finally, the third tier holds health and municipal authorities accountable for the provision of regular and reliable information. All three tiers, however, display a more complex picture of the workings of accountability. As "society" (enacted through assemblies, councils or forms of popular mobilization) is involved in the definition of the actions taken within each of them, it becomes at the same time the "receiver" of accountability procedures by public bodies or institutions and a "producer" of accountability. The concept of social control appears once more as a descriptor of this "strong" form of participatory accountability.

This framing ma be broadened through consideration of the transnational or regional levels. Organizations such as WHO or the Pan-American Health Organization are themselves active producers of both knowledge and interventions aimed at endemic/epidemic diseases. This case study highlights some of the modes in which these international organizations the reframings of both knowledge on and action against dengue. At this level, other actors have since entered the stage, such as the European Union, the World Trade Organization and international networks and coalitions for environmental justice. Further attachments to the dengue problem can be followed through the recent conflict opposing Brazil and the EU on the import of used tyres from Europe, as will be described in the next case study of this workpackage.

[35] See the case study on Health Councils included in this report.

12. Comment: Infection, inequality and vulnerability

The distribution of disease in the world and within specific societies displays a pattern of differential vulnerability to a range of conditions. Infectious diseases affect disproportionately the poor, those who live in more precarious conditions and the homeless. Where inequality is associated not only with social class but with race, ethnicity or gender, dimensions of vulnerability add up (Framer, 1999). But vulnerability to infectious disease is also associated with place. Populations of the Southern hemisphere are overall more vulnerable to this type of diseases. Social and environmental conditions generate profiles of vulnerability which are embodied and often turn those affected by disease or at risk of it from victims into vectors. Paul Farmer's study of Haiti, Haitians and AIDS provides an exemplary instance of how the poor become the target of different forms of blaming for the disease, its origin and its spread (1993). The case of dengue is not very different. Endemic diseases in Brazil are commonly associated with poverty, lack of hygiene, material, educational and cultural deprivation and living in certain neighbourhoods. The campaign-based approaches to dengue aimed at the eradication of its main vector, *Aedes Aegypti*, were based on a triple denial of the visibility of those more vulnerable to dengue. First, as dengue was regarded as being above all associated with a vector which could be eradicated as long as there was adequate information and education and centralized authoritarian forms of sanitary intervention were deployed, the complex social and environmental setting and the power relations that provided the conditions for the vector of the disease to thrive were ignored or regarded as being the province of interventions beyond those of the health authorities. Secondly, as the experience and practical and situated knowledges associated with living and dealing with the vector were, for all practical purposes, dismissed as irrelevant by those in charge of the programs to fight the disease, the lack of success of programs and campaigns in achieving the aim of eradicating the vector could hardly give way to a more

adequate and complex understanding of the specificities of the situations where the disease gained ground. And thirdly, those who were most vulnerable to dengue were deprived of means to make authorities and experts accountable for their failure to deal with the problem despite their promises and assurances.

The scientific, political and institutional dynamic associated with the Health Reform, the rise of collective health and the creation of the Single Health System (SUS) provided new opportunities for addressing the conditions associated with the differential vulnerability to endemic diseases and to experiment with innovative forms of popular and community participation in the design, implementation, monitoring and assessment of initiatives to control dengue, especially during periods of crisis associated with more serious surges, as in Rio de Janeiro in early 2008. The process moved through controversies and conflicts, associated with the diversity of framings of dengue and different enactments of dengue as a biomedical or public health problem, but also of the ways accountability for prevention and for acting upon the problem was defined and responsibility allocated. In situations of crisis, the forms of social control created within SUS (such as the Health Councils, which were devised to allow the "upstream" debate and design of policies for the health system) had to engage with a range of public institutions and collective actors in order to construct effective "downstream" interventions aimed at the control of spreading infection. The case of Rio de Janeiro provides, from that point of view, an extremely rich instance of how to reframe dengue as a problem as part of the building of a collective response to endemic disease in a situation of crisis, and of how accountability of these crisis situations is enacted is a key condition for the constitution of a collective of those affected by the crisis (Latour, 2005; Callon et al, 2001). But it is also a sobering reminder of the differential vulnerabilities associated with structural, distributional and representational inequalities in a society which is still one of the most unequal in the world.

II.3. The import of retreated tyres as a threat to environmental health: the EU and Brazil

1. Introduction

Government and State agencies in charge of the regulation of the environment and of public health have tried to respond to emergent health and environmental problems through a more active engagement with citizens, sometimes through the promotion of participatory initiatives. The persistence of asymmetrical relations between "expert" and "lay" knowledges and between institutions and citizens, the waste of valuable experiences rejected as "irrelevant" or based on ignorance, the unequal capacity for agenda-setting in public debate and decision-making, however, all display the limits of many of these initiatives. Episodes of collective mobilization over environmental problems and their connections to health problems display the relevance of this issue, with conflicts over waste management and the unequal distribution of its negative consequences for human health and quality of life as an exemplary instance.

Much of the research on environmental hazards, such as the effects of waste management or disposal facilities on the environment and on human beings, however, often tends to ignore or push to the margins factors that may be relevant for an understanding of the complex and "unruly" pathways leading from exposure to health effect. These factors often emerge at the intersections of public engagement and participation and scientific and expert controversies. Collective mobilisation has proved to be a way of bringing

alternative framings of the problems into public space and thus opening up spaces of controversy.

The study of public controversies on environmental problems which have negative impacts on health configures an interesting and complex field of research. One of its main topics is, thus, the analysis of the diverse and often conflicting modes of co-constructing the knowledge and public policies of the health-environment nexus through the mutual involvement of a diversity of actors in different settings. This happens with the case we present here concerning the conflict between the Brazilian government, as part of a complex and unstable coalition with the Brazilian Environmental Justice Network (BEJN), on the one hand, and the European Commission, through the action of the World Trade Organization (WTO), on the other. This case is, in fact, exemplary of the ways different configurations of relationships are established and its implications for the definition of relevant knowledges and of interventions in public policies. The case shows how environmental justice movements, and their broad conception of health problems, both challenge and 'contaminate' public decisions already made by questioning the traditional framing of so-called environmental and public health problems.

The identification of the diversity of forms of knowledge and experience, of political interventions by the State and public institutions, and of the repertoire of collective citizen action in fields related to the intersection of scientific, technological, health and environmental problems is a crucial entry point into the work of conceptualising and exploring empirically the conditions for the governance of health and environmental problems and for the promotion of citizen action framed by concerns of social and environmental justice.

Over the last years, environmental justice movements have become a significant political force (see, amongst others, Acselrad *et al.*, 2004; Allen, 2003; Davis, 2002; Harvey, 1999; Hofrichter, 2000, 2002; Pellow, 2002; Roberts e Toffolon-Weiss, 2001; Zavestoski *et al*., 2004). These movements emerged through a long process of struggle over issues related to toxic and dangerous materials and the ways their impacts are unequally distributed. Its

focus evolved from a radicalization of the ecological discourse of modernity and questions power structures, social relationships, institutional configurations, discourses and belief systems regarded as being at the origin of social and environmental injustices.

The concept of justice is traditionally tied to notions and procedures inscribed in the law. The environmental justice perspective focuses on redistribution as a constitutive dimension of any notion of justice. The concerns with the welfare of and their quality of life as they are associated with environmental problems are central to this movement, which denounces unequal exposures to environmental hazards associated with race, gender and/or socio-economic status. Health issues play a central role here, through their links to environmental problems. Several studies have shown that the prevalence of certain types of environmental diseases is higher among the poor and powerless populations. Within its priorities, environmental justice movement claims the right to health and to a healthy environment.

In this type of movements, it is usually the case that the problems triggering the movements are identified and framed by the affected populations themselves, through their constitution as collective actors. Within its priorities, the environmental justice perspective incorporates, as one of its priorities, the right to health and to a healthy environment. Health is, thus, considered as what could be described as an emergent property of ecossocial systems. In the same sense, the concept of environment moves away from the traditional conception of a nature to preserve or to protect. Some perspectives closer to hegemonic models of development which try to articulate economic growth and environmental protection, such as the ecological modernization approach, rather than searching for alternatives to prevailing models of economic activity, look for ways of "freezing" environmental degradation. Within this perspective (which has incorporated the discourse of "global environmental threats"), environment tends to be seen as an externality and it is assumed that negative environmental impacts will affect everyone, regardless of prevailing inequalities (Hajer, 1995). The environmental justice approach, in contrast, claims that local conditions and

inequalities are central to the identification of environmental hazards and threats.

One of the most interesting dimensions of these debates is the way in which perspectives based on environmental justice may help in the process of making choices between different theoretical perspectives. We have to consider that the way knowledge is produced is associated to a style of thought and to a definition not only of the recognition of what is there (presences), but also of the absences and emergences that can be identified throughout the process (Santos, 2004).

The use of simple or multiple causality notions – where a given phenomenon or process can be associated to one or more causal elements/factors – considers the ways in which causal statements, scientific and technical accounts, the attribution of responsibilities are related, and their links to ways of acting on the causes in order to prevent adverse events or processes or – in situations in which causes are known – to provide some action to minimize or limit negative effects (Levins, 1998). As mentioned above, health and disease emerge from intersecting processes, at different levels or scales and articulate the biological, the environmental, the social and the political (Oyama, 2000; Taylor, 2001, 2005). As a result, the health-environment nexus creates the conditions to deal with diverse, and frequently conflicting, scientific and political discourses.

Since the environmental justice perspective is more oriented towards macro-politics – associating race, ethnicity, gender, socio-economic status and environmental hazards –, the proximate forms of controlling environmental health assume particular relevance, favouring forms of assessment and regulation of the environment (i.e., through the evaluation of water, air and soil conditions) and forms of intervention in situations of social inequality. The way different studies are carried out has influence on the results. Besides, the definition of the dimensions to be included in the "system" and in the scientific evaluation of a given problem has a bearing both on definitions of causality and on the attribution of responsibilities to human or institutional agents (Levins, 1998).

Environmental justice movements play an important role in the way the relations between health, environment and sustainability have moved towards the centre of public concern. The way international organizations have dealt with this emergent area of knowledge, expertise and intervention is visible in the constitution of networks – linking governmental and non-governmental organizations - and in the production of several strategic reports and the establishment of international agreements and treaties. At the European level, both the World Health Organization and the European Commission play a significant role in highlighting the connections between environment and health, and in issues associated with environmental hazards and their implications for health. It will be interesting to examine what happens when these relationships are framed within international or multilateral organizations which are not oriented to this type of concerns, as is the case of WTO. This is, in fact, one of the reasons why the case presented here is so relevant. The conflict has forced the creation of spaces of reconfiguration of scientific and technical controversies and has challenged conventional borders of expertise, by bringing environmental and health concerns to the fore in a situation framed as an international trade regulation issue.

A relevant factor in how this conflict evolved was growing visibility of the concerns of local populations with health and environment, which forced their recognition beyond the pejorative labels of 'ignorance' or 'local interests'. Local discourses became part of the repertoire of discourses mobilized in situations of public debate.

In fact, living in hazardous situations gives local populations access to privileged information about themselves and their local environment, even before hazards become evident to the world at large (Kleinman, 2000; Brown, 2000). Nonetheless, there seems to be a discrepancy between the ways lay people take up health as a central issue in their environmental claims and the "weak" responses of the political authorities to these claims.

So-called "health social movements" (Epstein, 1996; Rabeharisoa e Callon, 1999; Rabeharisoa, 2006; Callon et al, 2001; Escobar, 2003; Brown e Zavestoski, 2005) cover some of the most relevant and interesting initiatives

for the promotion of citizen mobilization and participation in the field we are dealing with here. These movements may take different forms – patient organisations, forms of therapeutic activism, movements of 'users' of health services, movements for environmental justice or emergent collectives associated with threats to public health. In some contexts, participatory initiatives have been promoted by local authorities or by the central state, but many of these initiatives display serious limits as to their capacity for creating spaces of dialogue between "expert" and "lay" knowledges and between institutions and citizens, often leading to a waste of valuable experiences rejected as "irrelevant" or dismissed as being based on ignorance, not to speak of barring the effective capacity of agenda-setting and decision-making of citizens and local constituencies. Movements associated with environmental justice and popular epidemiology are among those which, at the local level, have been challenging expertise and decision-making processes based on so-called "sound science" and trying to recover relevant place-based knowledges and experiences. The models of engagement with the "public" based on "sound science" tend to create vast areas of ignorance by excluding all forms of knowledge which are not part of the canonical and disciplinary knowledges considered as appropriate for the situation at stake. In some cases, expert knowledges integrate some local experience, but only when this experience is compatible with or subsumable under canonical knowledges. The configurations of knowledges associated with the environmental justice perspective differ from this type of appropriations, situated knowledge reconfigurations in the line of what Irwin and Michael (2003) have called ethno-epistemic assemblages.

2. The Brazilian attempt to ban the import of tyres from the EU

The environmental justice movement is oriented towards a perspective based on the articulation of macro-politics and local action. Scale issues play here a central role, through dealing, at the same time, with impacts at the local level and unequal power relations between States. One of the main concerns

of this movement is to bring to the fore policies that tend to reproduce and maintain environmental and health inequalities between communities, between countries or even between different regions of the world, and subject these policies to public scrutiny and debate.

The recent conflict over the prohibition by Brazil of the import of used tyres from the EU is an exemplary instance of how countries with a dominant position within the world-system contribute to the maintenance of unequal power relations, with considerable impacts on the environment, health and well-being of populations. This conflict was at the origin of an international protest movement, and it seems clear that the strong position defined by the BEJN has forced the process to move into new directions. This movement shows how the relationships between environment and health tend to be 'pushed' to the margins of public debates by decision-makers, reproducing dominant modes of doing 'politics' and producing 'knowledges'.

2.1. Brief description of the process

The Brazilian Environmental Justice Network (BEJN) was created in 2001, gathering a number of existing movements and initiatives across the country. Within a few years, BEJN became one of the pillars of the struggle over environmental and environmental health issues, and a central actor in the coordination of several nation-wide campaigns, such as the protest against the import of used tyres. One of the reasons behind the rapid consolidation of the Network was in all likelihood the vitality of a number of movements pre-existing the creation of the Network which addressed issues of justice, even if not necessarily under that label:

> "The concept [environmental justice], at that time, was a new concept, but it had a great impact on movements, to the point of the constitution of a network whihc is now growing, gaining in breadth and stamina year after year. I don't think that was the result of something new, but of the possibility of articulating the movements." (Member of RBJA, 23 January 2007).

In January 2006, as the result of a decision by the Brazilian government to ban the import of used tyres, the European Union (EU) asked the Dispute Settlement Body (DSB) of the World Trade Organization to constitute a panel to reverse the Brazilian decision. This case displays a "double standards" stance by the EU, which, at that time, was creating directives aimed at banning the disposal of used tyres (defined as waste) in landfills located within the EU space, as well as their incineration. This is the context within which the decision of the Brazilian government came to be challenged, due to its blocking of EU exports of used tyres. The protest movement which emerged in Brazil thus had as its goal preventing the EU from forcing the Brazilian government to open the national market to the import of used tyres. To achieve that aim, the EU resorted to the conflict-managing instances of the WTO. A number of actions were designed within the movement gathering RBJA, the Brazilian NGO and Social Movement Forum (FBOMS) and a large number of other organizations. These actions included: the drafting of a document signed by Brazilian NGOs to be sent to the President and to National Congress (Chamber of Representatives and Senate), requiring the ban on the imports f used tyres; the drafting of press releases; in Brazil, requests for public audiences on two drafts of laws which proposed exceptions to the import of tyres; debates over the violation of the Constitution by those two drafts of laws (PL 203/91 and PL 216/03)[36]; support of initiatives launched by other entities, with the same objectives; expansion of the opposition network, in order to include a more diverse set of actors, and beyond national borders; the sending of letters to EU officials and to ministers of health and environment of several member States; a massive campaign using the internet and existing mailing lists; and other actions, such as collective mobilization and public protest (one of the resources deployed in Geneva, outside the

[36] The discussion over violations of the Constitution was based on articles 196 and 225 of the Federal Constitution of Brazil (Art. 196 – "Health is a right of all and a duty of the State, which guaranteed through social and economic policies aimed at the reduction of the risk of disease and other injuries and the universal and equal access to the actions and services aimed at its promotion, protection and recovery"; Article 225 – Everyone is entitled to an ecologically balanced environment, a good for the common use of the people, essential for a healthy quality of life, public power and the collectivity having the duty to defend it and preserve it for present and future generations.).

building where the negotiations were held. The focus of the protest was the impact of the import of used tyres on health and environment.

One of the proposals backed by the movement from its beginning was a motion passed by the National Health Council in August 2006, which argued for its opposition to the pretensions of the EU as follows:

> "(…) tyres are hard to eliminate, they are not biodegradable and their volume makes its transportation and storage complicated; there are no environmentally safe and economically viable solutions for the disposal of the tyres, and when these are incinerated, they release chemical and carcinogenic substances, such as heavy metals, dioxins and furans. (…)
>
> (…) irregularly stored or disposed of tyres also become ideal sites for the proliferation of mosquitoes transmitting diseases such as yellow fever and dengue, because they provide an excellent breeding site for mosquitoes. (…) international trade in tyres has been shown to be responsible for the worldwide dissemination of a variety of diseases, since it promotes cross-continental transportation of vectors of disease such as dengue, yellow fever and other arboviroses relevant for public health.
>
> (…) the liberalization of the import of used tyres will increase the environmental and public health passive of the country ".

A document jointly drafted by RBJA and by FBOMS, entitled "Manifesto for a sovereign Brazil, free of incineration, co-incineration and disposal of unwanted waste from industrialized countries", stressed the main themes of the protest:

> "A political and economic movement, national and international is underway, which tries to turn Brazil and other countries the main destinations of the waste produced by industries and by the wealthier and more consumerist societies of the planet. This movement is opposed to sustainability (…) and intensifies socio-environmental inequalities and environmental injustice in the planet.

The same document, based upon the principles of environmental justice, made a link with the unequal relationships between States and the way the mechanisms producing injustice operate at the global level, widening the existing gap between countries, denounced

> "(…) the strategy adopted by wealthier countries of exporting their waste through the "qualification exchange" of the nomenclature of undesirable waste from production and consumption, which become "raw materials" or "products". In this way, waste is marketed as commodities to be reused in poorer countries, which end up with the responsibility of solving the problem of the waste produced in wealthier countries. A recent example of this strategy is the current representation of the European Union against Brazil at the International (sic) Trade Organization, with the aim of preventing the Brazilian government from banning the import of used tyres. It is worth recalling that since July 2006 the disposal of used tyres in sanitary landfills is forbidden in Europe, and that the cheapest way to get rid of the more than 80 million tyres which had been sent to landfills is to "export" them as "remoulded" to countries like Brazil.

> To cheat the prohibitions established by the Basel Convention,[37], waste turns into a commodity or into an "input for the production of goods", depending on need or type of waste. As an example of this, we have the pressure put on poorer countries to accept the export of hazardous industrial waste as secondary raw materials for the production of fertilizers for agriculture or to receive "donations" of obsolete medical or computing equipment (so-called e-waste) as part of humanitarian programs."

This process brought to the surface other issues, leading NGOs and the movements involved to question the scope and meaning of such an imposition. At a meeting with representatives of the Ministry of the Environment and of the Ministry of Foreign Relations, members of NGOs expressed their concerns with the possibility of a precedent being created which would force the country to accept the import of other used products from the EU and elsewhere, since it is public knowledge that countries like South Africa and India are under pressure from wealthier countries to receive used products, namely electrical household appliances.

The document "The case of tyres at the WTO – We don't want Brazil to become the dumping site of Europe", which was signed shortly after its elaboration by 115 organizations and networks, of which 60 were from Brazil, underlined the definition of the problem chosen by the movement. The EU was charged with trying to frame the problem as a "trade" issue, centred on the "international disciplines of trade" and based on the General Agreement on Tariffs and Trade (GATT). The ban of used tyres being inscribed in Brazilian law since 1991, the movement charged the EU with taking advantage of 'loopholes' in Brazilian legislation and disposing of "unusable tyres, or tyres with a half-life in Brazil, as in other developing countries". Once more, the focus was on public health:

> "Tyres threaten public health, since when they are stored they create the perfect environment for the proliferation of the dengue mosquito and the risk of proliferation of yellow fever, malaria and other related problems. The toxic emissions from other forms of disposal, such as incineration or co-processing, increase health risks and may cause diseases like cancer, brain damage, anaemia, endocrine disorders, asthma and diabetes. In addition to that, due to their power of combustion, burning tyres in open fields cause serious problems due to the emission of highly toxic gases. We thus sustain that the final disposal of tyres may leave a severe environmental debt for present and future generations. (…) We cannot accept this behaviour by a group of countries who over decades have adopted a rhetoric favourable to the protection of the environment, public health and the defence of human rights. (…) We thus request that the Ministers of Environment and Trade of EU countries reconsider the stance taken against Brazil

[37] Convention on the Control of Transborder Movements of Hazardous Waste and Final Disposal.

> and acknowledge that questions related to the environment, human rights and public health should prevail over the commercial interests of a small group of companies. EU countries should take responsibility and assign adequate resources and Technologies to the treatment and final disposal of their waste, produced by an unsustainable consumer society and production model."

Although, according to the dates initially proposed, the final report of the DSB of WTO should be made public in December 2006, this was to happen only in March 2007. The controversy gained momentum when both the Brazilian government and the European Commission claimed victory. An official declaration of the Brazilian government summarizes the preliminary reading of the outcome of the process:

> "Although, due to the confidentiality of the report, the Brazilian government is not allowed to reveal its content, it is possible to state that the document contains, for the most part, elements which are broadly favourable to the Brazilian theses. We are pleased to acknowledge, for instance, that the panel members demonstrated sensitivity towards the environmental and sanitary challenges posed to Brazil by the import of reformed tyres. Even so, the final conclusions, if they are kept, any require further action by the Brazilian government." (12 March 2007)

It was the case, however, that faced with informations with mentioned the possibility of the Brazilian market being forced to open up to the import of used European tyres, the forum of associations pledged to maintain their opposition to the decision made by the WTO. A press release was launched, under the title "Conclusions of the provisional report on the dispute at WTO on reformed tyres point towards favourable scenario for Brazil - The Campaign 'Brazil is not the dumping site of the European Union continues!'". In fact, the news on the days following the decision presented contradictory arguments:

> "After winning several important trade disputes over the last years, the time has come for Brazil to having to modify its laws in the wake of the decision of the international court. Brasília, however, is expected to appeal and take its case to the appealing body of the WTO, which will postpone a final decision for months (…) The main European argument was that Brazil was banning in a discriminatory way the import of used tyres, since Mercosul countries, and Uruguay in particular, are allowed to export similar products to Brazil. In fact, Uruguayans started exporting for the national market only after they won a similar dispute at the dispute resolution organ of Mercosul." (O Estado de São Paulo, 13 March 2007)

> "Brazil may continue to ban the import of used tyres, but it will have to make adjustments in its legislation. That was the conclusion, as the Folha has been able to establish, reached by the WTO (World Trade Organization) on the action moved by the European Union in July 2005 against the ban, on the understanding that it amounted to trade protectionism, while Brazil invokes environmental and public health motivations. (…) According to diplomats, Brazil was right in making use of Article 20 of the GATT (…) of WTO, which deals with questions of environment and human health" (Folha de S. Paulo, 13 March 2007)

> "The World Trade Organization (WTO) condemned the Brazilian ban on the import of remodelled tyres, since it violates international trade rules. The (still preliminary) decision was a defeat for the country's policy concerning remodelled tyres but the Brazilian government declared its "satisfaction" and classifies as "totally equivocal" the interpretation according to which the WTO will force Brazil to open its market to the import of those tyres. "We may say with satisfaction that the (WTO) text, for most of it, contains elements which are highly favourable to the Brazilian theses", stated the undersecretary-general of Economic and Technological Affairs of the Ministry of Foreign relations, Roberto Azevedo. Azevedo stressed that "the final conclusions of WTO, if they are kept, may require further action by the Brazilian government". The diplomat declined to inform which measures might be necessary, arguing that WTO rules require secrecy." (O Globo Online, 13 March 2007)
>
> "The World Trade Organization (WTO) still has no resolution to the dispute over the admission of used tyres from Europe into the Brazilian market." (Agência Brasil, 13 March 2007)
>
> "Brazil lost against itself at the court of the World Trade Organization (WTO) which, the day before yesterday, decreed that the government will have to modify its law on the import of retreaded tyres. The dispute was opened by Europe, which harshly criticized yesterday the behaviour of Estado had access to parts of the document of the mediators, which is still confidential. It states very clearly that the problem of the country is not the existence of environmental measures, but the "lack of consistency" of its application by the government." (O Estado de São Paulo, 14 March 2007)
>
> "The defeat of Brazil at the panel of the World Trade Organization (WTO) in the case of the ban of the import of used tyres from the European Union (EU) may create a confrontation between the Executive and Judciary Powers in the country. The decision of the entity condemned Brazil for "unjustified discrimination and a concealed restriction of international trade". The WTO also made it clear that the country may even have barriers for environmental motives and even import from Mercosul, but the problem is that the government could not prove that the current application of the barrier is accomplishing its purpose of preserving the environment." (Agência Estado, 15 March 2007)

On the 23rd of April of 2007, the content of the final WTO report was publicized. It had few differences with its preliminary version. One of the results was the acknowledgment but the WTO that it should not compromise the capacity of member countries to adopt measures aimed at protecting the environment and the health of their populations, thus allowing the country to keep on banning the import of used tyres. The same document, however, pointed at some faults in the methods used by Brazil to control imports. On June 12, the Brazilian government, in a statement, shows its satisfaction with the recognition by the panel that the ban on the import of used tyres is a necessary measure for the protection of human health and of the environment, as well as with the fact that the report acknowledged that the exception made to the import of tyres from Mercosul did not constitute arbitrary or unjustified discrimination against products from other origins. Briefly stated, Brazil was allowed to keep the ban on the import of reformed tyres, as long as that measure was effectively enforced. It was up to Brazil to

propose how and within what time frame it was to reformulate those measures to make them compliant with the multilateral disciplines of trade.

On the side of the European Union, victory was declared on the basis of the acknowledgment, by the WTO, that the ban on import by Brazil was incompatible with WTO rules. It was further argued that with that decision, the Brazilian government had not ensured the reduction of the volume of waste caused by tyres. The way both parts declared victory faced with the result of the action is a good indication of how the framing of what is at issue is crucial. For the movement defending the ban, the problem was defined as related to health and environment. These aspects were recognized by the panel, allowing the persistence of the ban, and, under that framing, that result was clearly a victory. The representatives of the European Union, in turn, defined the problem as one of compliance with rules of international trade. Since the panel recognized that the Brazilian State had not complied with those rules and forced it to change them, the EU could claim victory as well.

This outcome, however, did not bring the dispute to a closure. One of the consequences of the dispute was the possibility of companies dedicated to the reform of tyres to Paraguay, which would make possible the export of those tyres to Brazil, since the import of reformed tyres is allowed within Mercosul (cf. Gazeta Mercantil, 14 June). And the EU decided to appeal from the decision of the WTO panel.

3. Inequalities and problems of scale

The way public policy-making takes place at different scales is central to the understanding of both the generation and persistence of inequalities and the establishment of public accountability systems. The case dealt with here provides an exemplary instance of the complexities of these processes.

Environmental injustice may be perceived both at the local level, when specific groups or populations express their feelings of being unequally

threatened as a result of the implementation of a given policy, and at the international level, when unequal power relations among States or sets of States are at stake, as is the case of relations between the European Union and Mercosul.

The currently dominant model of development tends to reproduce social and environmental inequalities, with clear impacts on the public health of the populations of the "weaker" countries and regions. Alliances play here a key role. The European Union allied itself with the WTO, the Brazilian Network for Environmental Justice (RBJA) with the Brazilian government. The former association had as its aim to force the Brazilian government to open its national market to the import of used tyres, framing the problem as one of compliance with rules of international trade. The latter aimed at calling on the European Union to revise its position and acknowledge the problem as one of environment and public health.

Within the international context, as stated above, the problem, as defined by the EU and the WTO, was one of unequal treatment according to the rules of international trade. The claims of the Brazilian State were regarded as na attempt at creating na exception to well-established international practices, sanctioned by a multilateral organization and multilateral agreements. Still within the international context, the position of the Brazilian State was that inequality could be regarded as the result of impositions on poorer countries by the wealthier countries, resting upon the redefinition of waste as "goods", and thus allowing the poorer countries, under the justification of compliance with international trade rules, to be turned into dumping sites of the North. This position was further argued drawing on the alleged "double standards" of the environmental policies of the European Union: prohibition of dumping or incineration of used tyres, defined as waste, within the space of the Union, but promotion of the export of those tyres turned into commodities to Southern hemisphere countries.

The European Union charged Brazil with applying restrictive measures to international trade, on the basis of a 1991 law banning the import of used consumer goods. According to the EU, those measures were incompatible with

both established practices and agreements of international trade, especially as they violated articles I:1, III:4, XI:1 and XIII of GATT and a document (*laudo arbitral*) produced within Mercosul, allowing the import into Brazil of reformed tyres from Uruguay. In the early stages of the dispute, the EU had just approved directives forbidding the disposal of used tyres in sanitary landfills. Since other European legislation established limits to emissions associated with the incineration of solid waste, it was clear for both RBJA and FBOMS that another destination had to be found for the more than 80 million tyres which, until then, were being sent every year to landfills in Europe. According to these platforms, that type of stance was unacceptable coming from those who for years had promoted rhetoric of environmental protection and of defence of public health and human rights. A further charge had to do with the lack of access to the terms of the petitions addressed by the EU to the mediation panel of the WTO. This meant that it was impossible to respond to the specific points advanced by the EU. The WTO was thus accused of lack of transparency for not making public all documents related to the procedure, and for not allowing organized civil society to access them, nor the presence of civil society organizations at the audiences promoted by the panel.

Finally, one of the demands of the movement was that EU countries take responsibility for the implications of an unsustainable model of consumer society and production. The EU and its member countries should allocate adequate resources and develop technologies appropriate to treating their waste and disposing of it in environmentally sound ways.

In order to amplify their framing of the problem, the member organizations of RBJA presented their claims to the European ministers of trade, but also to environment and trade ministers.

4. Resorting to conflict as an 'accountability model'

RBJA and FBOMS jointly acted towards endowing the international dispute with more visibility. Both platforms were explicit about the virtues of

conflicts as means of making visible the different framings, positions and stakes associated with the process:

> "[B] starting from conflicts, we see the possibility of putting into question the very model [of development] and of reversing power inequalities between groups – because environmental inequalities are the outcome of power inequalities - but also of pushing for a change of the model. So, we think that making conflicts visible is one of bringing in the debate over the relationship between development and democracy. In other words, it is impossible to achieve sustainability if you do not guarantee democracy and equality in access to resources and to the spaces where decisions are made on what to do with those resources." (Member of RBJA, 23 January 2007).

In an email message from 26 August 2006, attention was drawn to

> "the non-existence of a legal institute with the capacity to suspend a procedure in Congress before it becomes Part of the Brazilian normative system; an ADIN [action claiming the unconstitutional character of a legal decision] will be possible only after the approval of those procedures, since the Brazilian Constitution does not forbid the import of tyres; even the Basel Convention does not prohibit import, it just guarantees that those countries who do not want to import have the right to refuse; the only way left is that of political pressure, in other words, the motion of the National Health Council, our document, the strength of NGOs and social movements, national and international.".

Throughout the process, RBJA and FBOMS broadened their sphere of action through the 'interessment of allies' (Callon, 1999). They succeeded in strengthening their international articulation through the support of the GAIA network and of the latter's contacts with a range of European organizations; they mobilized NGOs (linked to trade, environment and WTO) to follow the audience held in Geneva at the WTO headquarters; they mobilized NGOs in Brussels who followed the work of the EU in order to put pressure on EU officials; they collected petitions to join to the letter to be sent to European ministers; they deposited tyres in front of the WTO headquarters in Geneva; they assembled a file with news reports, motions, technical documents and other materials on the dispute.

In September 2006, when the Intergovernmental Forum on Chemical Safety was held in Budapest, a letter signed by 49 members of NGOs from 27 countries was delivered to the European delegation. The letter expressed the repudiation of the actions of the European Commission towards Brazil. The letter stated:

> "We, the undersigned groups and citizens from around the world gathered at the International POPs Elimination Network (IPEN) General Assembly in Budapest, Hungary, express our deepest concern over the European Commission's legal challenge at the World Trade Organization (WTO) of Brazil's legitimate measures to address the environmental and health problems resulting from the import of retreaded tyres.

> The WTO dispute initiated by the European Commission against Brazil is of international concern. If the WTO upholds the EC's case, it will set a dangerous worldwide precedent. A country's sovereign right to protect the environment and public health should not be overruled by trade interests. **(...)** Scrap tyres management is indeed a worldwide problem. If disposed in open dumps and landfills, scrap tyres create a breeding ground for mosquitoes and rodents, increasing the risk of transmission of diseases such as malaria, dengue and yellow fever. A 2003 Brazil Ministry of Health study revealed that tyres were the main breeding ground for mosquitoes in 22.9% of Brazilian municipalities. (...) Disguising waste as commodities opens the door for many countries to get rid of waste by shipping it overseas. (...)"

In February 2007, a meeting of the Managing Council of PNUMA was held in Nairobi. A member of RJBA met with the German and Portuguese ministers and was surprised when she realized that the Portuguese minister was not informed of the situation. At that point, RJBA and FBOMS decided to promote a new action to sensitize the European ministers of health and environment and the European commissioners to the problem.

In March 2007, when the WTO provisional report was delivered, the movement made a commitment to pursue the campaign "Brazil is not the dumping site of the European Union". This activity, which included both public actions and the close following of the process, was continued even after the delivery of the final report by the WTO, in April.

A message circulating in the net summarizes the position held by the movement after the definitive report was made public:

> "(...) our problem does not end here... If the ban on used [tyres] is definitive, the tendency will be for companies to relocate their operations to Paraguay and then export to Brazil, since the import of reformed [tyres] from Mecosul is permitted".

5. Implications for the definition of public policies and for the production of knowledge

One of the central debates fostered by this case has to do with the definition by different actors of what is at stake and of the challenges raised to traditional forms of policy-making and knowledge production when public health problems are placed at the centre of the concerns of actors. Before we go on to explore this topic, it should be noticed that actors are themselves defined and redefined through the very process of engagement in the dispute. Alliances are made, reconfigurations of these alliances take place throughout

the process. The definition of what an actor is and what are its stakes depends on the attachments different entities create while engaging in the dispute. A second point to keep in mind is that actors intervene through specific framings of what is at stake. Framing is a way of defining who is an ally and who is a foe, a device for creating new attachments which allow the emergence of coalitions and platforms (Latour, 1999, 2005). The shape and composition of these coalitions or platforms is, as would be expected, different depending on which side of the dispute they are on. Or, rather, the sides of the dispute are themselves mutually defined through the alignment of actors in an agonistic space.

As Callon *et al*. (2001) have shown, controversies find a fertile ground where actors potentially affected by a given decision or course of action whose outcomes are either predictably hazardous (through risk assessment, for example) or characterized by uncertainty come to challenge experts, administrators or formal political actors. The implication of actors beyond those routinely associated with processes like the one studied here (EU officials, officials from EU member countries and form the Brazilian government, panels of experts) had as a result the emergence of alternative framings of the problem. The actors irrupting into the scene were the platforms and coalitions of NGOs and social movements, both at the national and international levels, They framed the problem as a matter of public health. This was, at first, explicitly denounced (EU) but later recognized as legitimate, though that legitimation had to be weighed against the dominant framing of the problem as a matter of compliance with the disciplines of international trade and with WTO agreements (WTO). Effects of the import of tyres were not overtly denied, but they were considered by the EU, in the presentation of their case, as foreign to the problem under discussion. A major argument used by the supporters of the ban to promote the relevance of concerns with public health was the reference to widely accepted links between the piling up of used tyres and the creation of breeding grounds for vectors of infectious diseases.

Defining what the problem is entails decisions on what is and is not inside the "system" under scrutiny. Levins approach to the conditions under which knowledge appropriate to dealing with complex problems offers some useful guidelines for determining how, in a situation of controversy of conflict, the different parties involved establish the boundaries of what counts as that "system", of what is "inside" and "outside". The first criterion is "sufficiency": "a sufficient description of a system is one which provides all the information we need that is available for answering the questions we have posed to the degree of precision we require" (Levins, 1998: 573). The bigger the "radius" of inclusion of factors or elements in the framing of the problem, the more complex and uncertain will be the framing. Conversely, "narrower" or simpler definitions of what is at stake are likely to leave out problems or implications of the action taken on the basis of this narrower framing. WTO and the EU framed the problem as one of trade relations, which should come before other considerations in assessing trade policies. For both the Brazilian government and the platforms and coalitions supporting the ban, a "sufficient" definition of the problem required exploring the multiple attachments of trade practices and agreements with unequal relations between countries and the unequal effects of these relations on health and environment. The deliberate introduction of questions of power and inequality allowed the "radius" of inclusion to be increased and more complex threads of relationships to be brought to the fore.

Levins's second criterion states that when dealing with complex interactions in social or biological systems (or in heterogeneous configurations of human/non-human entities), "there are always variables and interactions we are unaware of, history is always needed to interpret the present" (Levins, 1998: 576). Whereas both WTO and the EU framed the problem in ways which made history irrelevant – the current status of relationships between trade partners as they are defined by agreements such as GATT and by the disciplines of international trade define the only relevant time frame for addressing the problem -, supporters of the ban used time and history in different ways. For NGOs and movements, the current predicament of Brazil was the outcome of a history of unequal relationships persisting in the

present, which allowed the waste of the North to be turned into commodities for the South. The Brazilian government, however, did not invoke the unjust outcome of history. Its position was rather to place itself within the logic of coevalness of the WTO and the EU, acting as a peer of the EU, but proposing that the problem be framed differently, as a problem of public health.

The third criterion, the establishment of boundaries, is based on the notion that "[t]raditional boundaries among disciplines act to restrict models of problems to include the acceptable pathways of intervention while excluding those issues that are defined as 'unprofessional'" (Levins, 1998: 577). In the case being discussed here, we should take a broad view of what counts as a "discipline" to include practices and modes of organizing collective action. For the WTO and the EU (and for the Brazilian government as well), acceptable forms of action are those channelled through existing formal institutions such as the WTO dispute resolution procedures. Protest or other forms of action undertaken by NGOs and social movements are by definition outside the space of formal legitimate action, as they interfere with the rule-bound fact-finding procedures put into motion through the EU action. For NGOs and social movements, the space of legitimate action is broader than the space of formal audiences and deliberations of the WTO and the legislative bodies of the Brazilian Republic. The legitimacy of these formal spaces is in fact questioned for their lack of accountability when the NGOs and movements are denied access to the audiences.

Finally, there are "ideological and aesthetic preferences that guide the choices of models" and which "are organized around three principal axes: responsibility, intelligibility and controllability. If something is caused from outside the system then it is not the responsibility of that system" (Levins, 1998: 560). Ideological preferences are constitutive of the stances of all the parties involved. They become matters of contention whenever statements and actions are perceived by participants in the dispute to be at odds. The positions of the EU display a tension between two commitments. The first is expressed through the forceful endorsement of the rules of international trade. The built-in assumption behind this position is the notion that free

trade in a capitalist world economy is the road to overall growth and prosperity, a notion that "naturalizes" the current state of the world-system and the prevailing relations between countries as they are enacted through international trade. The second commitment, explicit in a plethora of treaties, directives and public positions of the Union, is to, as opponents accurately recall, to environmental protection and the defence of public health and human rights. The WTO, as a multilateral organization devoted to the promotion of international trade and to the definition and enactment of rules or "disciplines" allowing it to be carried out in full respect of the principles of free trade, builds into those very rules the possibility of the requirements of environmental protection or the protection of public health justifying the suspension or conditional application of those rules. Both the EU and the WTO thus stand at the intersection of conflicting commitments, which are likely to be exposed by opponents in situations of conflict or dispute, as in the case examined here. The response of the EU to the denunciations of its violation of the commitment to the protection of environment and health consists of, in turn, charging opponents (in this case, the government of Brazil) with inconsistency between the principles they uphold and their deeds. This allows a form of "rhetoric of suspicion" to be deployed, drawing on the apparently discriminatory practice of the Brazilian government, allowing tyres to be imported from Mercosul, but trying to ban those exported from Europe. The assumption is that tyres from both origins are "the same" or, borrowing a concept used in debates on biotechnology, "substantially equivalent". The circumstances giving rise to the decision by Mercosul to force Brazil to allow imports and the situation arising from current EU policy are not regarded as relevant for assessing the position and intentions of the Brazilian government.

The actions of the Brazilian government seem to occur as well within a conflicting ideological ground. Even a cursory review of available materials on the way the government came to the position upheld at the WTO hearings (a topic which would deserve a research project by itself) would reveal tensions within the Brazilian State (between the sectors associated with international trade and those dealing with the environment and health and within each of these sectors), between the Executive and the Judiciary (public attorneys in

charge of the protection of so-called "diffuse rights", such as the right to environment or the right to health, were key allies of the networks and movements upholding the ban on imports, whereas some sectors of government had less clear-cut positions on the issue), between the Executive and Legislative Powers and within each of these. The very composition of the Brazilian government and of Congress displays the tension between outspoken commitments to a neoliberal versus a "strong" democratic and participatory political project, a tension emerging in the design and implementation of Brazil's foreign policy.[38]

As for the coalition of networks and movements supporting the ban on the import of tyres from the EU, its ideological commitments are openly stated: environmental protection, sustainability, public health, human rights and democracy are advocated as taking precedence to the principles of free trade, even if the latter is regulated under WTO rules and "disciplines". All actions undertaken by these collectives are justified through the reference to those commitments. The repertoire of forms of action drawn upon by the movement and the targets of these actions are all intended to be consistent with the latter. Thus, violent action is excluded, and other initiatives take advantage of the possibilities offered by the liberal-democratic order (peaceful protest, petitions, legal action, political lobbying, networking). Even though the legality of these actions is not questioned by the EU and WTO, their legitimacy depends on a conception of democracy and of citizen rights which does not coincide with that upheld by those entities who are the target of these actions. The exclusion of representatives of the movement from hearings and the fact that they were barred from access to the provisional report of the WTO displays the position of the WTO of considering only its members as legitimate parts in the dispute. One of the consequences

[38] Following time-honoured conventions of approaches like actor network theory or institutionalist sociology, we have treated "the EU", "WTO" , "the Brazilian government" and "the movement" as "actants" in their own right, since this is how they are depicted in the materials we have used. At another scale of observation, and resorting to other materials and research techniques (which constraints of time and resources have not allowed), the heterogeneity of these entities and the dynamics of the continuous reshaping of their relationships can be brought to light. In this section, we have drawn in an *ad hoc* way on some of the limited and incomplete data we are able to collect on these aspects.

of this situation was the need for the movement to ally itself with those who could legitimately (from the point of view if the WTO and of its members) speak for the ban on tyres and for the motives behind it, namely the protection of the environment and of public health, but also have the means and the authority to enact the ban. The alliance with the Brazilian government satisfied these conditions. But the movement was, in turn, a major resource for those sectors of both the Executive and the Legislative Powers in Brasília who were in favour of the ban, providing broad public visibility to the process through the campaign actions carried out in Brazil and in Europe, in particular.

Did the process become more *intelligible* through the actions of the movement? From the standpoint of the WTO and the EU, intelligibility required a clarification of the position of Brazil in relation to its commitments to the WTO, within a framing of the object of the dispute as a violation – or. at least, an alleged violation - of the rules and good practices of international trade. The official position of the Brazilian government was to frame it as a problem related to the right of a country to protect public health. For the movement, the problem only became intelligible as long as the attachments between the export of tyres, the rules of international trade, the changing status of tyres from waste to exportable goods, the threats to environment and public health and the unequal relations of power prevailing in international trade were all brought into one frame. Different framings of *responsibility* were associated with the different ideological commitments of the parties. For the WTO and the EU, a responsible stance by Brazil would mean honouring its commitment as a member of a multilateral organization promoting free trade. For the Brazilian government, acting in a responsible way meant putting the protection of public health in its territory above the commitment to free trade. For the movement, responsibility was framed in a more complex way, linking it to commitments to sustainability, democracy, the protection of health and of the environment and the promotion of human rights. Actions would thus be assessed by the parties according to these framings of responsibility.

As far as *controllability* of the process is concerned, the EU and, to a certain extent, the Brazilian government relied on WTO rulings as means of re-establishing, in the case of the EU, the normality of rule-bound international trade, and in the case of the Brazilian government the recognition of the right to create exceptions to the free import of goods as a preventive response to public health problems likely to be created or increased by the import of a particular type of good, in this case used tyres. For the movement, rather than controlling the process, the objective was to influence its course, through an extension and complexification of the implications of the imposition of the import of used tyres by the WTO, as demanded by the EU. The alternative framing of the problem advanced by the movement was itself dependent, for its success, on the capacity to make the Brazilian government and Congress accountable for their duty to protect public health and the environment, as stated in the Constitution. The use made by the movement of the motion voted by the National Health Council – a decision-making body for health policies – was a further move in the building of alliances with those institutions and institutional actors with the power to take action in the arena of the formal political process and thus endow the ban on imports with a supplement of formal legitimacy through the multiplication of instances upholding it. A similar approach was used to call for the EU to honour its commitments to the principles of protection of the environment and of public health and defence of human rights. The articulation of the movement with international platforms, networks and organizations and, in particular, with those operating in Europe was a key step in the direction of a similar approach, but this time on the opponent's territory.

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OTHER RESOURCES

1. Case studies on public policies, accountability and configurations of knowledge

Belo Horizonte, Brazil

Participatory Budgeting
www.pbh.gov.br

Digital Participatory Budgeting
www.opdigital.pbh.gov.br

Health Municipal Council,
www.pbh.gov.br/smsa/montapagina.php?pagina=conselho/index.html#documentos (reports)
www.pbh.gov.br/smsa/montapagina.php?pagina=conselho/resolucoes/index.html (regulation)

Seville, Spain

Municipal Participatory Budgeting
www.presupuestosparticipativosdesevilla.org

Youngsters Municipal Participatory Budgeting
http://www.grupo.us.es/laboraforo/

São Brás de Alportel, Portugal

Participatory Budgeting
www.cm-sbras.pt, www.saobrassolidario.com/index.swf

Development partnership
www.saobrassolidario.com

Equal (European Initiative), Development Partnerships Reports
https://equal.cec.eu.int/equal/jsp/dpComplete.jsp?national=2004-070&lang=et&cip=PT

2. Case studies on public health, environmental justice and new accountability systems

Brazilian Network of Environmental Justice
www.justicaambiental.org.br
www.justicaambiental.org.br/_justicaambiental/pagina.php?id=822

FASE
www.fase.org.br/_fase/

Greenpeace tyres campaign
www.greenpeace.org.br/toxicos/?conteudo_id=2827&sub_campanha=0

Endemic diseases
www.fiocruz.br/cgi/cgilua.exe/sys/start.htm?tpl=home

www.ipec.fiocruz.br/pepes/dc/dc.html
www.ivdrj.ufrj.br/vetores.htm

3. Other background information

Porto Alegre Participatory Budgeting, Brazil, www.portoalegre.rs.gov.br, http://www.planum.net/topics/community-practices-pa-links.htm

Palmela Participatory Budgeting, Portugal, www.cm-palmela.pt

Albacete Participatory Budgeting, Spain, www.albacete.com

Venice Participatory Budgeting, Italy, www.comune.venezia.it/incluir

Cordoba Participatory Budgeting, Spain, www.ayuncordoba.es

Bobigny Participatory Budgeting, France, www.bobigny.fr

Pieve Emanuele Participatory Budgeting, Italy, www.comuna.pievemanuele.mi.it

Pasto Participatory Budgeting, Colombia, www.pasto.gov.co

El Alto Participatory Budgeting, Bolivia, www.elalto.gov.bo

Ilo Participatory Budgeting, Peru, www.mpi.gob.pe

Cuenca Participatory Budgeting, Ecuador, www.municipalidadcuenca.gov.ec

Saldford Participatory Budgeting, UK, www.saldford.gov.uk

Saint Denis Participatory Budgeting, France, www.ville-saint-denis.fr/budget/

Santo Andre Participatory Budgeting, Brazil, www.santoandre.sp.gov.br

Caxias do Sul Participatory Budgeting, Brazil, www.caxias.rs.gov.br

St. Feliu de Llobregat Participatory Budgeting, Spain, www.santfeliu.org

Christchurch Participatory Budgeting, New Zeland, www.ccc.govt.nz

Grottammare Participatory Budgeting, Italy, www.comune.grottammare.ap.it

Rome Participatory Budgeting, Italy, www.commune.roma.it/municipioXI

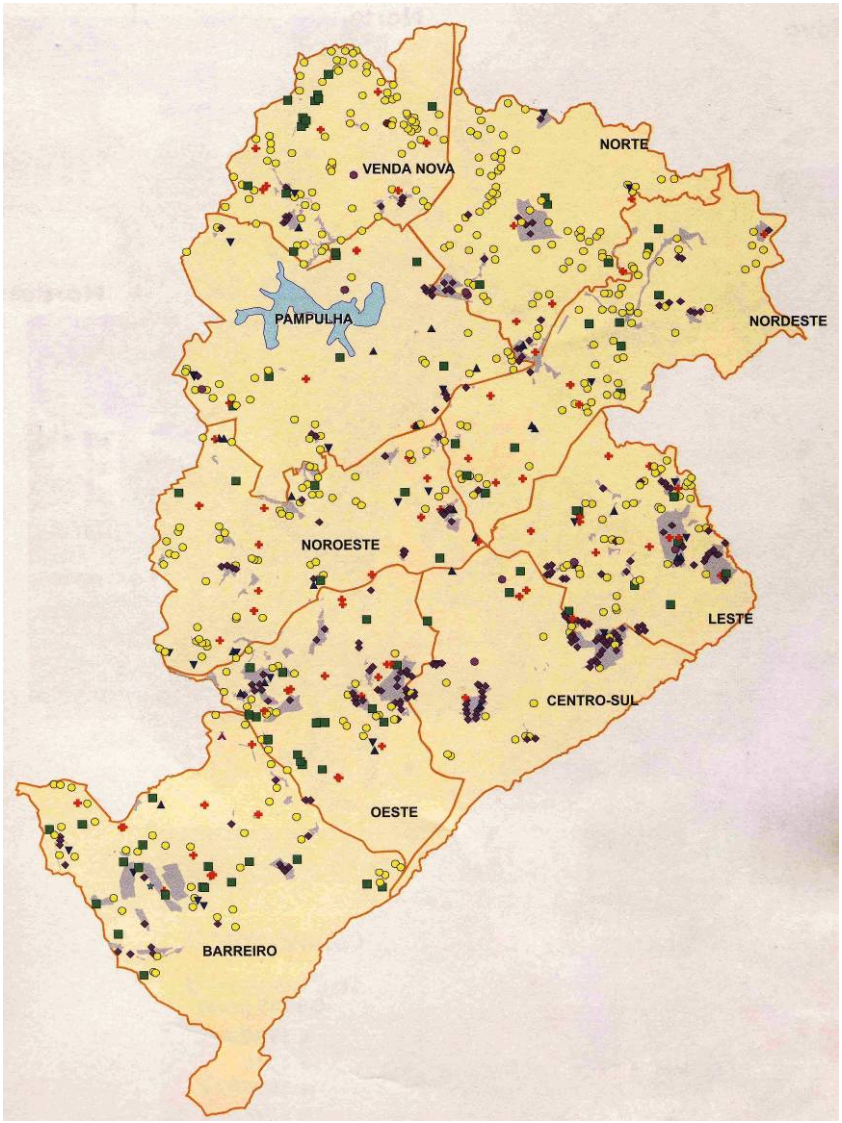
Morsang Sur Onge Participatory Budgeting, France, www.ville-morsang.fr

International Centre for Urban Management (Latin American Incentive project on Participatory Budgeting processes - Reforzar), www.cigu.org

Participatory Democracy Project of Minas Gerais Federal University (DCP-UFMG), Brazil, www.democraciaparticipativa.org

ANNEXES

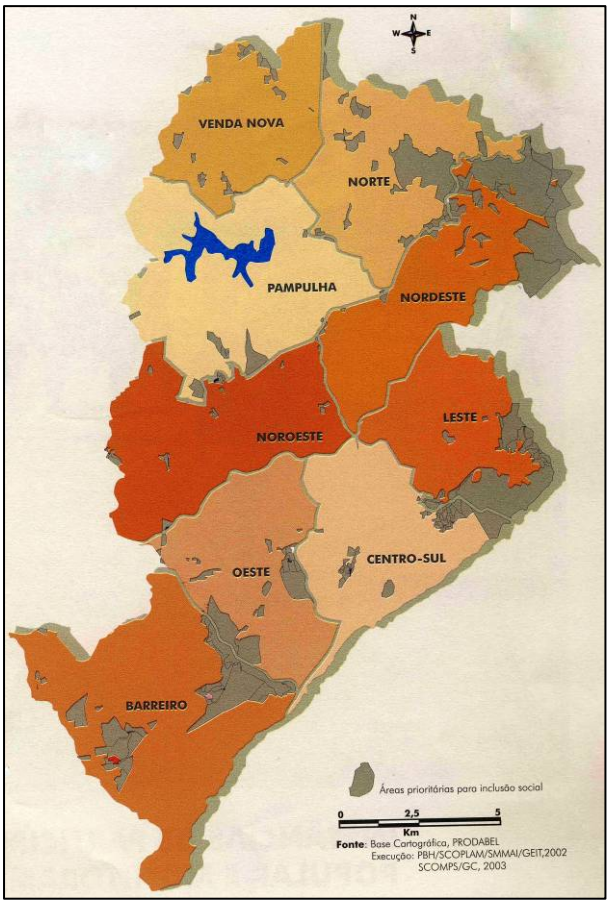
Distribution of PB interventions in Belo Horizonte



Infra-estrutura	438	45,20%
Urbanização de vilas	255	26,32%
Educação	97	10,01%
Saúde	92	9,50%
Social	30	3,10%
Esporte	26	2,68%
Habitação	16	1,65%
Cultura	12	1,24%
Meio ambiente	3	0,31%
TOTAL	969	100,00%

Áreas prioritárias para inclusão social

Map of PB regions in Belo Horizonte



Regionais	População Extrato 1	% da Pop. Regional	Peso
Barreiro	26.002	9,9%	30%
Centro-Sul	38.875	14,9%	40%
Leste	29.340	11,5%	30%
Nordeste	21.478	7,8%	20%
Noroeste	17.349	5,1%	20%
Norte	19.792	10,2%	30%
Oeste	28.201	10,5%	30%
Pampulha	7.680	5,4%	20%
Venda Nova	13.714	5,6%	20%
Totais	204.431	9,0%	
POPULAÇÃO BH	2.238.526		

Map of approved proposals, PB Belo Horizonte

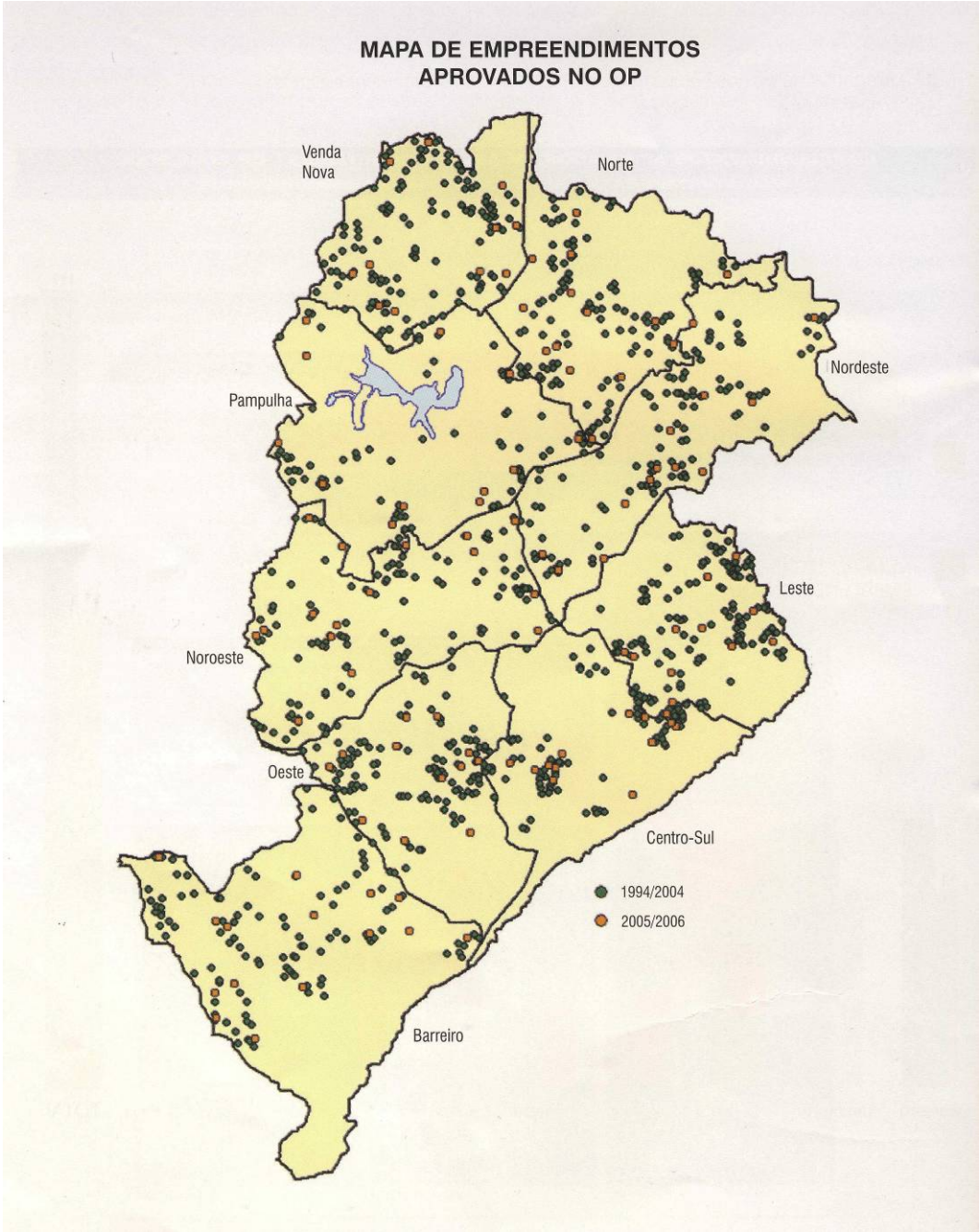
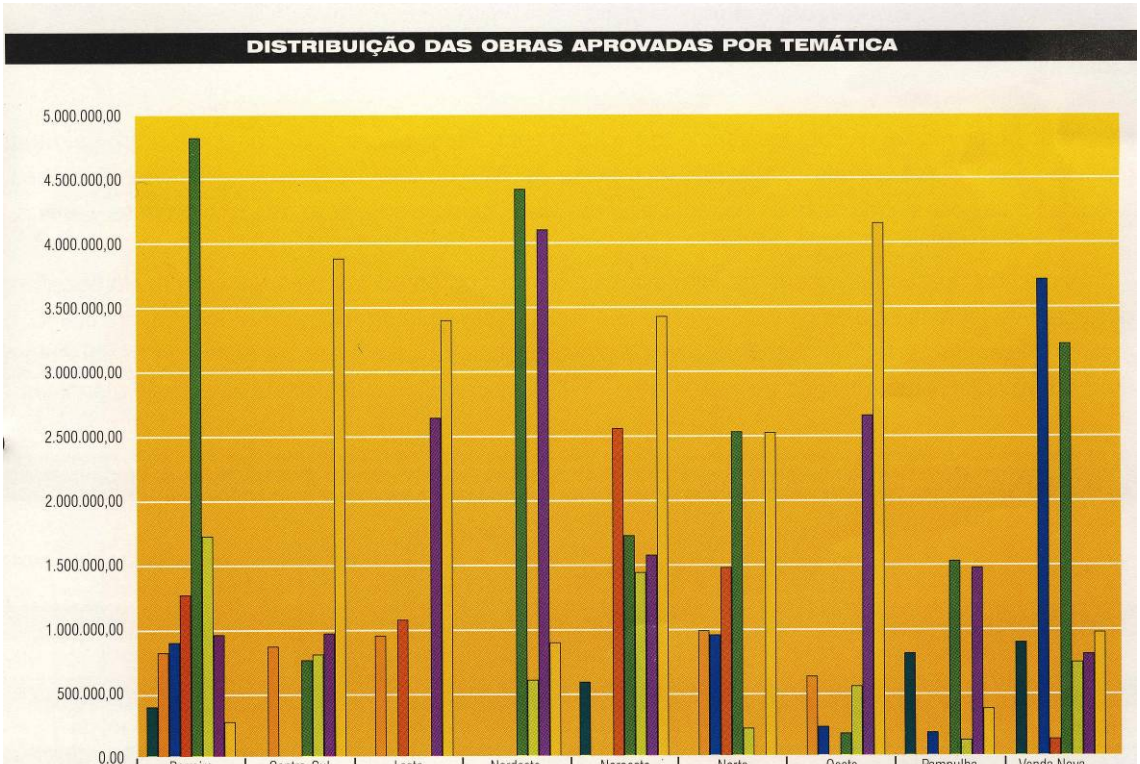
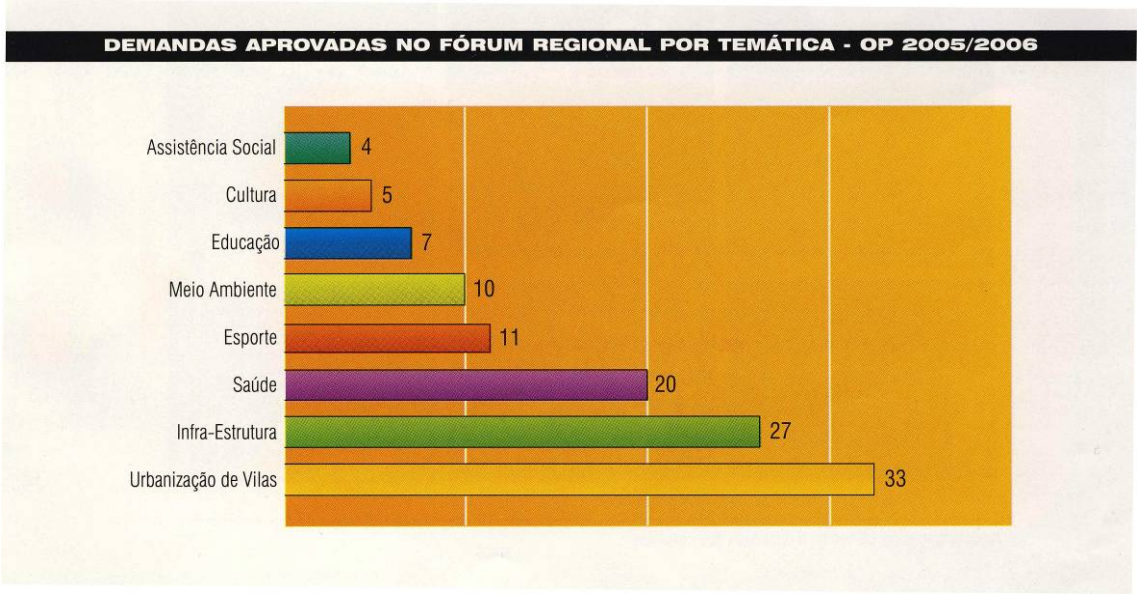


Table of PB investments in Belo Horizonte, by area and region

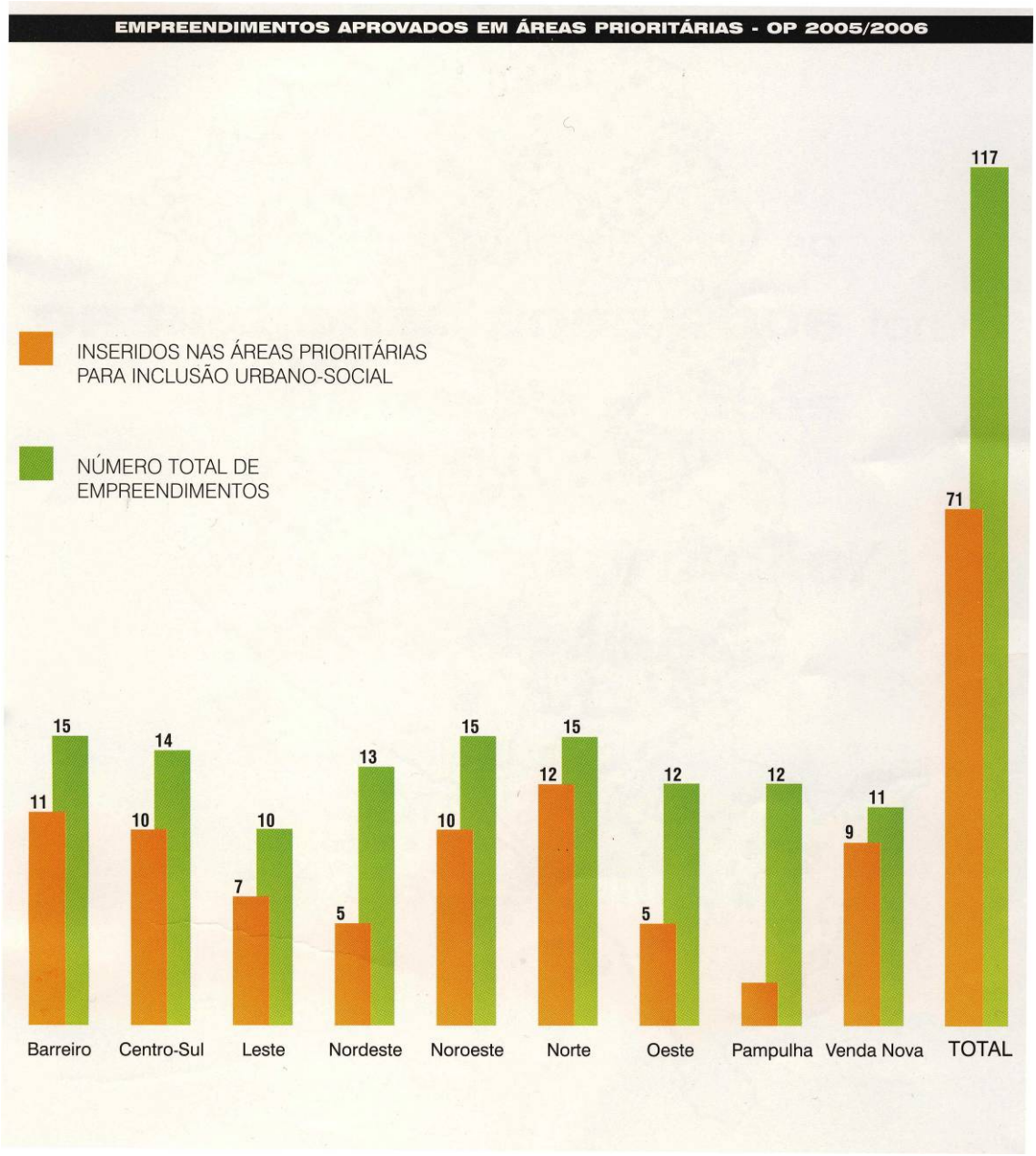


	Barreiro	Centro-Sul	Leste	Nordeste	Noroeste	Norte	Oeste	Pampulha	Venda Nova
Assist. Social	353.601,00	0,00	0,00	0,00	588.474,00	0,00	0,00	809.091,00	897.796,00
Cultura	820.833,00	861.373,00	949.376,00	0,00	0,00	989.428,00	724.103,00	0,00	0,00
Educação	890.661,00	0,00	0,00	0,00	0,00	960.640,00	211.846,00	195.877,00	3.775.685,00
Esporte	1.275.452,00	0,00	1.077.389,00	0,00	2.507.502,00	1.474.495,00	0,00	0,00	163.288,00
Infra-Estrutura	4.756.426,00	711.632,00	0,00	4.403.977,00	1.965.355,00	2.514.413,00	114.373,00	1.510.454,00	3.147.478,00
Meio Ambiente	1.766.381,00	741.381,00	0,00	585.020,00	1.390.506,00	162.362,00	678.044,00	101.166,00	785.186,00
Saúde	974.897,00	988.600,00	2.639.495,00	4.076.784,00	1.624.412,00	0,00	2.731.991,00	1.473.348,00	811.864,00
Urban.Vilas	262.173,00	3.858.845,00	3.395.391,00	907.083,00	3.412.924,00	2.510.739,00	4.132.349,00	382.347,00	965.314,00

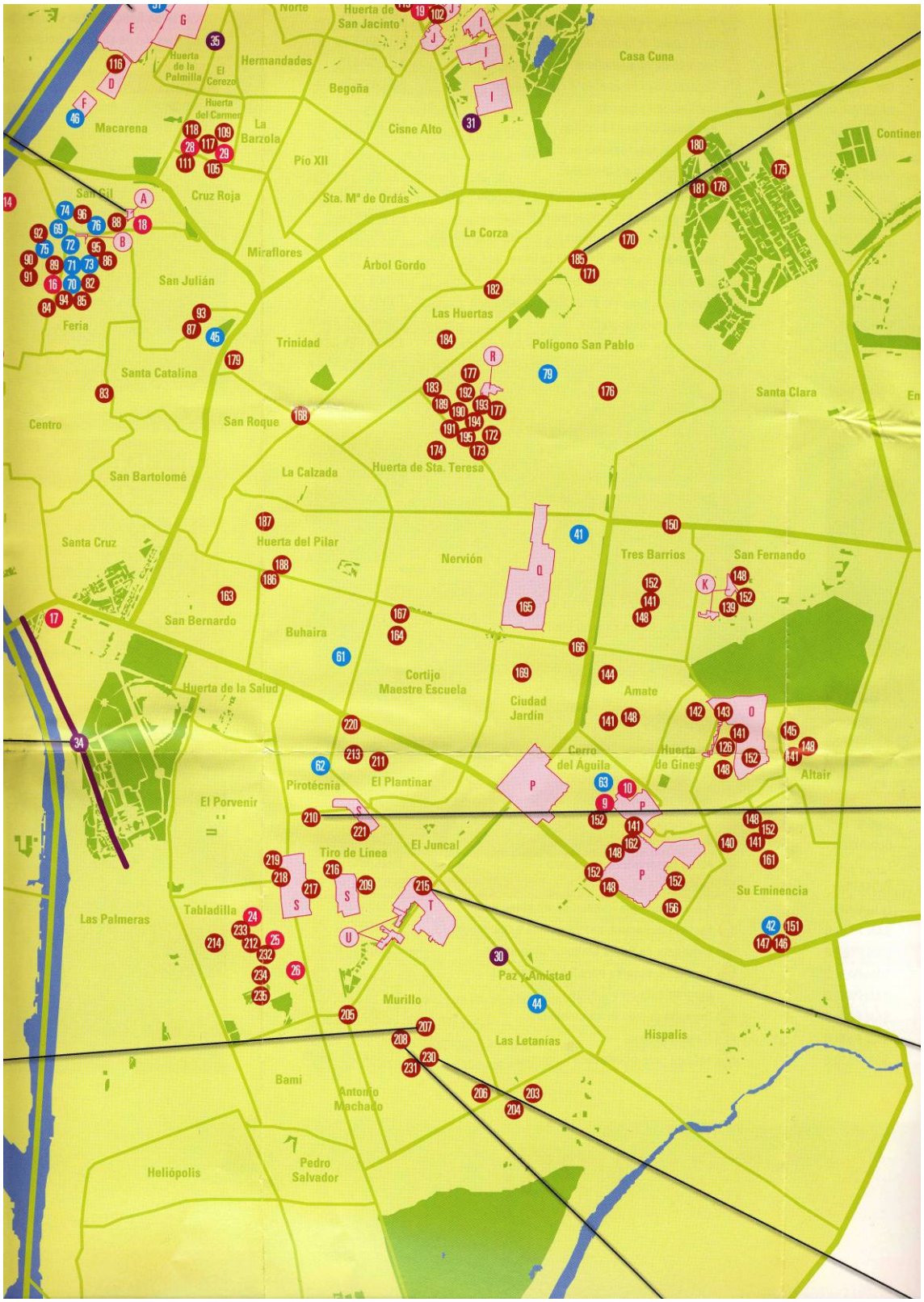
Approved proposals by thematic area, PB Belo Horizonte



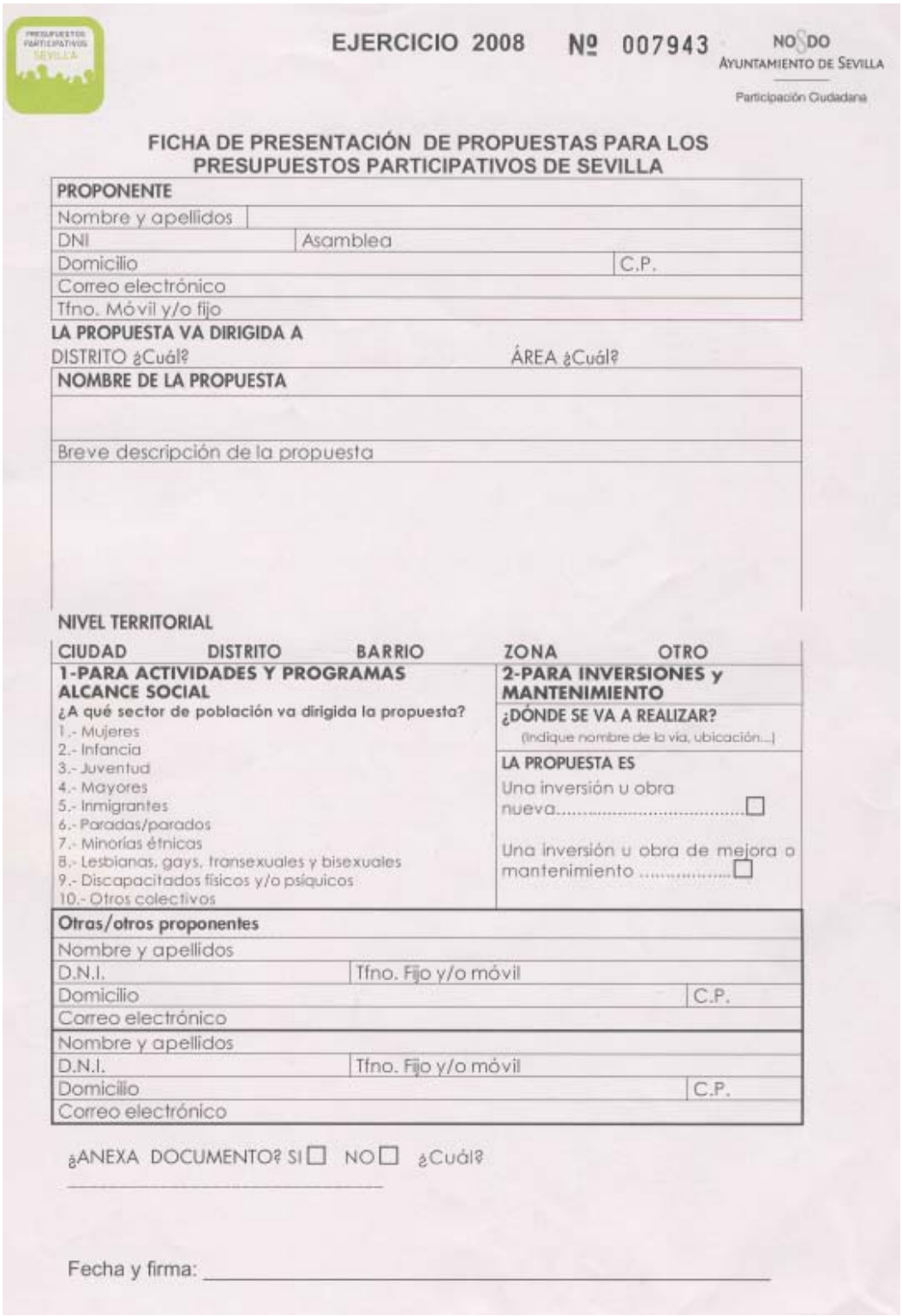
Approved proposals, PB Belo Horizonte
Orange: proposals in priority areas
Green: total of proposals



Partial map of territorial units, PB Seville



Proposals Form, PB Seville



EJERCICIO 2008 Nº 007943

NO(S)DO
AYUNTAMIENTO DE SEVILLA
Participación Ciudadana

FICHA DE PRESENTACIÓN DE PROPUESTAS PARA LOS PRESUPUESTOS PARTICIPATIVOS DE SEVILLA

PROPONENTE		
Nombre y apellidos		
DNI	Asamblea	
Domicilio		C.P.
Correo electrónico		
Tfno. Móvil y/o fijo		

LA PROPUESTA VA DIRIGIDA A

DISTRITO ¿Cuál? ÁREA ¿Cuál?

NOMBRE DE LA PROPUESTA
Breve descripción de la propuesta

NIVEL TERRITORIAL

CIUDAD	DISTRITO	BARRIO	ZONA	OTRO

1-PARA ACTIVIDADES Y PROGRAMAS ALCANCE SOCIAL	**2-PARA INVERSIONES y MANTENIMIENTO**
¿A qué sector de población va dirigida la propuesta? 1.- Mujeres 2.- Infancia 3.- Juventud 4.- Mayores 5.- Inmigrantes 6.- Paradas/parados 7.- Minorías étnicas 8.- Lesbianas, gays, transexuales y bisexuales 9.- Discapacitados físicos y/o psíquicos 10.- Otros colectivos	**¿DÓNDE SE VA A REALIZAR?** (Indique nombre de la vía, ubicación...) **LA PROPUESTA ES** Una inversión u obra nueva..... ☐ Una inversión u obra de mejora o mantenimiento ..... ☐

Otras/otros proponentes		
Nombre y apellidos		
D.N.I.	Tfno. Fijo y/o móvil	
Domicilio		C.P.
Correo electrónico		
Nombre y apellidos		
D.N.I.	Tfno. Fijo y/o móvil	
Domicilio		C.P.
Correo electrónico		

¿ANEXA DOCUMENTO? SI ☐ NO ☐ ¿Cuál?

Fecha y firma: _____

Participation questionnaire, PB São Brás de Alportel

O Questionário de participação:

Página 1

Este questionário é anónimo, deve ser preenchido uma única vez por cada munícipe, e pode ser entregue numa sessão pública do Orçamento Participativo ou na Câmara Municipal, até ao dia 30 de Novembro: em mão, no Gabinete de Munícipe da Câmara Municipal, ou através do Correio, Fax (289 842 433) e via E-Mail orcamento.participativo@cm-

I. PROPOSTAS

1. Escolha 3 áreas de intervenção municipal que, na sua opinião, devem ser consideradas prioritárias pela Câmara Municipal

- ☐ Educação
- ☐ Cultura e desporto
- ☐ Acção Social
- ☐ Gestão/Planeamento e Ordenamento do território
- ☐ Rede viária e sinalização de trânsito
- ☐ Abastecimento de água
- ☐ Turismo
- ☐ Protecção civil
- ☐ Recolha e tratamento de resíduos
- ☐ Desenvolvimento económico
- ☐ Rede de esgotos
- ☐ Criação e conservação de espaços verdes
- ☐ Conservação do património
- ☐ Outros. Quais? _____

2. Indique até 5 investimentos que considera prioritários realizar na sua zona de residência e/ou no concelho:

Identificação dos investimentos (projectos - obras ou pequenas intervenções):

1		
2		
3		
4		
5		

3. Indique o seu grau de satisfação em relação ao trabalho desenvolvido pela Câmara Municipal:

☐ Muito satisfeito ☐ Satisfeito ☐ Pouco Satisfeito ☐ Nada satisfeito

II. AVALIAÇÃO DO ORÇAMENTO PARTICIPATIVO

4. Como teve conhecimento do Orçamento Participativo de São Brás de Alportel?

- ☐ Jornais
- ☐ Rádio
- ☐ Agenda Mensal
- ☐ Outra (ex.: Qual ?
- ☐ Amigos/vizinhos
- ☐ Internet
- ☐ Folhetos/cartazes

5. Participou em alguma Sessão Pública do Orçamento Participativo?

- ☐ Sim — Qual/quais? _____
- ☐ Não — Porquê? _____

6. Qual foi a principal razão que o/a levou a participar no Orçamento Participativo?

- ☐ Para defender determinadas obras/investimentos
- ☐ Para exercer os meus direitos de cidadania
- ☐ Porque gosto de participar
- ☐ Para ajudar a minha localidade
- ☐ Para conhecer o que é este processo
- ☐ Outra razão. Qual? _____

7. Participou no Orçamento Participativo do ano passado?

Participou nas Sessões Públicas? ☐ Sim ☐ Não Preenchia o questionário? ☐ Sim ☐ Não

Continua na página seguinte >>