

Earth Systems Governance and Sustainable Development: how to measure and analyze the social dimensions of environmental change, policies and governance structures with a non-economic approach¹

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Abstract

In the current debate over the continued modernization of the public sector, governance has become a key concept. Governance can be defined, in short, as the ways in which government representatives manage in an administrative, legal, public or private sense. Public governance is also associated with a change in management policy. It is a tendency to rely increasingly on self-management in the social, economic and political development, and a new composition of the resulting forms of management. This new model adds to the negotiation, communication and cooperation among actors, policymakers and citizens. In this context, environmental issues have been used to characterize recent phenomena worldwide mostly in terms of economics and technology, particularly through the lenses and dominance of financial interests that influence the processes of global production, consumption, lifestyles and distribution of labor. Yet, in view of the changes taking place also on a global scale, climate change being the primary example, it becomes evident that the economicist view of global processes is clearly insufficient and, in more than one way, misleading. The new international order which is emerging seems to bring to the forefront of these processes Global Environmental Change (GEC). Thus, an approach to Earth System Governance must, on the one hand, revisit the traditional literature on Governance and assess the gaps in theory that became evident by recent challenges posed by GEC. On the other hand, ESG must be understood as being Human driven rather than Nature, yet, with greater interrelationships than in other areas of human activity which are also object of governance related concerns. Finally, the fact that the horizon of ESG is determined by future generations creates new questions as well. This presentation will attempt to offer some inroads on both fronts.

Key-words: good governance, global environmental change, public politics.

1 INTRODUCTION

The contemporary social life is associated with the modern State, always present, regulating life conditions and establishing key measures on the shape and

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distribution of the political power over daily activities. In the current debate over the continued modernization of the public sector, governance has become a key concept. Moreover, the environmental crisis, intensified in the recent decades by the, already proved, human dimensions, stressed the debate around this concept and seems to be crucial for the coming decades, especially for solving the problems that afflict humanity (as poverty, hunger, social inequality, climate change, among others). Given this, it is of highly importance that when highlighting the social dimensions of environmental impacts, the emerging forms of governance of environmental issues also need to be considered, such as, transparency of relations between institutions and governance system (GUIMARÃES, RUNTE and FONTOURA, 2009).

For the present analysis, governance is more than simply the way in which government representatives exercise their authority, control and management of social and economic resources, on the level of institutions and state practices (HELD and MACGREW, 2000). Rather, it represents the sum of both individuals and institutions, public or private, in the management of common themes through a structure of, economic social, political and legal systems, through which society organizes itself (GUIMARÃES, 2004). In this sense, emerges, with the concept of governance, what would be the idea of "good governance", often associated with the quality of decisions that affect public affairs (UNESCAP, 2010).

According to good governance, the public participation is of high relevance (including the most vulnerable populations) regarding policy, social and economic priorities choices, based on a broad social and political consensus, especially regarding the resources application for development. These requirements are essential to promote a transparent rule of Law (UNDP, 2007). We can add to this the emphasis on the "cooperation" factor in solving problems through the participation, not only of the State, but of a complex social network, composed of governmental and non-governmental organizations, national and international companies and the academic community, which hierarchical process differs from the traditional process, with various decision making levels, leadership and resource allocation (KALU, 2007).

Aiming to deepen the theme around the role of institutions and organizations in the process of global environmental change, associated with the argument that good governance is essential for strategies to provide basic services and effective and sustainable poverty reduction, this article sought to identify key strategies based on the principle of good governance, which reflect elements of inclusion and equity, participation, transparency, efficiency and effectiveness, rule of law, accountability and consensus orientation (UNESCAP / UNDP / ADB, 2010) in two distinct programs regarding their goals, organizational models, and area of expertise: the cases of the mining company Vale (Headquartered in Brazil and operating in more than 35 countries) and the state government of Paraná (one of the 27 federal units of Brazil).

It is intended, with this study, to demonstrate two assumptions that seem to compose a today`s paradigm. Primarily, the solution to contemporary environmental

unsustainability requires economic coordination which presents solutions that mitigate and rebalance the human interaction with nature. Moreover, the economic view alone is clearly insufficient and an ecological perspective should be incorporated on the public decision making process that takes into account the public the implications of public policies on the network of relationships that operates in ecosystems (GUIMARÃES, 1991).

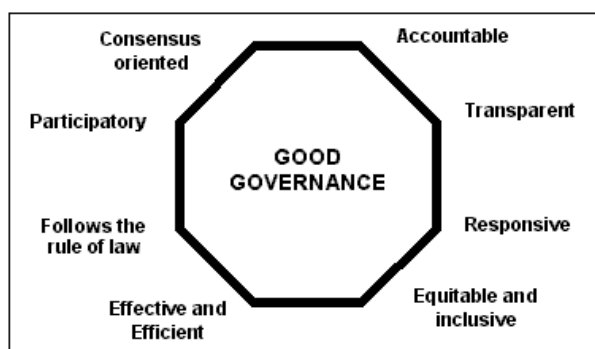
In the next sections will be presented the methodology used, the changes in governance concepts, particularly in the context of global environmental change, an analysis regarding the economic view of these changes, the investigative analysis about the politics and the governance structure with and without an economic view (the cases of Vale and the state of Paraná), and, finally, the closing remarks.

2 METODOLOGY

Taking as a starting point for the analysis the fact that the qualitative epistemology advocates a constructive interpretation of knowledge, which means understanding knowledge as a production process and not just as a simple linear appropriation of a reality presented (REY, 2005), it is adopted a methodology with qualitative approach, developed in three main steps. At first it was identified the theoretical framework that basis this research, in particular the economic view of global environmental change and the most relevant theories on governance. From this stage, two models of political and governance structures were evaluated, with and without an economic vision. For this purpose, it was chosen, as case studies, the analysis of the mining company Vale and of the Paraná State`s Government. This was possible through the detailed study of the reports "Vale Sustainability Report 2009" and "Solid Waste Policy Paraná State Program Zero Waste" (Vale`s and Paraná State`s Government`s, respectively).

The third and last step aimed to compare the two experiences within the concept of "good governance" appointed by the United Nations which defines good governance as one that is participatory, consensus oriented, responsible, accountable, responsive, effective and efficient, equitable and inclusive and follows the rule of law (UNESCAP, 2010, see Figure 1.0). For this, a table comparing the two cases within these categories of good governance was designed and from this, the conclusions of this research were reached.

Image 1.0 – good governance characteristics



Source: UNESCAP, 2010.

Table 1.0 – Categories of good governance

<p>Participation</p>	<p>Participation by both men and women is a key cornerstone of good governance. Participation could be either direct or through legitimate intermediate institutions or representatives. It is important to point out that representative democracy does not necessarily mean that the concerns of the most vulnerable in society would be taken into consideration in decision making. Participation needs to be informed and organized. This means freedom of association and expression on the one hand and an organized civil society on the other hand.</p>
<p>Rule of law</p>	<p>Good governance requires fair legal frameworks that are enforced impartially. It also requires full protection of human rights, particularly those of minorities. Impartial enforcement of laws requires an independent judiciary and an impartial and incorruptible police force.</p>
<p>Transparency</p>	<p>Transparency means that decisions taken and their enforcement are done in a manner that follows rules and regulations. It also means that information is freely available and directly accessible to those who will be affected by such decisions and their enforcement. It also means that enough information is provided and that it is provided in easily understandable forms and media.</p>
<p>Responsiveness</p>	<p>Good governance requires that institutions and processes try to serve all stakeholders within a reasonable timeframe.</p>
<p>Consensus oriented</p>	<p>There are several actors and as many view points in a given society. Good governance requires mediation of the different interests in society to reach a broad consensus in society on what is in the best interest of the whole community and how this can be achieved. It also requires a broad and long-term perspective on what is needed for sustainable human development and how to achieve the goals of such development. This can only result from an understanding of the historical, cultural and social contexts of a given society or community.</p>

Equity and inclusiveness	A society's well being depends on ensuring that all its members feel that they have a stake in it and do not feel excluded from the mainstream of society. This requires all groups, but particularly the most vulnerable, have opportunities to improve or maintain their well being.
Effectiveness and efficiency	Good governance means that processes and institutions produce results that meet the needs of society while making the best use of resources at their disposal. The concept of efficiency in the context of good governance also covers the sustainable use of natural resources and the protection of the environment.
Accountability	Accountability is a key requirement of good governance. Not only governmental institutions but also the private sector and civil society organizations must be accountable to the public and to their institutional stakeholders. Who is accountable to whom varies depending on whether decisions or actions taken are internal or external to an organization or institution. In general an organization or an institution is accountable to those who will be affected by its decisions or actions. Accountability cannot be enforced without transparency and the rule of law.

Source: adapted from UNESCAP, 2010.

3 THE ECONOMIC VIEW OF GLOBAL ENVIRONMENTAL CHANGE

Humankind has witnessed, in the last decades, the great expansion of the economic role of private corporations around the world. Some companies have a higher Gross Domestic Product (GDP) than many countries and are between the biggest economic entities in the world. In 2005, Wall-Mart, British Petroleum and Exxon Mobil figured between the twenty-second and the twenty-fourth positions on the ranking of the biggest economic entities in the world, with a revenue, each one, very close to Austria's GDP and higher than many countries', such as Indonesia, Greece, Finland and Portugal (OLIVEIRA, 2008).

Vale, one of the most important actors in the global mining sector, is a former Brazilian state enterprise, now privatized. Its revenue, in 2007, was US\$ 33.1 billion, which is bigger than the 2007 PIB of sixteen, from twenty-seven, Brazilian federal units (VALE, 2007; IBGE, 2010).

Companies decisions generate not only an economic impact, but also social, environmental and political, sometimes locally, others globally (OLIVEIRA, 2008). The social impact of private companies is not restricted to the production. Corporations can impact the accessibility of consumers to products as well, especially in the case of big retailers as Wal-Mart, on the exchange rate through profit transference between countries and, deeply, on the local development of the communities where they install themselves (OLIVEIRA, 2008).

These decisions can also be seen in a corporate governance perspective in which the companies' board have to be accountable to its shareholders and other stakeholders (OECD 2004: 11). In short, many companies adopt this social and environmental responsibility concept in search for a long time performance results, focusing exclusively on economic aspects.

Although some companies have already developed a management model considering socio-environmental aspects, others still hesitate on including these variables on their decision making process. This can be possibly explained due to the lack of a clear association between socio-environmental aspects and financial performance (LEMME, 2010). Market and consumer behavior appear to show, though, that companies must consider socio-environmental aspects if they want to survive on the long run.

4 GOVERNANCE CONCEPTS

In the current debate about the continuing public sector modernization, the theme of governance became a key concept. However, the widespread use of the term did not result in a clarification of its meaning. Kooiman (1999) states that, as a concept used with such a variety of meanings, it became necessary to establish dimensions of analysis in order to establish an effective contribution of the concept and practice. Often, its meaning revolves around the perception of the role of the State in a normative and analytical sense. In normative approaches, the focus of governance are based in analysis carried out, mainly, by the World Bank, which deepens the understanding of the conditions that ensure an efficient State and that shifts the focus of attention from strictly economic issues to a broader vision including social and political dimensions of public administration (WORLD BANK, 2010). In this sense, Guimarães (2004) defines governance as the sum of individuals and institutions, whether public or private, managing affairs in common, or as a structure of economic, social, political and legal systems, by which society organizes itself.

Not by chance, the terms "governance" and "good governance" are increasingly used in the development literature, and its non-application is being seen as part of the causes of all evil in our society (UNESCAP, 2010). Good governance refers to a high quality of the decisions that affect public affairs. It depends, therefore, on the public participation (including the most vulnerable populations) to ensure that policy, social and economic priorities have, as a base, a broad social and political consensus, especially regarding the application of resources for development. It refers, also, to the promotion of an effective and equitable governance, which promotes the rule of law and transparency of the institutions, the officials, and the decisions "(UNDP, 2007).

This enlargement of government activities is stressed by Osborne and Gaebler (1992) in the book "Reinventing Government", while redefining governmental activity when qualifying the government as entrepreneur or innovator (terms from private

organizations), as it uses its resources differently and in a participatory way to increase its efficiency and effectiveness (OSBORNE and GAEBLER, 1992).

In contrast, the incorporation of an environmental landmark on the decision-making process takes into account the public policy implications on the network relations that operates in the ecosystems, and is, therefore, more than an aspiration, but a biological necessity for the proper maintenance of natural systems that make life possible on planet (GUIMARÃES, 1991). There is no doubt that sustainable development is a dominant paradigm of development, which has been placing side by side, in the discussions, development theorists, environmentalists, academics, humanitarian aid agencies and non-governmental organizations (CASTRO, 2004).

Wherever new initiatives on technological, economic or political area are promoted, the impact and the consequences generated suggest that the protection and sustainable use of biodiversity figures among the great challenges of humanity for the next decade (BORGES *et al.*, 2007). According to 2010 World Bank report, climate change is inevitable and the adaption to these changes requires decisions making with a long-term planning, which should take into account a wide variety of climate and socio-economic scenarios. Based on this plan, countries can reduce the physical and financial risks associated to the variable and extreme weather conditions. These actions would bring benefits in many sectors; however, its implementation requires a lot of money, effort, creativity and information. What makes it clear that poor and developing countries will suffer higher impacts from the effects of climate change, even as they struggle to overcome poverty and promote economic growth. For these countries, climate change threatens to intensify vulnerabilities, undermine hard-won gains and seriously compromise prospects for development (WORLD BANK, 2010).

Some researchers highlight that the emphasis given, in the current thinking, on global policies is easily explained when taking into account the fact that National States are no longer insulated in their own territory, being increasingly affected by transactional movements. That is, the human sphere is permanently affected and organized according to economies, cultures and various policies that the phenomenon of globalization makes national borders more penetrable. This new social and political articulation between different groups of individuals and nations tends, if not to break with the fusion of sovereignty and citizenship, at least delineate new boundaries to those already set, a contemporary world order. In effect, Campbell argues that there is a huge concern that the sovereignty of each nation might be confronted (CAMARGO, 1999).

Other authors also suggest that the ideas of global policies put into question the traditional boundaries between territories are formatted contextualization, not by modern political thought, but by institutions built on the vision of State ministers who care to deal only with domestic matters and with those generated by their traditional geopolitical problems - commerce, power and security. There are, now, multiple levels of policies and authorities. Global policies are anchored in a variety of social and ecological issues: pollution, water supply, genetically modified foods and drugs. These

and other issues relating to environmental sustainability generate an excessive number of decisions that cut across territorial jurisdictions and existing political alignments, and require international cooperation to reach a satisfactory resolution. In this sense, it can be stated that discussions on global problems highlight the richness and complexity of the interconnections that now transcend states and societies in this new global order (HELD, 2004).

Therefore, Lafer (1992) states that the international relations of a country should be governed on a dialectic form, through complementary factors, that combines national and universal interest - with the values and principles generally accepted in the community of nations on the one hand and, on the other, taking into account individual interests and aspirations of societies considering their cultural uniqueness, history, economy and politics.

The relationship between State and civil society is built on a space occupied by a number of institutions between market and State constituted by a range of civil society organizations, including Non-Governmental Organizations – NGOs. Especially on environmental issues, these organizations have been working in various sectors, including the development of environmental projects as in social services and assistance to organizations for popular advocacy, and relate directly to the process of deregulating the State's role, either about the economy or even in relation to civil society. This happens with the transfer by the State of part of its responsibilities to the communities organized in partnership actions with NGOs (ARAUIJO, 2005).

In this sense, the organized interest groups play a fundamental role in shaping public opinion and in the opening or closing of space for government action, because it is the immediate experience of the people who modify its understanding. For example, Hurricane Katrina and the European heat waves have had a major impact on consciousness of citizens of developed countries, perhaps because they have been "close to home." Few people in industrialized countries realize that their life is directly affected by climatic changes (GIDDENS, 2009, p.146).

It is not that recent that global governance has become one of the main mantras of contemporaneity. As defined by Yunke (2004), it includes a "global civil society" which contains all the institutions, policies and initiatives that humanity is looking to address universal problems such as violence, war, poverty and exploitation, the explosive growth of population, natural resource depletion and environmental degradation. And it is in this sense that Giddens (2009) states that the workflow of public policies concerning climate change tends to be continuous and uninterrupted and taken by specialists and experts who, together with communities, society and the governmental or non-governmental organizations, draw up proposals for possible solutions or alternatives, make it part of the political agenda and turn into government effective actions.

5 GOVERNANCE POLICIES AND STRUCTURES WITH AND WITHOUT AN ECONOMIC VIEW

The Vale case

Vale is a mining company created by the Brazilian government in 1942. In 1997, it became a publicly traded company and, today, it operates globally in the mining sector. It searches for produces and markets an extensive portfolio of products composed, mostly, by iron ore and pellets. It also acts in other areas such as logistics, energy, steel making and fertilizers, which are complementary and strategic sectors to its mining business.

Today, as a global company headquartered in Brazil and with over 100 000 people working in more than 35 countries, it is the second largest mining company in the world with stocks traded in four countries: Brazil (BMF&BOVESPA), United States of America (NYSE), France (Euronext PARIS) and Spain (Latibex).

Vale's sustainability strategy is based on the responsible and integrated management of economical, environmental and social issues. Particular in its mining operations, it endeavors to generate local, regional and global prosperity, and to create a positive legacy over the life cycle of its activities. To this end, it carries out a range of voluntary corporate activities and establishes partnerships with governments, public institutions, the private sector, and civil society.

According to the experiences within the concept of good governance, the Valley's Sustainability Report (2009) features the participation on organizations and associations as a cornerstone of good governance. These actions include participation of company executives in meetings and official bodies, working groups and discussion forums, providing greater alignment and exchange of information relevant to the mining sector. One important example, is Vale's participation on the Earth Moving Equipment Safety Round Table (EMESRT), a group created in 2006 by major mining companies worldwide, which propose is, through a partnership between equipment suppliers and mining companies, to support the adoption of measures to the development of equipments that minimize health and safety risks of its users.

Vale is committed to continuous improvement of corporate governance based on transparency, fairness and ethics. The decisions and their enforcement are done in a way that follows the rules and regulations. This means that information is freely available and directly accessible to those who are affected by such decisions and their implementation, and also that the information provided is sufficient and easily understandable.

Table 2.0 – Dialogue Channels with Stakeholders

Target Audience	Dialogue Channels
General Public	Vale Sustainability Report
	Reporting Channel
	<i>Talk to Us</i>
	Vale website
	Surveys: reputation, image and opinion
Shareholders, debenture holder and investors	Form 20-F reports, press releases, relevant facts, General Shareholder Meetings and minutes, Quarterly Financial Reports (ITR) and meeting with investors.
	Email and Investor Relations telephone
Clients	Campaigns, tours and meetings at Vale, satisfaction surveys.
Employees	Internal publications, Vale Portal (intranet), organizational climate polls and surveys of reputation, image and opinion.
Suppliers	Tours and meetings at Vale, interchange programs, and structured meetings.
Communities	Socioeconomic diagnoses, consultation meetings prior to project development, interviews, focus groups, visits to units and the Leadership Meetings Program.
Governments and civil society	Membership of associations and entities.

Source: VALE, 2009.

The preparation and publication of corporate documents have allowed the global company to strengthen and spread its values in all countries where it operates, keeping the strategy of growth linked to the promotion of sustainable development. With the goal of considering from the legal to the cultural diversity on the approval of these global regulatory instruments, Vale created the Global Assessment Committee with representatives from different areas of the company and several countries, including Brazil, Australia, Canada, China and Switzerland.

Among these corporate documents we can highlight the elaboration of the Policy on Human Rights, which establishes guidelines and principles for the actuation of Vale regarding human rights in the company's projects and operations as one important step through the concepts of good governance.

It is also important to mention the approval of its global Sustainable Development Policy, which establishes guidelines and principles in three pillars: sustainable operator, local sustainable development catalyst and global sustainability agent.

For Vale, to work as sustainable operators is to act in a conscientious, socio-economic and environmentally responsible manner throughout the complete life cycle of its activities, since the conception until the closure phase. Its main actions in this issue are the continuous investment in health and safety and the search for better

solutions for the greenhouse gas (GHG) emissions, the biodiversity and the waste issues.

The company pursues to act as a local sustainable development catalyst by building a sustainable regional legacy, going beyond the impact management of operations and projects, contributing voluntarily through partnerships with governments, other companies and civil society. As investments in mining bring opportunities to territories, like increased tax collection, job creation, higher salaries and consequently increased household income, Vale's greatest challenge is to capture these opportunities, in order to create a social, economic and environmental legacy in the areas where it operates.

Vale reinforces its strategy for the development and qualification of local companies by means of programs such as Inove and participation in the Supplier's Development Program (PDF). The Inove Program, launched in 2008, seeks to promote the development of small and medium sized regional suppliers, by strengthening relationships with associations and government entities. Additionally, it is focused on training, increasing competitiveness, incentivizing business, and preparing suppliers to meet market demands. By the end of 2009, Vale offered nearly US\$48.8 million in credit, benefiting 169 supplier companies in seven Brazilian states.

Concerning its role as a global sustainability agent pillar, Vale has focused on the climate change issue through the establishment of the Vale Carbon Program which goal is to establish standards of excellence in relation to the management of greenhouse gas (GHG) emissions by 2012.

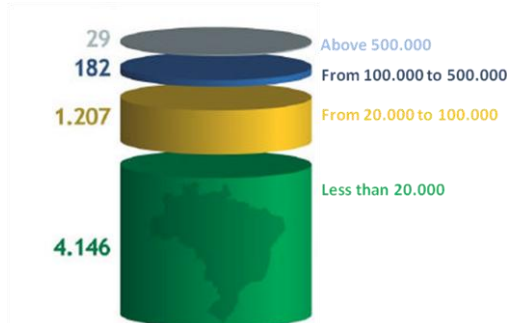
Solid Waste Policy in the State of Paraná: Zero Waste Program

Despite an increasing population, the State of Paraná, proved to be a clean and efficient area thanks to good governance and social participation. The cornerstone of success is in the development of its environmental programs through the Department of Environment and Water Resources – SEMA. In this way, this State has sought to reconcile in a transparent and democratic way the dynamics of diffuse interests to a convergence towards its reconstruction in its environmental context, providing an example in the country, of relations of various sectors in line with the conservation and preservation of their environment.

The State of Parana currently has 399 municipalities, of which 360 (90.2%) have a population below or equal to 30,000 citizens. For its agricultural tradition, it has been using its natural resources (soil, water, fauna, flora, minerals) with practices applied in a continuous way and with an increasing velocity. In the extent to which there is a change of cultural habits of modern societies, coupled with technological development and the growing industrialization process of the food, more solid wastes are generated, most of which are not biodegradable or have extremely slow degradation.

As a mean to ensure the conditions of life of future generations, without neglecting the need to comply with current necessities, the policies adopted by the State of Paraná state that there must be a compromise between industrial sectors and society in relation to practices of production and consumption, in order to construct new paradigms that could reverse this situation of environmental depletion. As an aggravating factor, the concentration of the Brazilian population in large cities has led to uncertainties about the destiny of tons of garbage generated daily by the population.

Image 2.0 –Number of Brazilian Municipalities by Population Size



Source: IBGE (2003), ROM “Environmental Education - the cycle of garbage”
Solid Waste Policy in the State of Paraná: Zero Waste Program, 2003.

In general, public policies that are directed to waste disposal have been limited to collection and transportation, without concern for form and finish treatment of the solid waste generated. The Zero Waste Program promotes social development and ensure the health and well-being of the population as a whole and is connected directly to the Environmental Sanitation.

The policies of solid waste in the State of Paraná relate primarily to the elimination of 100% of landfills in the state and 30% reduction of generated waste through incentives, raising the awareness of society about changing lifestyle and attitudes and encouraging the reuse of potentially recyclable materials through recycling processes. Among the actions proposed, one refers to encouraging the establishment of partnerships between government, the productive sector and civil society through initiatives that promote sustainable development and the implementation of differentiated management for household, commercial, rural, industrial , construction, health facilities, prunings and special waste.

Table 3.0 - SEMA’s System Programs

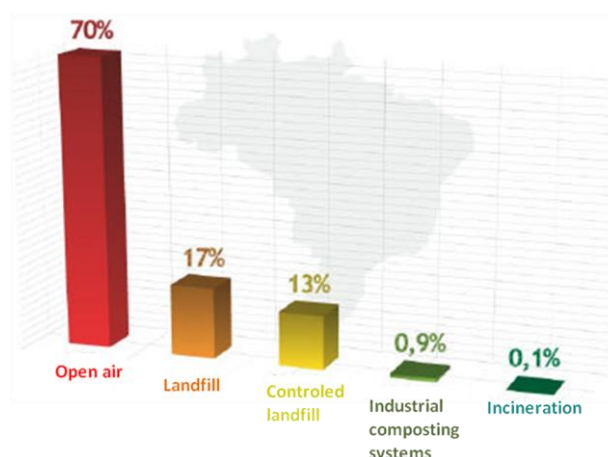
Environmental Education
Waste Management Educators
Implementation of Recycling Programs
Techniques of urban solid waste disposal
Final waste disposal, fitted to the reality of the municipalities of Paraná

Health Facilities Waste
Special Materials Waste
Rural Waste
Crop Waste
Industrial Waste

Source: Solid Waste Policy in the State of Paraná: Zero Waste Program, 2003.

A major challenge for the State to be won in the environmental area is to find the proper final disposal for municipal waste generated in all municipalities, as well as the recovery of environmental liabilities through appropriate technologies in order to remove the existing landfills, preserve the environment and remove from these areas hundreds of families living in subhuman conditions, giving them decent work opportunities and health care, through implementation of specific recycling programs.

Image 3.0 - Forms of final disposal of solid waste in Brazil



Source: IPT/CEMPRE (2002), CD ROM “Environmental Education - the cycle of garbage”
Solid Waste Policy in the State of Paraná: Zero Waste Program., 2003.

The role of municipalities and communities is of utmost importance for the implementation of a system that minimizes the impacts caused by this form of disposal. For satisfactory recycling results three stages need to be followed: technology (from collection to recycling), market (for total absorption of the materials recovered) and awareness (motivate people's involvement in the process). In this sense, natural resources are no longer seen only as something that is available to use and become necessary to protect the safety of humans, animals and plants.

In the sector forums of the Zero Waste Program, proposals for improving performance in each sector of waste in the State of Paraná, are discussed and drawn up as a way to evaluate the actions under the strategic direction. The favorable and unfavorable situations are analyzed in order to take advantage of them so that it can

benefit all sectors (FINAL REPORT OF THE SECTOR BOARDS OF ZERO WASTE PROGRAM, 2004).

6 FINAL CONSIDERATIONS

From the data obtained by documents, we designed a comparative framework about both structures under consideration: Vale Sustainability Report, 2009, of the mining company Vale and Solid Waste Policy in the State of Paraná: Zero Waste Program. The cases differ, not only, for aspects of governance (one is a public organization and the other is private) but also on issues which refer to the scope of its activities in relation to sustainable development (more specifically, global environmental change in recent decades). However, both have successful strategies of good governance, but with different goals. In other words, for the private organization, the governance actions are not directed to the extent of benefits to humankind, on the contrary, these are associated with economic visions since they must generate profits and be accountable to its stakeholders and shareholders. The Table 4.0 highlights the best practices of good governance of these organizations in accordance with the categories defined previously.

Table 4.0 - Examples of actions for each good governance characteristic

	Vale	Paraná's Zero Waste Program
Participatory	Creation of the Global Assessment Committee with representatives from different areas of the company and several countries, including Brazil, Australia, Canada, China and Switzerland, with the goal of considering from the legal to the cultural diversity on the approval of global regulatory instruments.	Industry Forums Zero Waste Program was designed to discuss and elaborate proposals for improvement of performance in each sector of waste in the State of Paraná, as a means of evaluating the actions under the strategic direction. The favorable and unfavorable situations are analyzed in order to exploit them and to benefit all sectors.
	Participation on organizations and associations (these actions include participation of company executives in meetings and official bodies, working groups and discussion forums, providing greater alignment and exchange of information relevant to the mining sector).	Encourage the establishment of partnerships between government, the productive sector and civil society through initiatives that promote sustainable development
	Participation on the Earth Moving Equipment Safety Round Table (EMESRT), a group created in 2006 by major mining companies worldwide, which propose is, through a partnership between equipment suppliers and mining companies, to support the adoption of measures to the development of	The elimination of 100% of landfills in the state of Paraná and 30% reduction of waste generated, through the convening of every society, in order: changing attitudes, habits consumption, combating waste, encourage reuse, reuse of recyclable materials potentially through recycling.

	equipments that minimize health and safety risks of its users.	
	Dialogue with legitimate representatives of its employees, whether unions or other associations, as the foundation of its guiding labor negotiations. Based on partnerships that it has established with NGOs, the Vale Fund has been working on projects in three main areas: Regional Satellite Monitoring; Consolidation and Creation of Protected Areas; and the Promotion of Green Municipalities.	Install permanent working groups for monitoring systematic actions, projects, regulations in the area of waste. Stimulate, develop and implement programs relating to municipal integrated management of waste.
Follows the rule of law	Elaboration of the Policy on Human Rights, which establishes guidelines and principles for the actuation of Vale regarding human rights in the company's projects and operations.	Creation of the Integrated Management of Solid Waste (GIRS) which serves to obtain positive results in terms of public health and quality of life (FL, art. 225, 1988).
	Corruption combat in accordance with the best market practices, preventing losses and investigating cases that indicate fraud, misuse and illicit acts.	Participation of the State and the Municipalities in the implementation of a policy for the integrated management of solid waste. It was done to comply with the provisions described in the Environmental Crimes Law, nº 9605, 1998, known as the Law of Nature, whose offender, in addition to serving the penalty, will restore the damage caused to the environment.
	Providing to all own employees earning less than the legal minimum practiced at each location.	
	Accomplishment of government regulations for biodiversity management in the countries the company operates, adopting the Brazilian law as the minimum parameter of performance.	To license, to supervise and to monitor the proper disposal of waste solids, according to legal competence.
	Implementation ongoing of an online system to monitor the legal compliance of each unit. This enables to identify, assess and monitor legal requirements in the area of Health, Safety and Environment that are applicable to the activities, products and services carried out by each company unit.	In order to find alternatives to remedy the improper disposal of waste in most municipalities of Paraná, an unprecedented law specific to solid waste (State Law No. 12,493 of 1999).
Transparent	Sustainability Report 2009 reached the A+ application level of the GRI, reporting all profile items, information on management approach and core performance indicators as well as indicators from the Mining and Metals Sector Supplement.	Encourage public hearings on assessments of risks to health, included in Environmental Impact Reports (RIMA's), whose preceding works introduced significant changes in the natural and social environment.
	Accomplishment of the commitment of adopting the principles established by the Global Compact and to the ICMM (case	In order to promote the exchange of experiences, through seminars, courses and training, enabling payment of ideas,

	studies have been described in the sustainability Report 2009 related to these principles).	alternative methodologies are being developed to overcome the difficulties encountered in the Program.
	Use of several tools to communicate with stakeholders such as Vale Sustainability Report, Investor Relations telephone line, tours and meetings, internal publications, Vale portal (intranet), organizational climate polls and surveys of reputation, image and opinion, among others.	Transparency and publicity are critical to the success of Paraná's Zero Waste Program. The program will only achieve success with the involvement and active participation of communities, government, the productive sector and recycling industries. The population must have their doubts cleared on all goals and targets to be achieved, using leaflets, posters, brochures, adverts in radio and television, lectures at schools, neighborhood communities, churches, sports centers; in short, all places that attract many people are efficient means of dissemination.
	Greenhouse gas emissions inventory receives an annual external inspection in accordance with the guidelines defined in the "Greenhouse Gas (GHG) Protocol: A Corporate Accounting and Reporting Standard - Revised Edition" of the World Resources Institute (WRI) and of the World Business Council for Sustainable Development (WBCSD).	
Responsive	For the shareholders, Vale aims to provide a total return greater than the market average in the segments where the company operates.	In the business sector, companies seek to evolve their controlling policies with the implementation and insertion of actions related to environmental management, introducing practices that maximize the use of less polluting raw materials, and trying to reduce the waste generation.
	For the customers, Vale aims to provide superior minerals, reliability and value, based on constant innovation and development.	
	For the employees, Vale aims to provide an ethical, transparent and challenging work environment that offers opportunities and creates pride in the company, by following a competitive merit based compensation system.	The State of Paraná adopts regional solutions to the alternative routing of packing-up, storage, collection, transportation, treatment and disposal of solid waste.
	For the suppliers, through the company's long-term vision and willingness to enter into win-win partnerships, Vale aims to provide a continuous supply of quality goods and services at a competitive cost.	To enable environmental managers, involved in activities related to integrated solid waste management.
	For the communities and countries where the company operates, through its ethical and respectful operations, Vale aims to ensure that its presence makes a positive contribution towards sustainable development.	Construction of new paradigms in order to reverse the depletion of its resources is fundamental to the success of the actions of public policies in the context of its environmental coverage.
	For all countries where the company operates, Vale aims to improve the populations' standard of living and boost development through the generation of employment opportunities.	A state concerned with environmental issues that reconcile in a transparent and democratic way the dynamics and diffuse interests of the environment, enabling the country provide an example of relations of various sectors in line with the conservation and preservation of their environment, which resulted in the rescue of the different biomes and biotas within the context of

		their transition climate, geological and geomorphologic.
Consensus oriented	Development of an action plan for biodiversity conservation in the town of Sudbury, Canada in partnership with government, local community and business sector of nickel.	The program is based on the consensus oriented searching for a new ethics in social and political organization that stands side by side for social justice, material progress and citizen participation. It ensures the participation of people in decisions that affect them and creates conditions that may qualify them and make them agents of change.
	Realization of Social Public Private Partnership in Brazil such as the agreement to promote solidarity tourism in the Jequitinhonha Valley, in Minas Gerais, the partnership in developing infrastructure projects and the creation of the "Knowledge Stations" to strengthen entrepreneurship and offer art, culture and sport activities for young people.	The compromise between the industry sectors and society in relation to the practices of production and consumption, in the sense of reducing, by a change in attitude, specially avoiding waste, reusing as much as possible and recovering the potentially recycled materials, and some of the raw premium materials used in packaging and are placed in the trash indiscriminately.
Equitable and inclusive	Reinforcement of the strategy of development and qualification of local companies through programs like the Supplier Development Program and the Inove Program.	The development of partnerships in the implementation of programs involved in managing municipal waste - like 'Qualification Municipal Managers' - has the goal of theoretical learning and practical activities related primarily to environmental education, selective collection, recycling and landfill operation already installed and those to be deployed in the municipalities.
	Creation of a Inclusion program for people with disability in 2004 (282 people hired in 2008-2009, fulfilling the Terms of Adjustment of Conduct with the Public Prosecutor).	With the disposal of solid waste, the State preserves the environment and removes from this area hundreds of families who live in subhuman conditions, giving them opportunities for decent work and health, through the implementation of specific collection sifted and recycled.
	No wage gap between women and men (women represent only 10% of the workforce due to the characteristic of the sector).	
Effective and Efficient	Most of its operational units are ISO 14001 certified.	Natural resources are no longer seen only as something that should be at our full disposal. To protect the safety of humans, animals and plants, and our only planet, we must urgently change our attitudes, regarding the rampant consumption and waste.
	Development and implementation in Brazil of the Waste Dams and Pile Management System (SGBP). This enable to collect and consolidate information through a single technology and information platform, data and	The Zero Waste Program has been conducting meetings to analyze the current situation, considering the needs of customers, the restraining forces, the threats of damage to premises, the driving forces and opportunities as offensive

	performance indicators about the disposal of waste material in waste dams and tailings piles, allowing for geotechnical and environmental risk control and maintenance at adequate levels.	premises. Based on this context, the participants defined areas (options) for strategic actions and showing the axes of the plan directive. The discussions resulted in reports specific to each sector forum.
	Existence of the Management Plan for Water Resources, which establishes the guidelines for Vale's actions and supports the preparation of programs in operating units. The main aims of these programs are to reduce water consumption per unit of output, minimize the generation of effluents, and to increase the percentage of water that is reused.	Today Paraná is the first Brazilian state in collecting pesticide containers, and through workshops, teaching how to recycle them into bags and other products. It's also requesting the proper disposal of batteries, tires, and construction waste. This recycling project is being developed in partnership with Tetra Pak Company, launching the Alternative Kitchen Handbook for the recycling of food and The Composting Handbook.
	Establishment of Energy Efficiency Technical Groups to support the execution of energy projects, as well as carrying out communication activities and specific technical training.	
Accountable	Creation of the Rules for Accountability in Health, Safety and the Environment, which allocate responsibilities for the management of these issues to specific positions.	In the Paraná's Zero Waste Program the sales and marketing actions of the big firms have to be aligned with correct environmental policies, including in relation to the final destination of wastes, in this case packaging, so that everyone wins with the protection of the environment.
	Mapping of the major local and regional impacts generated directly and indirectly by the activities of the company.	Key aspects such as storage, collection, transportation and disposal end of municipal solid waste are directly related to environmental sanitation; such aspects should be implemented to achieve positive results in terms of public health and quality of life.
	Aware of the potential consequences of our activities, the company presents different programs to mitigate the risks and maximize the opportunities in the territories where it operates. These programs are listed in its sustainability Report 2009.	A new model of sustainable development does not presuppose the absence of economic growth, but its direction has to meet the needs of individuals and social groups in terms of quality of life.

Source: Developed by the authors of this paper based on Vale's 2007 Sustainability Report and Paraná's 2003 Zero Waste Program; 2010.

The examples presented above allow realizing that, in both cases studied, it is crucial to acknowledge the human capacity in transforming the global environmental changes throughout the elements of good governance, in different ways.

The policies implemented in the Vale company as much as in the government of Paraná's State involve a high degree of participation between the leaders and society, encouraging the establishment of partnerships between government, the productive sector and civil society through initiatives which promote sustainable development. It is important to highlight Vale's partnerships with governments and NGOs. In addition to

this, there is an emphasis on the cooperation factor in solving problems based on the participation on working groups and discussion forums, such as the Earth Moving Equipment Safety Round Table – EMESRT, with multifarious levels of concrete actions, decision-making, leadership and the allocation of resources.

On the other hand, the Zero Waste Program have been a determining factor in the impact of health care and well-being of the regional population (this program is applied in only one region of the country), through education and the convening of the hole society, in order: changing attitudes, habits consumption, combating waste, encourage reuse, reuse of recyclable materials potentially through recycling, and creating working groups for monitoring systematic actions, projects, regulations in the area of waste. As the Zero Waste Program, the Vale is concerned about the issue of garbage collection, having implemented the Brazil Development and Implementation of the Dams and Waste Pile Management System (SGBP), whose function is to collect and consolidate information through a single technology platform and information, date and performance indicators about the disposal of waste material in waste dams and tailings piles, geotechnical and allowing for environmental risk control and maintenance at adequate levels.

Both cases include, in a broader approach, social, economic and political dimensions, reflecting the improvement of environmental education, economic development of human capital, according to regulatory issues and mediating the different interests of society to achieve a broad consensus in society about what is in the best interest of the whole community. As a result of the two assumptions mentioned initially, Vale company has been using of several tools to solve and to create conditions which would mitigate the paradigm of environmental sustainability, that associate an economic view rebalanced with respect for human interaction with nature. Despite a centralized power structure with decisions taken by the Brazil federal government (although there are policies created in this way), the State of Paraná adopts regional solutions to overcome the difficulties to implement and to insert actions related to environmental sustainability.

In short, the economic view alone is clearly insufficient and an ecological perspective should be incorporated on the public decision making process that takes into account the public the implications of public policies on the network of relationships that operates in ecosystems (GUIMARÃES, 1991). A new model of sustainable development does not presuppose the absence of economic growth, but its direction has to meet the needs of individuals and social groups in terms of quality of life.

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