

Identification of Regional Impacts from the Introduction of Production of Oil and Gas in the Deep-sea Oil Reserves in Santos, Brazil.

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ABSTRACT.

This article describes how to perform a sustainability and governance evaluation of the new cycle of investment in exploration and production of oil and gas in the deep-sea oil reserves, and its impact on the whole supply chain of the sector, based on the definition of specific sustainability metrics or indicators. A case study at the productive arrangement that is emerging at Santos City of the State of São Paulo in southeastern Brazil is presented herein. The results seek to: identify and systematize the process of participatory governance and its inter-institutional structure created in Santos, develop qualifying and mapping tools for planning and decision-making process applied in the management and control of the impacts of the production of oil and gas development, and map, classify and categorize the production chain of oil and gas and its impact on regional development.

KEY WORDS:

Participatory Governance, Decision Making, Indicators of Information Management, Production Chain of Oil and Gas, Baixada Santista.

INTRODUCTION

The Brazil stands out today as a potential oil producer and second optimistic predictions

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from industry experts, potential national resources in the area are between 70 and 100 billion boe (barrels of oil equivalent), which confirmed these predictions in the coming years, put the Brazilian reserves among the nine largest in the world. To have an idea, according to the Annual Reserves Report generated by the National Petroleum Agency - ANP, 31 December 2008, the country had about 7.5 million km² (1.9 billion acres) distributed in more than 40 sedimentary basins, of which 29 are considered strategic for the exploration and production of oil and natural gas. About 96% of sedimentary areas have not been the object of concession contracts. As we can see the scenario is potentially good for the country, however, can not lose sight of the oil and gas at the same time that can create wealth for the nation, also creates environmental impacts are often irreversible and it is precisely because this contradiction that the study presented to this research project in Santos aims to investigate how the actors involved in decision-making and participatory governance are discussing and preparing the concrete actions to control the development impact of the oil and gas in the Basin Santos. Thus, a mechanism that we identified is the creation of a model for participatory governance to establish the tools of decision-making process for managing the information from the creation of a system of indicators that do measure the impacts of the production of oil and gas in the array of local development, integrated and sustainable.

OBJECTIVE RESEARCH

The research aims to develop an indicator system that enables the measurement of the impacts of the production of oil and gas in the array of local development, integrated and sustainable, based on the systematization of the model of participatory governance and decision-making tools that control the uncertainty and the risks generated by the process of exploitation of oil and gas in Santos.

Research Problem

The experience of the city of Macaé in the context of oil exploration in the 80 deconstructed the array of local development and governance problems created by so unplanned that impacted public policies on the local market and society. In order to avoid such scenarios, and considering that the exploration of oil and gas in the Santos Basin could lead to irreversible environmental impacts that commit future generations.

Question to be answered by research.

Creating mechanisms for planning, control and results management to ensure a decision-making process focused on participatory governance, based on indicators that can measure the impact of the production of oil and gas development in the region?

BACKGROUND RESEARCH

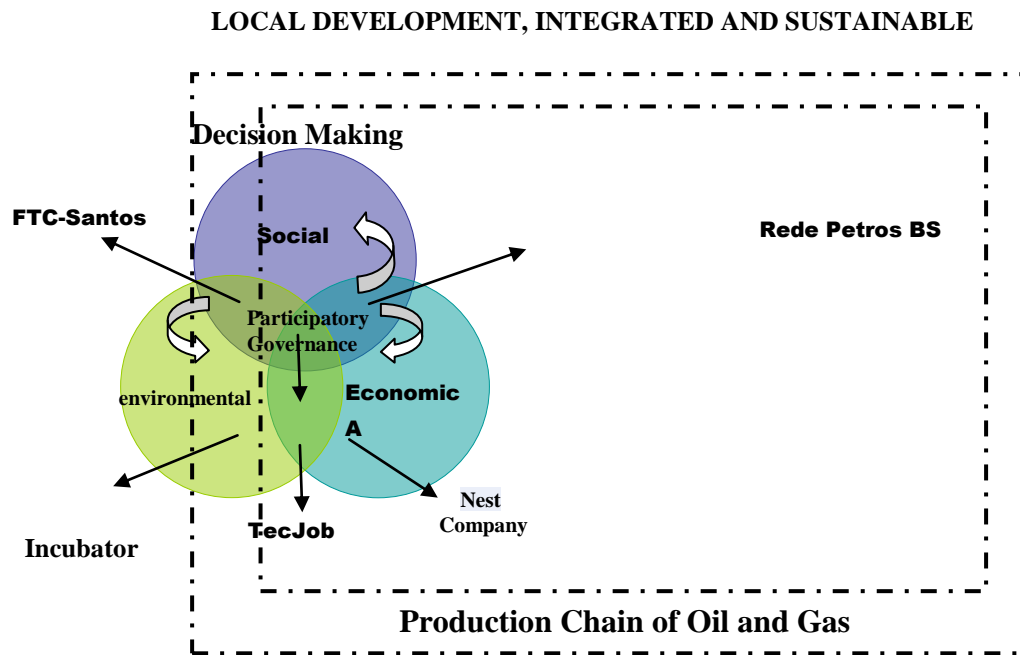
The balance between the economic, social and environmental shall be the premise of local development, integrated and sustainable, as noted by Lester Brown founded the Worldwatch Institute in 1980. If we consider sustainable development as it does not damage or compromise the foundations of their own development and therefore behaves as long as a virtuous cycle, subject to the current or future generations. In an increasingly notorious realize the complexity of the implementation of a Participatory Governance effectively involving society, business and local government decision-making process toward the creation of new production arrangements that ensure the benefits of local and regional sustainability.

In the case of Santos, the company now experiencing a unique moment with the introduction of a new vector is important that the rediscovery of the energy matrix (pre-salt field in the Santos), which can include calling on local economic advances in technology to support to new production arrangements and the development of business networks and services for regional development, from the production chain of oil and gas.

The implementation of the Technology Park in Santos that articulates strategic actions aimed at regional development is a prime example that supports participatory governance, from the Local Productive Arrangement, combining the Business Incubator, the formation of PROMINP - Mobilization Program Industry Oil and the creation of CESPEG - Special Committee on Oil and Gas established by the Government of Sao Paulo. Within this context, key actors and the Municipality of Santos, Santos Commercial Association, FIESP / CIESP, SEBRAE, ACTING - the Metropolitan Municipality of Santos, universities and entrepreneurs join forces as an economic place to promote the productive potential regional best meet the needs of Santos, without compromising the future of the region. These key stakeholders are responsible for the coordination of resources needed to produce the local development of responsible and sustainable way, managing the impacts of the production of oil and gas as well as creating mechanisms for decision-making process that allows greater control of the uncertainties and risks generated by the process. The study provide us to observe and investigate the conduct of Participatory Governance, as the Local Productive Arrangements created from the production chain of oil and gas promote sustainable development, understanding that any enterprise involving human factors to be sustainable must be broadly : ecologically sound, economically viable, socially just and culturally integrated in solidarity and participation.

Beginning with what is conventionally called tripod of sustainability or the English word "triple bottom line", the development is considering the integration of social development in the current study the idea of participatory governance that includes the distribution of wealth by the quality and employability of life, economic development, as a parameter the Local Productive Arrangement from the production chain of oil and

gas, growth of socially responsible business and control the impacts of the production process in the environment, view the array of local development, integrated and sustainable, which means pass through a holistic concept of environment, from the sharing of decision-making human-political, psychological, cultural and educational.



This system integration of Participatory Governance and Decision-making will require the creation of indicators to measure the impacts of the exploratory research and applied by the "Case of the Santos region" you may experience during its implementation process. Thus, three principles are central to promoting sustainability, "Empowerment, Decision and Innovation".

Only supported in practice Empowerment will be consensus on local development policy, integrated and sustainable, since the interests of various stakeholders and development actors will be preserved, whereas the issue of sustainability requires recognition and appreciation of the interdependence of a participatory agents of development, making room for the promotion of new forms and production models in the region. Moreover, innovation is the catalyst for change in the economic matrix above, creating new products, redesigning existing processes and rethinking the

business model of organizations as well as the local headquarters of development. For this process occurs, decisions must be shared and measured the impacts of the production of oil and gas, in order to ensure the involvement of multiple institutional actors of regional development.

Obviously, the development of this research requires a professional and technical training that addresses the demands of study, is the administrative point of view, whether in the academic, but I have a degree in Electronic Engineering, Business Administration and Master in Production Engineering, currently as a manager Regional UNIP - Universidade Paulista Santos'm representing the IES in the councils of the local society of Santos. I have participated with the government, Petrobras, ACS - Associação Comercial de Santos body representing employers in the region, FIESP / CIESP, Sebrae, and ACTING - Agencia metropolitan area of Santos in all projects that will promote growth in the Baixada Santos correlated with the energy matrix of the production of oil and gas. I am the current president of the Board of Higher Education of the ACS share, representing universities in major regional projects. What enables me to participate in local governance with voting decision by IES. Recently I published an article in the International Workshop Advances in Cleaner Production with the theme: Sustainable Development and Participatory Governance: Local Productive Arrangement and Technology Park of Santos. From this publication I have decided to develop the research study for a PhD thesis.

THEORETICAL CONCEPTS

At the end of the twentieth century we began to notice a new challenge for sustainability on the planet, culminating in the release of the report of the United Nations - UN focused as a strategic point the impact of global warming on future generations and production. However, prior to release of the latest report on global warming, several

attempts of understanding about the responsibilities of each nation were promoted giving rise to understandings intercontinental agreements such as the Kyoto Protocol, global conferences such as Rio-92 and meetings on the environmental issue and the matrix of human development.

The impact of these agreements was noticed immediately by the model of economic development, from industrial production and more complex services resulting from technological advances, as reflected in various institutional actors, including universities, research centers and organizations of the Third Sector who started a movement to mobilize worldwide creating continuous monitoring of the energy matrix of human development, as well as living beings on the planet. Thus, sustainability has become a matter of global importance. Trigueiro (2005) on "Environment in the Twenty-first Century," highlights a new concept to relate sustainability to the community. To this author a sustainable community can be self-sufficient without compromising the needs of future generations, with the balance the economic, social and environmental become the headquarters of local development, integrated and sustainable.

In the case of Santos, the region is going through a wave of development resulting from new discoveries of oil and gas in the Santos Basin, from seven strategic vectors: energy, tourism, urban development, environment, research and development, port and logistics - industry. Each vector corresponds to a strategic line of development that can promote that substantial changes in the local economic vocation and new productive potential. From this line of reasoning, the research of the subject may lead us to understanding the creation of strategic partnerships within government, business and social organizations that will be the main actors in Santos, with the contribution of the high points of the study: local development integrated and sustainable, a strategy that coordinates and

integrates the main line of intervention, from the proactive contribution of the institutional actors involved which will set the second point of convergence in the case of Santos, call Participatory Governance, Decision-making and formation of Local Productive Oil and Gas and Information Technology and Communications of Santos as a strategy review in the productive, as the case of Program Business Condominium - Nest Company, TecJob - Center for Research, Innovation, technology transfer Jose Bonifacio and Network Company chain of oil and gas in the Santos Basin called Network Petros BS.

Based on these four points of the contribution of our research, we identify at the outset that the city could become a possible model for the economic and social development of the region, considering that this is a city with more encouraging technological poles attractive to investors and entrepreneurs.

Corporate Governance, in turn, allows greater flexibility of the process, whereas strategic decisions undermine the institutional actors as agents of local development, promoting the negotiation of specific interests and global at the same time that the role of exercise participatory governance in a responsible and sustainable. Table 1 presents a summary of indicators which will be developed in this research.

TABLE 1: MATRIX OF INDICATORS OF STUDY

INDICATORS / MASTERS	SUB-INDICATORS STUDY	ACTION CONCRETE
GOVERNANCE	<ul style="list-style-type: none"> • Empowerment • Institutional Partners • Corporate Knowledge • Policy Development • Strategic Alliances 	<ul style="list-style-type: none"> • BS NETWORK • TECHNOLOGICAL PARK • FTC-SANTOS <ul style="list-style-type: none"> • CESPEG • PROMINP
DECISION-MAKING	<ul style="list-style-type: none"> • Public Investment • Private Investment <ul style="list-style-type: none"> • Master plan • Infrastructure • Technological innovation • Tools to support decision 	FTC-SANTOS PROMINP CESPEG IES

<p style="text-align: center;">INFORMATION MANAGEMENT</p>	<ul style="list-style-type: none"> • Information System • Business Training <ul style="list-style-type: none"> • Professional • New Career <ul style="list-style-type: none"> • R & D • Indicators for measuring impacts 	<p style="text-align: center;">APL-TIC REDE-BS TECJOB IES</p>
<p style="text-align: center;">PRODUCTION CHAIN</p>	<ul style="list-style-type: none"> • Productive Arrangements Regional • Law of Oil and Gas • Environmental Law • Entrepreneurship • Network Infrastructure Gas <ul style="list-style-type: none"> • Transport Logistics • Market Segment • Suppliers 	<p style="text-align: center;">PROMINP APL- P&G REDE BS</p> <ul style="list-style-type: none"> • Business Incubator • NEST BUSINESS

Legend:

APL-TIC Local Productive Arrangement Informação Technology and Communication

APL, P & G Local Productive Arrangement of Oil and Gas

FTC-SANTOS Foundation for Technology and Knowledge of SantosNetwork

NETWORK BS Santos Basin

PROMINP Mobilization Program of the Petroleum Industry

CESPEG Special Committee on Oil and Gas

TEC JOB Center for Research, Innovation, technology transfer Jose Bonifacio

R & D Research and Development

Through this work, we intend to investigate the growth of the metropolitan area of Santos with a size of the study's Local Development, Integrated and Sustainable Participatory Governance, Decision-making and the indicators measuring the production chain of oil and gas from the Local Production, led by different modes of business leadership, government intervention, participation and negotiation of conflicts in local decision-making processes involving different inter-institutional networks (governments, businesses, citizens and workers, nongovernmental organizations, associations, businesses, universities and other interested bodies), as well as the various

productive activities, the process of income generation and employment, and the dissemination and translation of knowledge into a model of sustainability and production.

STUDY METHODOLOGY

The study will begin with a survey of publications that supports the areas of research, focusing on social, economic and environmental issues, the concepts of governance, integrated local development and sustainable beyond the vision of productive arrangements.

From this conceptual and theoretical approach will seek to develop tools for collecting information on local development strategy in Santos. Participation in the creation of the Foundation for Technology and Knowledge of Santos, as a member of the Board of Trustees and, in our integration into the Economic Development Council of the City of Santos, we understand that observation, as a method of scientific understanding be our main ally to capture the information necessary for the study. The same will happen with the lifting of the strategy for productive arrangements adopted in the region, as a member of the Commercial Association of the United support will be essential to local business, with regard to the search for investment information focused on entrepreneurship and local development integrated and sustainable Santos.

STAGES OF THE STUDY METHODOLOGY

The participatory governance is not just a management style of local interests of the place, but a development strategy and sustainability, which involves multiple dimensions in the social, cultural, political, educational, technological and economic. In this study it was necessary to observe direct and indirect variables that characterize the participatory governance in Santos. To illustrate these variables, this study was divided into six operational stages and scientific:

Step 1: Cultural diffusion - the goal at this stage was to develop specific conditions to include in the agenda the theme of local participatory governance, creating opportunities for training of critical opinion and political debate forums in the region, bringing together leaders of major economic sectors: government, business and non-governmental organizations, with reference to the power of public influence and cultural diversity.

Step 2: Social Leadership - In this stage the study traced the leadership profile of the main corporate leaders, from the following indicators: technical, style manager, political representation, entrepreneurial vision, grasping opportunities and pioneering innovation.

Step 3: Participatory Governance - the study will make a map of governance in Santos, from the identification of socio-historical period and social leadership and worked to create a scenario of falling distance of power, developed tools in participatory planning and the possible accessibility to opportunities and social belonging.

Step 4: Sustainability: In this stage the study is to trace the local development strategy and governance in the network, measuring the impact of uncertainties, reducing losses and waste of resources related to sustainability.

Step 5: Economic Vocation: this stage of the study will identify the social-historical vocation of the economic development of Santos, characterizing the call port, tourist, commercial and industrial area and the strategy to maximize the technological vocation, energy and education, the from employability and local production arrangements, the production of knowledge and exploration of oil and gas.

Step 6: Strategic Scenario: This step will create the potential scenarios for local development, integrated and sustainable development of the region, taking as reference the macro economic indicators of regional industrial, logistics expansion of the Port of Santos, Growth potential of the enterprises of the supply chain and port oil and gas.

It is understood that each step of the study will occur based on participant observation

"in loco" of each corporation, as the points tab:

Leader Corporate	Business Focus	Density Care	Time Existence	Character Institution
1- Manager of Business Unit Petrobras – Santos Basin	Petrobras - Exploration and Extraction of Oil and Gas	The pre salt involves an exploration area of 350,000 square km with a projection of 26 platforms	Founded in 1950	(X) State
2-President of the Commercial Association of Santos	It brings together 20 rooms of the main business sectors in the region	280 business association	Founded in 1870	(X) Private
3-President of Foundation of Technology and Knowledge of Santos	Articulate Technology Parks to promote research and innovation aimed at production of goods, services and methods aimed at sustainable development the State of Sao Paulo. Articulate Technology Parks to promote research and innovation aimed at production of goods, services and methods aimed at sustainable development the State of Sao Paulo.	200,000 m ² of areas involving 7 universities and research institutions	Founded in 2010	(X) State
4-Executive Director of Metropolitan Agency Santos	Integrate the organization, planning and execution of public functions of common interest in the metropolitan area of Santos	1,500,000 inhabitants in 9 cities in the region	Founded in 1998	(X) State
5-Coordinator CESPEG – Special Committee on Oil and Gas	analyze the positive and negative impacts of exploration in the Santos Basin off the coast resort of Sao Paulo and propose actions for the development of this activity in the state	8 groups of works GP1 - economic and fiscal impacts; GP2 - Training of Manpower; GP3 - Development of the chain of suppliers; GP4 - General Infrastructure and marketing; GP5 - Impacts on Regional Development; GP6 - Shipbuilding; GP7 - Research and Technological Innovation; GP8 - Energy Development; GP9 - regulatory frameworks	Founded in 2008	(X) State
6-SEMESP – Union Entities maintainers Educational Establishments in the State of Sao Paulo	To preserve, protect and defend the private segment of higher education, and provide expert guidance to their members.	Involve 7 Universities in the city of Santos	Founded in 1979	(X) Private

7-Network Coordinator Santos oil and gas	Promoting the integration and strengthening business suppliers of goods and services act collaboratively and competitive in the production chain Oil and Gas Promoting the integration and strengthening business suppliers of goods and services act collaboratively and competitive in the production chain Oil and Gas	200 affiliates companies	Founded in 2006	(X) Private
8-CIESP - Center of Industries of Sao Paulo State	CIESP is in constant search of solutions to help the entrepreneur to better manage your business, through strategies, information and guidance	Located in the Heart of Historic Center of Santos, Santos CIESP has under its jurisdiction the cities of Santos, São Vicente, Praia Grande, BH, Municipalities, Mongaguá and aims to be the liaison in all matters related to trade Pool, customs, port, coastal logistics, export and import	Founded in 1928	(X) Private
9-Secretary of Development and Strategic Affairs	Assist the Municipal Government, formulate and implement a municipal policy development, direct the process of elaboration, refinement and implementation of plans, programs and legislation aimed at the development issues concerning technology, science and innovation, entrepreneurship, employment and income, oil and gas, housing and strategic programs.	He is currently a representative of the municipality Regional Forum in the Santos Basin Program for Mobilization of the National Oil and Gas - Promimp, coordinator of the Thematic Special Board of Oil and Gas Development Center of Santos and coordinator for the project that brings together companies RedeBS Oil and gas in the Santos Basin	Founded in 2010	(X) State

RESULT OBTAINED

- Identify and systematize the process of participatory governance and its inter-institutional structure created in Santos, from the experience of the city of Santos;
- Qualify and mapping tools for planning and decision-making process applied in the management and control of the impacts of the production of oil and gas development;

- Identify and propose mechanisms for information management to encourage greater control of the uncertainties and risks caused by the production chain of oil and gas development;
- Map, classify and categorize the production chain of oil and gas and its impact on regional development;
- Develop and systematize indicators measuring the impact of the production of oil and gas in regional development.

CONCLUSIONS AND RECOMMENDATIONS

Through this work, we intend to investigate the growth of the metropolitan area of Santos with a size of the study's Local Development, Integrated and Sustainable Participatory Governance, Decision-making and the indicators measuring the production chain of oil and gas.

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