Solid Waste Management. From unruled to legally sustainable management… but how to address the social consequences? A case study.

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Abstract

What has become known as the biggest sanitary solid waste landfill in Latin America, in which *catadores* (persons who make a living collecting recyclable waste) have scavenged circa 7,000 tons of solid waste (a day) originating from the city of Rio de Janeiro and two other neighboring municipalities for about 30 years, has been shut down June 1st., 2012. This a welcome result of the implementation of the National Policy on Solid Wastes, consequent to international treaties to which Brazil is a party, and addresses causes of climate change. It will now be exploited according to modern practices and should generate politically (and ecologically) correct energy. Law has been followed in every step of the way; Government has been announcing this move since 2007; the *catadores* have been compensated for the termination of their activities. This does not, however, solve the problem of the roughly 3,000 people who have (in some cases) lived most of their lives in that (horrible) reality, raising families and counting on income now no longer available, given lack of education and training. This paper approaches this situation from a legal perspective, centering on the human rights component of sustainable development – what were the legal requirements; how were (are being) they met; what has been the conduct of public powers (and here, more specifically, the Rio de Janeiro government and the Public Ministry as an institution) and civil society); What can/should be/is being done to help the affected population to qualify/readapt/find new ways of living? The great challenge (by no means exclusive to Brazil, therefore the proposal to this global conference) is to help these people – who for years unsustainably did a job that is fundamental in the quest for sustainable development – recycling – to enjoy their right to a dignified and sustainable life.

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1. Introducing the theme

In Brazil, accelerated urbanization process, coupled with increase in consumption of less durable or discardable products, led to significant growth both in volume and in diversification of waste, not to mention concentration in space. Urban waste management, as a consequence, now calls for differentiated (yet articulated) action – which must be inserted into the priorities of every Brazilian municipality.

Environmental issues must be taken into account when planning systems for urban solid waste collection and treatment, following a world trend to stimulate programs and procedures which meet goals, such as economic development, adequate use of resources, social improvement and the wellbeing of communities – in short, sustainable development.

An efficient urban waste collection system, which foresees adequate destination for the solid waste collected, can decrease significantly the risks of pollution and proliferation of disease vectors – a major step towards improving the health of populations.

This is the goal of the Law which established the Brazilian National Policy for Solid Wastes. The idea is to close for good all open waste dumps which still exist in Brazil. Goals are set aiming at sustainability and an ecologically balanced environment, but bearing in mind social development and shared social responsibility (involving the different sectors of society).

These are the parameters within which this paper proposes to discuss the end (the shut down) of the *Gramacho* dump, which the authors see as the outstanding practical example which summarises the challenges and risks of this policy.

2. A brief history of Gramacho

Gramacho[2] is the name of a neighborhood in the city of Duque de Caxias in the Greater (Metropolitan area of) Rio de Janeiro, where two small (and polluted) rivers (Sarapuí and Iguaçu) die in the Bay of Guanabara, and where, until 2012, the largest solid waste dump in Brazil (if not in all Latin America) was located – therefore the name.

[2] The full name of the neighborhood is, ironically, *Jardim Gramacho* – equivalent to *Gramacho* Garden…

Prior to its existence, Rio de Janeiro's solid waste was deposited in the of the *Retiro Saudoso* dump, in *Caju* beach, much closer to the city of Rio, but also closer to the Bay. When *Cajú* filled up its capacity, urban growth forced waste to travel farther to find its rest[3].

Fundrem (now extinct – Foundation for the Development of the Metropolitan Area) chose the new site. It is said that, at the time, some thought that given the lack of value of the *mangue* (marsh – now known as immensely important for biodiversity), one should dump the waste directly into its water area[4]. Between 1978 and 1996 *Gramacho* received *circa* 5.5 thousand tons of waste/day. In more recent years it received up to 9 thousand tons/day or 75% of the waste of the Metropolitan Area of Rio de Janeiro. At the eve of its termination it still received 2 thousand tons/day.

Gramacho started out as a real dump, where waste of all kinds was deposited in an open area, subject to no sort of control (even what's now classified as Class One waste - inflammable, toxic, hazardous, it included heavy metals and hospital waste). There was no discrimination in terms of origin, nor any concern with the need to cover or, in any manner, organize it. Families lived in this dump; children worked in it, and it was the people that lived and worked in it that gave directions to garbage trucks. Methane gas and other byproducts caused spontaneous ignition of fires and effluents flowed, with the rain, freely into the post-card bay of Guanabara.

In 1996 *Gramacho* was upgraded. Its 1.3 million m2 area was delimitated by a peripheric road of 5 km, and barriers were built, to hold the garbage. Waste started to be classified upon entering the area, and vectors (rats, roaches and other insects, black effluents, i.a) were controlled. Vultures remained, but dogs and even horses were removed.

When the spilling of toxic water into the bay was controlled, marshland vegetation started to regenerate. The once despised marshland was promoted to wetland, and the municipality started to help its regeneration. Thus, *Gramacho* was promoted to the rank of controlled landfill – which, in practice, corresponds to an earth-covered dump.

Most of the pickers working in *Gramacho* lived on site (in cardboard and wood huts, amidst much waste and mud) – circa 13,700, 60% of which surviving on activities related to recycling (from picking to working on byproducts manufacturing). Formidable quantities of recyclable waste were separated and bagged according to type of material every day, between

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[3] History avalable at http://www.oeco.com.br/reportagens/26063-apesar-de-fechado-gramacho-e-uma-historia-inacabada Access Sept 15 2012 17:10. See http://riotimesonline.com/brazil-news/rio-politics/the-end-of-jardim-gramacho- landfill-in-rio/# Access in Dec 23 2012 21:13hs for further information in the English language. See also http://www.guardian.co.uk/environment/2011/feb/20/worlds-largest-rubbish-dump-brazil Access 23 Dec 21012 21:21.

[4] In the seventies there was not much concern, or laws, for the environment in Brazil..

6h30 and noon. A research carried out by IETS (Institute for Studies on Labor and Society) in May 2011 speaks of low per capita monthly income (around R$ 370 at the time); 43% of the population being below the poverty line, and 16% below the extreme poverty line[5].

3. Environmental impacts of dumps

A dump (*lixão)* can be defined as a large open (uncovered) space where waste is deposited, without hygiene, environmental concerns, lacking adequate protection or sanitation. Solid wastes are therein thrown without any previous soil preparation. It has no system for treatment of liquid effluents (*chorume* – the black smelly highly polluting liquid resulting from the decomposition of organic matter), which seeps into the earth leading to contamination of soil and groundwater. Flies, birds and rats are part of the landscape; children, teenagers and adults pick for food or recyclables for sale purposes. No procedures exist to avoid negative environmental and social consequences – thus, the worst and most irregular possible way to dispose of urban waste[6].

There are, however, safer and sustainable ways to dispose of solid wastes, such as controlled landfills – an intermediate phase between a dump and the sanitary landfill. A controlled landfill is usually a cell next to the dump that has been treated (was covered with clay and grass, and ideally sealed with a waterproof cover in order to protect the pile from rainwater) and has structures to separate *chorume* and gas. Its operation foresees strategies to deal with negative impacts – such as the daily covering of waste piles with earth or similar material available. *Chorume* is re-circulated (collected and taken to the top of the waste pile, thus decreasing its absorption by the soil, or some other kind of treatment, such as a treatment system for this liquid.

However, the most adequate method for disposing of urban solid waste is the sanitary landfill, which land basis is previously prepared (leveled and sealed with clay and PVC layers) and waterproofed, in order to avoid soil contamination by liquid effluent (*chorume)*- which is in turn drained into an accumulation pit (well) in which it is circulated during the first six months, under the landfill waste mass. When these six months are over (and it meets parameters), *chorume* is sent to the effluent treatment station. The operation of

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[5] Study available at http://www.iets.org.br/ access 23 Dec 2012 21:47 – in Portuguese.

[6] See http://www.lixo.com.br/index.php?option=com_content&task=view&id=144&Itemid acesso em 14/09/2012 19:40.

sanitary landfills, as well as that of controlled landfills, foresees that waste be covered on a daily basis, thus avoiding the proliferation of vectors, bad smells and visual pollution.

In short, open dumps are far from being adequate for urban waste disposal. Besides the negative aspects already pointed out in terms of environmental impact, public health and damage to water resources, there is a complete lack of control in terms of types of waste received. Therefore the importance of the coming into force of the Brazilian National Policy for Solid Wastes (Law 12,305 2010), which established 2014 as the date for the termination of open dumps in Brazil - unhappily, still used by 90% of Brazilian municipalities.

4. Human Rights and the Environment - from international to national law and politics.

The UN (Organization of the United Nations) declares the inherent dignity of all human beings – something that must be taken seriously by all its Member States. This dignity is now under threat given, *i.a.*, unsustainable levels of production and consumption in a planet which resources are finite.

The environmental issue is, *per* se, of international character. No UN Member State will solve it alone – therefore, the creation of UNEP (the United Nations Environmental Program), as one of the consequences of the 1972 Conference on the Human Environment, for the purpose of approaching the issue in an integrated and coherent manner, catalyzing efforts and resources. Twenty years and two major UN Conferences on the theme later, what has the international community done in the subject of urban waste management?

In 1972, the cold war was still steaming in Latin America; Brazil was under a military dictatorship; dictatorships were never especially fond of environmental concerns (*economic* development was the driving motto in Brazil) and even less of human rights discussions (two themes seen as *subversive)*. But Brazil participated in Stockholm. The Report of the Brazilian Delegation to the 1992 UNCED[7] recalls the 1972 context: First UN Development Decade just ended; its balance was not encouraging, many developing countries feared the true goal of the Conference to be to divert the eye of the international community from the *development* issue to a *new* issue (environmental protection); furthermore, developing countries rejected the developed countries argument that environmental degradation threatened equally the whole humanity.

[7] Relatório da Delegação Brasileira. *1992 Conferencia das Nações Unidas sobre meio ambiente e desenvolvimento*. Brasília:FUNAG/IPRI, 1992, pp 9-11.

Brazil thus denounced the fallaciousness of the "Spaceship Earth" metaphor as merely an attempt to preserve the *status quo*[8]*;* it recognized the importance of environmental problems *provided* environmental protection be not achieved by hampering development - which was initially seen as an effort to obstruct the Conference, but, in time, understood, as proven by the fact that the Stockholm Declaration duly points out at the problems of Developing Countries in several of the Principles stated[9].

Guido SOARES deemed that the Stockholm Declaration to be as relevant to international law and international diplomacy as the 1948 Universal Declaration of the Rights of Man[10]. In fact, it dealt with human rights[11], national sovereignty over natural resources[12], the management of natural resources and threats due to pollution[13], the correlation development/environment[14], planning, environment and demographic policies[15], environmental education[16], development and transfer of science and technology[17], responsibility[18], respect for national values and standards of environmental protection[19], and the nuclear threat to the environment[20]. For developing countries the greatest achievement of Stockholm was to associate (however reluctantly) environment and development. And, as for Principle 21, its importance comes from associating the right to national sovereignty over natural resources to responsibility in exercising it[21].

As we all know, Stockolm was the rolling down of the first stone, and governments started to act on environmental issues. Germany was the pioneer; in 1986 it enacted its Plan for Solid Wastes; Canada followed (Plan for Decreasing Solid Wastes, in 1989); in 1992 the French changed their law on Wastes; Spain in 1998; the United States, which had issued

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[8] Ans Kolk, *Forests in International Environmental Politics*. *International organizations, NGOsand the Brazilian Amazon.* Utrecht:International Books, 1996, p.36.
[9] And especially those 8 to 14.
[10] Guido F. SOARES, *As Responsabilidades no Direito Internacional do Meio Ambiente.* Campinas:Komedi, 1995, p.52.
[11] Principles 1, 16
[12] Principle 21. In 1995 Nico SCRIJVER defended his PhD at the University of Groeningen on the subject – published in 1997 by Cambridge University Press as *Sovereignty over Natural Resources – balancing rights and duties,* ISBN 0 521 56269 4. On the Stockholm Declaration and this principle, see pp.122-129 of this book.. See also, on sovereignty over natural resources as a basis for sustainable development, its pp. 368-398.
[13] Principles 2-7.
[14] Principles 8-12.
[15] Principles 13 to 17.
[16] Principle 19.
[17] Principle 20.
[18] Principle 22.
[19] Principles 23-25.
[20] Principle 26.
[21] See, on the subject and in the English language, Susana Camargo Vieira, *From Sustainable Development to Earth System Governance – a view from the South.* In VII Yearbook of International Law, CEDIN, Vol. 2, pp 167-176, ISSN 19809484.

legislation on the subject as of 1965, updated it. The European Union's Directives also date back to 1975. [22]

Twenty years after Stockolm came Rio, which results we all know - two binding conventions (biodiversity and climate change), two Declarations (the Rio Declaration and the Declaration on Forests), and Agenda 21. The ILA Committee on Legal Aspects of Sustainable Development, in its Report to the 1994 Buenos Aires ILA General Conference, draws attention to the importance of the participation of 178 states, a record in the history of international organizations[23]; considers the Rio Declaration a notable result; notes the fact that beyond the Declaration on Forests, a recommendation was adopted to start negotiations for another global convention on desertification – which effectively did happen in 1994, Brazil is a party to that Convention.

What's more important - Rio 92 contributed to a significant growth in the body of legal principles on environment and sustainable development, and to place the subject on a higher level in the international agenda. On the other hand, as notes the ILA Report, by chasing concomitantly two objectives by some considered incompatible, it took the light off some basic needs, such as lowering the consumption level of rich countries, reducing mobility and, in general, inducing a change in lifestyle.

Johannesburg happened in very different circumstances – in the post September 11 2001 world, fear was beating hope. The Washington Consensus had replaced the 1992 idealism. There was doubt about the feasibility of attaining the Millenium Goals. In short, there was no shortage of international and national legal documents, but the world faced the challenge of implementation. Therefore the decision to concentrate discussions on two themes – poverty reduction and water – which led to fears of rich countries backing off from pledges already made, or scheming for the principle of common but differentiated responsibilities to be forgotten.

Brazil was more proactive in 2002, leading the Latin American And Caribbean Initiative (sadly not accepted) which proposed that by 2010 10% of world energy come from renewable sources; articulating the creation, by Megadiverse countries, of *i.a.,* a fund for Biodiversity (proceeded); presenting international cooperation projects which had been

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[22] Legislação sobre resíduos Sólidos: Exemplos da Europa – Consultora Legislativa da Área XI Meio ambiente e Direito Ambiental Organização Territorial, Desenvolvimento Urbano e Regional – Novembro 2005

[23] Phillip Sands points at the importance of the participation of several dozens of inter-governmental organizations and several thousand NGOs.

successful in Brazil, such as PPG-7[24]; and organizing its own Rio+10, which resulted in a pledge by the Presidents of Brazil and South Africa, plus the Swedish Prime Minister and the British Deputy Prime Minister, to fight jointly to defend, in Johannesburg, the 1992 *acquis*. Not to mention that Brazil was a driving force behind the Kyoto Protocol.

The Rio+20 Conference was, once more, held in Brazil, and in Rio – and, once more, conditions were very different: economic crisis in Europe, slow economic recovery in the US, elections taking place in the US and in many European countries, did not encourage hope for a repetition of 1992. The number of delegations and heads of state or government attending was smaller – but, on the other hand, a quality improvement in the participation of civil society was noticeable.

In fact, according to the Rio+20 Fact Sheet (issued June 22), the total number of participants was 45,381. Delegations came from 188 UN Member Countries and 3 observers; over 100 heads of State and Government were present; approximately 12,000 Delegates, 9,856 NGOs or Major Groups; 4,075 media representatives; 1,781 day passes were issued to civil society members for the Dialogues; security personnel totaled 4,363; and about 5,000 people worked at *Riocentro* on a daily basis. Volunteers (1,500) included university students and professionals from all over Brazil, but also young people selected from Rio de Janeiro´s technical and public high schools - 700 of which coming from vulnerable communities; 5% of the volunteers presented different forms of disability.

Civil society organized circa 3,000 parallel events, both in *Riocentro* (where the official conference happened) and throughout the city of Rio. The Earth System Governance project[25] , for instance, prepared and presented several documents, some of which had already been discussed at the London preparatory conference Planet Under Pressure, but were available, and mentioned, in Rio. Among these, we would recommend reading Rio +20 Policy Brief nr. 3 – Transforming governance and institutions for a planet under pressure; Towards a Charter Moment – Hakone vision on Governance for Sustainability in the 21st Century[26]; and *Navigating the Anthropocene: Improving Earth System Governance*[27], which proposes seven

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[24] On the subject of PPG-7 from a legal point of view see, in English, Susana Camargo Vieira, *The Right to Sustainable Development in Amazonas* – in *Reflexions on Emerging International Law – essays in memory of late Subrata Roy Chowdury. (* Ed.) By Dr. A. Jayagovind et al, Calcutta:International Law Association/Calcutta Centre, 2004: pp 141-156. ISBN 81-85792-05-4. From a political angle, see Ans Kolk, op. cit note 10.

[25] Affiliated with IHDP, United Nations University. See www.earthsystemgovernance.org for more on the project.

[26] Both of these available from www.earthsystemgovernance.org At least the first one should be distributed to all participants in the Conference.

[27] Published in Science Magazine (www.sciencemag.org)on 16 March 2012 Vol 335 pp. 1306-1307. Also available now at www.earthsystemgovernance.org.

building blocks to improve environmental governance and, hopefully, help steer change in the destructive course humanity seems intent on following:

1. reform and upgrading of UN environmental programs and agencies;

2.strengthening the integration of the social, economic and environmental pillars of sustainable development, from local to global levels;

3. closing remaining regulatory gaps at the global level in order to achieve better integration of sustainability governance;

4. governments must place a stronger emphasis on planetary concerns in economic governance, if we want to integrate sustainability policies;

5. stronger reliance of qualified majority voting to sped up international norm-setting;

6. stronger intergovernmental institutions raise important questions of accountability and legitimacy;

7. equity and fairness must be at the heart of a durable international framework for sustainable development – we must resort to novel finance mechanisms.

Something new in the history of UN Conferences (and which continuation in future conferences was repeatedly recommended at all levels) were the *Dialogues for Sustainable Development* - result of a suggestion of the Brazilian Government, endorsed by the UN. As put by the (extracts of) Northern Alliance Report on the Sustainable Development Dialogues:

… For the first time in International global UN Conferences, the inclusion of a participatory and inclusive process for representatives of civil society was conducted with the view of bringing to the Heads of State and governments a number of Recommendations, to be presented at the Round Tables during the High Level segment of the UNCSD Rio+20 Conference. The Dialogues gathered 100 panelists in 10 panels focused on key themes on the international agenda for the sustainable development. Those themes were: (1)unemployment, decent work and migrations; (2) sustainable development as an answer to the economic and financial crises; (3) sustainable development for fighting poverty; (4) the economics of sustainable development, including sustainable patterns of production and consumption; (5) forests; (6) food and nutrition security; (7) sustainable energy for all; (8) water; (9) sustainable cities and innovation; and (10) oceans. The debates took place at the plenary room of Pavilion 5 of Riocentro… The debates had an average audience of over 1,300 people. All the debates were broadcast live on the UN website…The Dialogues were the apex of an innovative and inclusive process of consultation that began in April and gathered tens of thousands of participants in open discussions over the Internet that were facilitated by about 30 academic representatives of universities and research centers from all over the world.

Public also proposed and voted for concrete recommendations on sustainable development. Over 63,000 people from 193 countries cast nearly 1.4 million votes. A total of 100 recommendations were discussed by the panelists and 30 of them were selected: one by an open vote on the Internet, one by the audience in Rio and one by the panelists. Some panelists proposed amendments to the recommendations that resulted from the online discussions as an additional contribution to the debate. For instance, in the Dialogue on unemployment, decent work and migrations, panelists suggested the need to incorporate workforce skills training, and on the water panel, panelists stressed that "right to water" should be understood as including the right to proper sanitation. The climate impact on development and tipping points on the use of natural resources were debated. Transfer of technology, peoples centered innovation was also brought forward, as well as the need to take into account the special needs of developing countries. The audience other than voting and asking questions made substantive contribution to the discussions. ***In the Dialogue on sustainable cities and innovation, the point was strongly made that the use of waste as an energy source (the top recommendation from the internet vote) should be understood as referring to organic waste only, as it could otherwise have a negative impact on the livelihood of scores of families in developing countries…***[28]

Yes, urban waste management and the need to change patterns of consumptions were also at the heart of discussions...

5. Brazilian Environmental Law and the National Policy for Solid Wastes

Brazil is known for having modern and comprehensive environmental legislation; the great challenge remains, however, its implementation. The fact that it is a party to most major environmental treaties is reflected on the production and enactment of national legislation. This is no different in the case of the management of solid wastes, in which legislation one sees the influence of the Rio Declaration (1992) – and especially its Principle 8.

Federal Law 12,305 (of 02 August 2010) established the National Policy for Solid Wastes in Brazil. It is part of the Brazilian System for the Environment, established by Law 6,938/1981 (National Policy for the Environment), and is considered a landmark in the country's history of environmental management. It should be seen in context with the

[28] Enhanced by the authors. For more, see Susana Camargo Vieira, *Report on Participation at Rio+20,* available at http://www.ila-hq.org/en/news/index.cfm/nid/8A4332B1-25EA-4307-8A8C72428DC73EB8 access 28 Dec 2012 18:30.

National Policy for the Environment , with the National Policy for Environmental Education (Law 9.795/1999), the National Policy for Basic Sanitation (Law 11,445/2007) , and the basic Law for Public Procurement via consortia (Law 11,107/2005) *i.a.,* and does *not* apply to nuclear waste, subject of a specific law[29].

It is guided by, *i.a.*, the principles of precaution[30] and prevention; polluter pays and producers receive; systemic approach; sustainable development; eco-efficiency; economic value of recyclable solid waste which should generate work, income, and promote citizenship; shared responsibility for the life cycle of product; respect of local and regional diversity; reasonability and proportionality; the right to information and social control [31]. As a consequence, it foresees the return of discarded (consumed) products to their manufacturers and forces the different levels of public authorities to establish plans for waste management, all the while enshrining the social aspect of recycling (the mandatory formal participation of pickers, organized in cooperatives)[32].

Municipalities and federated state governments were given two years to formulate and implement plans for solid waste management, which involved diagnosing the waste situation, setting goals for waste reduction and recycling, putting an end to existing uncontrolled dumps, and searching for solutions in consortium with other municipalities (plans may be more simple in the case of cities under 20,000 inhabitants). This must be done if they want access to federal financial resources – and municipalities which plans contemplate the participation of cooperatives of pickers in selective collection will receive priority of access.

The Federal Government must formulate and implement a national plan of action for 20 years, to be updated every four years, and coordinated by the Ministry for the Environment. Involvement (mobilization and participation) of the population via public hearings is foreseen, but it will be up to the citizenry to turn the letter into practice. This is why environmental education and access to information are so important.

The Federal Constitution deems municipalities responsible for urban cleanliness and for the collection and disposition of waste[33]. The new Law should provide them with a

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[29] Full text for all these laws available at http://www.planalto.gov.br/c.civil .

[30] Article 6 , I, of the Law; same article, IV, the Principle of Sustainable Development; VI, principle of cooperation;

[31] Article 6 of Law.

[32] Full text of Law available at http://www.planalto.gov.br/ccivil_03/_ato2007-2010/2010/lei/l12305.htm access 26 December 2012 16:13.

[33] For an excelent book on the constitutional foundations of environmental law in Brazil (albeit in Portuguese), see Norma Sueli Padilha, *Fundamentos Constitucionais do Direito Ambiental Brasileiro* (Rio de Janeiro:Elsevier, 2010).

sounder foundation in terms of principles and directives, and carries the potential of change in the waste panorama of Brazil.

The *potential* is there – the challenge now being to motivate and empower pickers, organizing them in cooperatives which will involve capacity building and supplying much needed equipment. Waste should be processed as a commodity, sold to business in an organized way and form, if one expects to see the full potential of the written law materialize. This calls for reverse logistics: used material to be recovered post consumption, ensuring continuity of a life cycle which transforms it back into raw material to be used in the manufacturing of new products.

Recent research from the Institute for Economic and Applied Research of Brazil (IPEA) states only 13% of urban waste to be currently recycled; worse, it would appear that Brazil loses circa R$8 billion a year dumping recyclables which could return to industrial manufacturing. Furthermore – recycling saves water, and contributes to the rational use of electricity and lower greenhouse gas emissions[34].

Consumers play a fundamental role in the process, They share the responsibility for urban waste production and disposal, and should fight for, and exercise, their right of access to information and controlling the compliance, by authorities, with the Law- especially when it comes to adequate and efficient selective collection.

In 2002 the ILA Committee on Legal Aspects of Sustainable Development ended its work presenting a Resolution – adopted by the ILA Plenary and later by the UN General Assembly by initiative of the Governments of Bangladesh and The Netherlands – *The ILA New Delhi Declaration of Principles of International Law Relating to Sustainable Development*[35]. In short, these principles are:

1. The duty of States to ensure sustainable use of natural resources;
2. The principle of equity and the eradication of poverty;
3. The principle of common but differentiated responsibilities;
4. The principle of the precautionary approach to human health, natural resources and ecosystems;
5. The principle of public participation and access to information and justice;
6. The principle of good governance; and

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[34] Information available at http://www.cempre.org.br/download/pnrs_002.pdf acesso em 15/09/2012 15:20.

[35] Available in English and French as UN doc.A/57/329, 31 August 2002. See on the subject Nico Schrijver, *The Evolution of Sustainable Development in International Law:Inception, Meaning and Status.* Pocketbooks of the Academy of International Law. Leiden: Martinus Nijhoff, 2008. ISBN 978-90-04-17407-8. Declaration available also from ILA website – www.ila-hq.org

7. The principle of integration and interrelationship, in particular in relation to human rights and social, economic and environmental objectives.

It seems fair to infer that the Brazilian Law on Solid Wastes in in consonance with all the above principles - which brings us to our next point – the human rights aspects at stake.

6. The Human Rights content of Sustainable Development

Article 8 of the Brazilian law encourages the establishment of cooperatives of pickers, bearing in mind their human dignity. This is in line not only with Principle 5 of the Rio Declaration, but also with obligations under ILO treaties (Brazil is one of the founding members of ILO and a party to most of its Conventions) and the Preamble of its constitutional treaty. Other international treaties which influenced this Law are the ILO 1981 Convention 155 (Security and Health of Workers and the Work Environment); the 1966 UN International Pact for Economic, Social and Cultural Rights.

Brazil is a party to the Inter-American System of Human Rights. Its1988 Protocol to the American Convention on Human Rights on the Subject of Economic, Social and Cultural Rights, known as the El Salvador Protocol; of special interest are its articles 7a (which foresees fair, equitable and satisfactory work conditions); 11 (the right to a healthy environment). Under Article 1 of this protocol the Parties must adopt measures, be it on their own or jointly with other Parties, to implement the rights therein declared; under Article 2, they are obliged to adopt national laws for the same purpose, if these did not previously exist.

Other pertinent international documents to which Brazil is a party are the Framework Agreement on Environmental Protection of MERCOSUL (2001); the 1998 Kyoto Protocol (in force in Brazil since 2002). And it is in the context of the later that the Municipality of Rio plans to use carbon credits (CDM) to build a biogas plant where the now shut down *Gramacho* dump existed. Which leads us to our next topic.

7. The consequences (for the pickers) of shutting down *Gramacho.i*

Gramacho officially ceased to receive waste on June 3rd 2012. During its 34 years of operation it was the biggest garbage dump in Latin America, and the main one in the metropolitan area of Rio de Janeiro (20th largest in the world, 12.6 million inhabitants), which included garbage originating from the cities of Niterói, Nova Iguaçu, Duque de Caxias,

Petrópolis, Teresópolis, São João de Meriti, Nilópolis, Queimados e Mesquita. This amounted to between 60 and 80 million tons[36].

Shutting it down was a complicated process. Originally, it should have been shut in 1998; this was postponed to 2004, and so on. Only in April 2011 did the process really start. Several announced and delayed dates later, it was finally (and without much a do) shut on June 3rd, barely two weeks prior to Rio+20. The Mayor of Rio, Eduardo Paes, symbolically locked it , deeming *Gramacho* "an environmental crime in course in Rio for a very long time"[37].

The affair is, however, far from finished. The effects of the decomposition and weight of at least 60 million tons of garbage (in good part toxic) result in a risk, for the soil, the underground water, and the Bay of Guanabara, which will last for decades. The soil resembles a sort of jello: it suffers cracks and is in a permanente processo of accomodation. Comlurb (the municipal company for urban cleaning, *Companhia Municipal de Limpeza Urbana)* says the city got lucky, because right under this soil there is a 20m thick layer of clay, which will prevent infiltration. However, even if this layer proves resistant, the simple job of monitoring and remedying the environmental destruction heritage of *Gramacho* is a job for 15-20 years[38].

Another type of impact, however, must be considered – the social one. Hundreds of families have been living, sometimes for more than a generation, off a disorganized selection/sale of recyclables activity; others lived off small trades (bars and shops) which supplied the pickers. *Carla Nistaldo* raised her children picking (for 16 years). Her testimony: *I have raised my children with the money made in the dump, and lacked for nothing. Its shutting down will have a very strong impact upon us because, for many, it was the only income source*[39].

The Financial Manager of the Association of Pickers of the Metropolitan Landfill of *Jardim Gramacho* (ACAMJG), Glória Cristina dos Santos, says that despite the fact that *Gramacho* caused harm (slumming process, devaluation of property, proliferation of disease, high rates of TB, respiratory illnesses and HIV, for many (such as the over 1,700 pickers) it

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[36] See, in Portuguese, http://www.oeco.com.br/reportagens/26063-apesar-de-fechado-gramacho-e-uma-historia-inacabada acesso em 15/09/2012 18:02.

[37] Vide http://www.oeco.com.br/reportagens/26063-apesar-de-fechado-gramacho-e-uma-historia-inacabada acesso em 15/09/2012 18:02.

[38] Vide http://www.oeco.com.br/reportagens/26063-apesar-de-fechado-gramacho-e-uma-historia-inacabada acesso em 15/09/2012 18:02.

[39] Source: <http://www.bolsadereciclaveis-sp.com.br/index.php?cat=noticia&id=572 >consulta realizada dia 20/11/12 as 11:47.

represented inclusion – because it allowed for income without demanding schooling or discriminating in terms of color, creed of whatever other social factor[40].

According to her, during Gramacho's existance, pickers fared around R$1,000/month. Some shopkeepers[41] declare an income of up to R$1,300/week. Now out of job, they must look for new forms of survival. Brazilian authorities, however, such as the superintendent of policies for the state of Rio's Secretariat for the Environment, say that public policies are in place, and that the pickers are not left to their own luck[42].

8. Public Policies, Civil Society involvement – trying to minimize consequences.

8.1.Participation in a Fund for pickers,

As of May 2012 the *Novo Gramacho* company[43] began to exploit the methane gas produced in the landfill, selling it to the *Refinaria* (refinery) *de Duque de Caxias (Reduc)* [44]. *Novo Gramacho*'s counterpart was a 21 million *reais* contribution to the Participation Fund of Pickers of *Gramacho.* This contribution was advanced to the Fund, in a single installment, by the Municipality of Rio de Janeiro, which will, in turns, be reimbursed by *Novo Gramacho* in fifteen annual installments.

This Fund's money was shared between 1,700 pickers previously identified and selected according to criteria such as lenght of time the picker had been working in the

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[40] Source: <http://acamjg.blogspot.com.br/search?updated-min=2012-01-01T00:00:00-08:00&updated-max=2013-01-01T00:00:00-08:00&max-results=50> access 20/11/2012, 12:01.

[41] Source: <http://duquedecaxias.net.br/Meio-Ambiente/a-ficcao-de-avenida-brasil-acabou-mas-a-realidade-continua-ex-catadores-reclamam-de-abandono-e-falta-de-trabalho-19046.html - access 20/11/12, 11:41.

[42] Source: <http://duquedecaxias.net.br/Meio-Ambiente/a-ficcao-de-avenida-brasil-acabou-mas-a-realidade-continua-ex-catadores-reclamam-de-abandono-e-falta-de-trabalho-19046.html - consulta realizada dia 20/11/12 as 11:41.

[43] The system used in the process is new in Brazil and will produce biogas with the same heath (calorific) standards as the natural gas used in the *Duque de Caxias* Refinery; the volume amounts to 50% of the natural gas consumed in the state of Estado do Rio de Janeiro (private houses and business). As a result, 6 million less CO2 emmissions will be cut, which corresponds to the greenhouse gas effect generated by 263,000 automobiles in one year. This new project is possible thanks to the Kyoto Protocol's CDM, in which context the income generated by the sale of carbon credits will be shared among *Nova Gramacho,* Comlurb e a fund for the valorization of the neighborhood. Information available in: < *Portal da Prefeitura do Rio, Em www.rio.rj.gov.br* Access em 23/11/2012>

[44] According to the Wikipédia, Reduc is nowadays the most complete and complex refinery in the Petrobras system. Innaugurated in em 1961, itis located in Rodovia Washington Luís, km 113.7, in the district of no distrito de Campos Elísios (Duque de Caxias). With an area of *circa* 13 km², it is responsible for about 4.8 billion *reais* a year in taxes paid to government, and produces and sells around 52 different products, among which basic oils for lubricants, diesel, fuel, GLP, nafta, aviation keroseneuerosene, i.a. < http://pt.wikipedia.org/wiki/Refinaria_de_Duque_de_Caxias>.

landfill and his physical and mental conditions, and has the purpose of helping to include these pickers in alternative activities.[45].

According to *Glória dos Santos*[46] only 25% of the pickers opted to remain working with garbage, and were advised by the Association to invest the money received in courses that qualify them for better quality work in the field. The other 75% decided to invest in their own businesses or returned to the work market.

What one sees is that most of them have already spent the amount received, and this in very different ways. Many bought construction materials in order to build their own houses; other bought different appliances or used cars. Some, as the picker Brizola, bought a popcorn chariot in order to become a popcorn seller[47].

8.2 Capacitation Courses

FAETEC (the Foundation for Support to the Technical School of the State of Rio de Janeiro) inaugurated in June the Chantier School (*Canteiro Escola)*, for the purpose of qualifying the pickers of *Gramacho* [48]

This *Canteiro Escola,* a teaching unit in partnership with the Rio de Janeiro State Secretariats for Science and Technology and for the Environment, occupies 936m2 (and cost 250,000 *reais).* It is also supported by ACEX (the Carioca Association of Pickers and Ex-Pickers), and had as its goal is to capacitate over 1,300 persons by the end of 2012, offering free professionalizing courses to requalify people who had, so far, survived off *Gramacho.*

Courses to capacitate diferente types of electricianns (216 openings), plumbers , masons and carpentrs were offered (216 opening for each of them), but also informatics I (480 openings). Students also receive basic courses in Portuguese and mathematics. Only people from the community were eligible, and the final selection for the different openings was done by lottery. According to FAETEC, two months after the opening of the course 60 people – mostly former pickers – were capacitated to work in the construction industry[49], one hundred of which are now employed by this industry, thanks to an agreement with a trade union[50].

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[45] Source: < http://acamjg.blogspot.com.br/2012_04_01_archive.html> access 20/11/12 14:26.

[46] Source: < http://acamjg.blogspot.com.br/search?updated-min=2012-01-01T00:00:00-08:00&updated-max=2013-01-01T00:00:00-08:00&max-results=50 > access 20/11/12 12:34.

[47] Source: < http://g1.globo.com/profissao-reporter/noticia/2012/07/catadores-mudam-de-emprego-e-de-vida-apos-fechamento-de-gramacho.html > access 20/11/12 at 15:00

[48] Source: < http://www.faetec.rj.gov.br/index.php/noticias/3367-faetec-inaugura-canteiro-escola-para-qualificar-catadores-do-lixao-de-gramacho > access 20/11/12 at 15:26.

[49] Source: < http://www.faetec.rj.gov.br/index.php/noticias/3440-em-dois-meses-canteiro-escola-da-faetec-ja-muda-a-realidade-de-ex-catadores-do-lixao-de-gramacho > access 20/11/2012 at 15:33.

[50] Source:: < http://oglobo.globo.com/rio/fim-de-gramacho-maior-lixao-da-america-latina-deixa-catadores-sem-destino-certo-5034166 >

Whereas some of the pickers – such as Izonilda Ferreira, who took the course for masons, see the school as a good opportunity (she even built her own house), and Marco José Tavares, who took courses in mason and carpentry and said he is back to dreaming – others say that, despite the capacitation courses, they remained unable to join the work market[51].

Isaías Bezerra, social responsabibility coordinator for *Nova Gramacho*, says that the problem is one of disorientation. According to him, nothing guarantees to pickers that, once capacitated, they will find jobs. Many of them did not even have a birth certificate before the shutting down of Gramacho, and have never known any other reality than that one. He compares the process, which he considers very delicate, to removing an indigenous people from the land where it has alwys lived.[52].

8.3 Implementation of the *Gramacho* Recycling Pole.

Petrobras[53] signed in October 2011 a Term of Adjustment of Conduct for one billion *reais* with the the Rio State Secretariat for the Environment and the State Institute for the Environment (INEA)[54] – 3.5 million of which to be used in the implementation of the *Gramacho* Recycling Pole. This will be operated by an NGO, PANGEA (A Center for Environmental Studies), jointly with REDUC, and will be, in fact, an extension of a recycling facility which already exists. The project, presented by PANGEA[55] foresees the planning and operation of the physical structure and well as purchase of machinery and the building of na administrative center which should offer requalification courses for pickers, day care center, by-products processing unit, management plan, *i.a.*. So far, mainly plans – but, according to PAGEA's President, Antônio Bunchaft, a strategic Project because "for the first time, in the national level, the oscio-economic inclusion of pickers working in a dump will be taken into account…"[56]

Petrobras has also committed to donate REDUC recyclable waste to the Pole, thus ensuring quality raw material for the opertion of the facility, as well as investing in

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[51] Source: < http://www.canalibase.org.br/a-situacao-de-gramacho-e-a-alternativa-possivel/> access 20/11/2012 at 15:44.

[52] Source: < http://oglobo.globo.com/rio/fim-de-gramacho-maior-lixao-da-america-latina-deixa-catadores-sem-destino-certo-5034166 >

[53] Petrobras is an anonymous society of open capital, controlled by the Brazilian government, which operates in different areas of the oil, gas and energy industry. It is the biggest company in Brazil, is present in 28 countries, and acts in an integrated way in the areas of exploitation, production, refining, sale and transportation of oil natural gas, biofuels, electric power and their by-products.

[54] A legal figure in Brazilian Environmental law, a penalty for causing, for instance, an oil spill.

[55] Pangea – the *Centro de Estudos Socioambientais* (Center for Socioenvironmental Studies) is an OSCIP – *Organização da Sociedade Civil para o Interesse Público* (Civil Society Organization of Public Interest), recognized as having public utility by state and city administrations, which performs cultural, social, economic and environmental activities.

[56] Source: < http://www.inea.rj.gov.br/noticias/noticia_dinamica1.asp?id_noticia=1862 > access 20/11/12 at 17:54. Free translation into English, by the authors.

environmental projects for the purpose of reducing greenhouse gas emissions; treating 2 million liters/day of *chorume*; restoring the surrounding area's green coverage (estimated in 3 million m²); contributing for the restoration of surrounding marsh and waterland areas (an estimated linear 4 km) and implementing a social action plan to improve the quality of life of garbage pickers[57]. The State Secretariat for the Environment estimates that 400 of the former *Gramacho* pickers will work in the project[58].

According to Glória Cristina dos Santos, financial manager of the *Gramacho* Pickers Association, the goal is to sell recycled products directly to business, in order to achieve higher income. Despite expectations, she is aware of the many challenges ahead, such as including pickers (many of whom still have no documents, thus do not officially exist) in the formal work market, capacitating them, acquiring trucks and machines required – before one can think of dealing directly with business[59]. It is important to point out that despite the hopes that the Pole would be operational in November 2012, on 20 November 2012, when this part of the paper was written, no warehouse had been built and many pickers were unemployed[60].

8.4 Other initiatives

The Superintendent for Sanitation Policies of the Rio de Janeiro State Secretariat for the Environment said that *Gramacho* pickers were included in the *Bolsa Família* (Family Stipend) Program[61] and received food aid for a given period (besides the other initiatives mentioned in the preceeding points)[62].

Other initiatives are being articulated, such as forcing REDUC (which will sell the methane gas produced in the landfill) to invest 18% of proceeds in environmental restoration and urbanization of the neighborhood. The Rio de Janeiro State Secretary for the Environment himself said that federal government resources will also help revitalize *Jardim Gramacho*[63] - which should include providing for leisure sites and activities, paving streets, building a bike

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[57] Source: < http://www.petrobras.com.br/pt/noticias/lixo-transformado-em-energia/ > access 20/11/12 at 18:21.
[58] Source : < http://www.rj.gov.br/web/sea/exibeconteudo?article-id=1055432 > access 20/11/12 at 18:36.
[59] Source: < http://acamjg.blogspot.com.br/search?updated-min=2012-01-01T00:00:00-08:00&updated-max=2013-01-01T00:00:00-08:00&max-results=50 > access 20/11/12 at 18:59.
[60] Source: < http://www.canalibase.org.br/a-situacao-de-gramacho-e-a-alternativa-possivel/> access 20/11/2012 at 19:12.
[61] The *Programa Bolsa Família* (Family Stipend Program, PBF) is a direct income tranfer program which benefits families under the poverty line throughout the country. It is part of the Brazil Without Misery Plan (*Plano Brasil Sem Miséria*,BSM), which focuses on the 16 million Brazilians which income is below the R$ 70/month *per capita* family income. For more, see : < http://www.mds.gov.br/bolsafamilia>
[62] Source: <http://duquedecaxias.net.br/Meio-Ambiente/a-ficcao-de-avenida-brasil-acabou-mas-a-realidade-continua-ex-catadores-reclamam-de-abandono-e-falta-de-trabalho-19046.html > access 21/11/12 at 14:25.
[63] Source: < http://www.rj.gov.br/web/imprensa/exibeconteudo?article-id=914379 > consulta realizada dia 21/11/12 as 14:41.

lane and turning the landfill hill into a large green area[64] - attempts at helping the population affected by the sutting down of *Gramacho* to adapt to a new reality and find novel life alternatives.

The President of the *Jardim Gramacho* Pickers Association, Tião Santos, has been adamant not only in representing (and defending) the interests of the former pickers but also in raising social consciousness on the need to effectively implement the selective collection of garbage[65] - but, despite all the above mentioned (mainly still in the proposition state) initiatives and government proposals and articulations aimed at guaranteeing work and income to former pickers, things remain very uncertain.

8. Some final thoughts

Summing it all up, if for some pickers the end of *Gramacho* brings the possibility of a promising future, others have no idea of how they will provide for the future of their families. Moreover, a study performed by the Institute of Studies on Work and Society (*Instituto de Estudo do Trabalho e Sociedade*) at the request of the Rio State Secretariat for the Environment states that the per capita family income (which was already low enough) will be reduced by two thirds, and that the rate of extreme poverty will raise from 18% to 68% - not to mention the fact that 20% of pickers have never had any formal schooling[66].

If the fate of pickers remains an *incognita,* those of the landfill and garbage are already outlined. The nine thousand tons of waste which reached it (from the city of Rio de Janeiro) everyday will go to the *Seropédica* landfill, which shall also receive garbage from *Duque de Caxias* (a little over one ton/day); Garbage from *São João de Meriti* will go to the *Belford Roxo* Landfill. Both landfills are called Centers for Treatment of Waste, and are prepared to avoid soil polution (waterproofed with plastic covers, snad and clay). Garbage is covered as soon as dumped by trucks. These centers have no pickers – nor vultures.[67].

So the situation of *Gramacho* pickers is indeed worrisome. The most haunting problem is the lack of professional capacitation . It is hoped that the National Policy on Solid Wastes will have positive effects upon the Cooperatives (of pickers of recyclable material), improving the lives of their members – and this because the work of pickers organized in

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[64] Source: <http://duquedecaxias.net.br/Meio-Ambiente/a-ficcao-de-avenida-brasil-acabou-mas-a-realidade-continua-ex-catadores-reclamam-de-abandono-e-falta-de-trabalho-19046.html > access 21/11/12 at 14:44.

[65] Further information: http://acamjg.blogspot.com.br/

[66] Vide http://oglobo.globo.com/rio/fim-de-gramacho-maior-lixao-da-america-latina-deixa-catadores-sem-destino-certo-5034166 access 15 Sept 2012 12:40.

[67] Vide http://oglobo.globo.com/rio/fim-de-gramacho-maior-lixao-da-america-latina-deixa-catadores-sem-destino-certo-5034166 access 5 Sept 2012 12:42

cooperatives is valued. Seen as formal agents in the management of urban waste, both income generation and quality of material collected should improve. But this will only happen if the law is followed by the large majority of municipalities – which are supposed to hire these cooperatives.

Gramacho is an example of severe environmental disaster in Brazil and Latin America. Its environmental losses will probably never be paid back/erased in full. Much of the damage caused will never be repaired. Despite this, one should concede that the irresponsibility of authorities – which lasted for over three decades – has at least been paralyzed.

The significance of the shutting down of *Gramacho* lies not only in the change in the environmental perspective alone, now that climatic change becomes more easily perceivable to the naked eye; but also, and most importantly, in a change of *vision* – from a strictly environmental one to one of *sustainable development*, inspired by the sevn principles identified in the ILA Declaration mentioned in point 5 above.

All these have a bearing in the lives of the beings who live in *Jardim Gramacho* – they have suffered, suffer, and will further suffer the consequences and the impact of the termination of the only reality (for some at least) they have known (in some cases, for more than a generation) upon their livelihood. On the other hand, once (and if) the new legislation works, they might have a chance at really sustainable development. One that meets, more equitably, the needs of present and future generations - and which texture be weaved with the thread of respect for human rights.

Politics create, and law consolidates. Sustainable development must be seen as a *process* - one that pre-supposes the involvement of all stakeholders. Plus *much* work, and a complete change of mind.