Knowledge and Politics of the Public

Elements for analyzing the rise of social innovation agenda in policy discourse in Colombia

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Introduction

This paper makes a presentation of the role of innovation discourse in the Colombian policymaking and government discourse in the last years. In particular is discussed the concept of "social appropriation of knowledge" supported by the Colombian National Department of Science and Technology (COLCIENCIAS) and the agenda of innovation in the Government Plan of the current President of Colombia: Juan Manuel Santos.

The idea of "Social Appropriation of Knowledge" has its origin in the interest of national scientific communities and groups of making visible the "impact" of their work in the general society. In the last 10 years COLCIENCIAS has used this idea as a form of presenting the cross-sector character of the science and technology in relation with agenda more visible politically and in resources as Energy, Health and Environment. Moreover, this discourse has been developed as the social dimension of the innovation. If traditional discourse on innovation is focused in business and in the development of dynamic markets; the social appropriation of knowledge emphasizes the impact of knowledge in the solution of social problems (poverty, inequalities, exclusion among others).

On the other hand, the current Colombian government has made of innovation one of the main strategies for the development of Colombian economy. This has been defined as one of the locomotives for improving the national competitiveness. Furthermore, the innovation has been framed in the general discourse of Good Governance; this interpretation has generated different narratives about the innovation inside the State and it role in the governing process.

Beyond the rhetoric use of these concepts, the discursive turn of the government is an opportunity for opening the debate around the role of the knowledge in the contemporary forms of governance as well as on the relation between innovation and public engagement. This discourse also has generated a set of strategies and policies for the generation and the use of the knowledge in the political decision making process.

In this paper the Colombian governmental discourse on innovation is analyzed focusing in three questions with an important tradition in the discussion about science, technology and democracy: the affair of the knowledge like a public good, issue of the (social) innovation and the measuring of the (social) impact of the research. These topics try to open the debate around the social

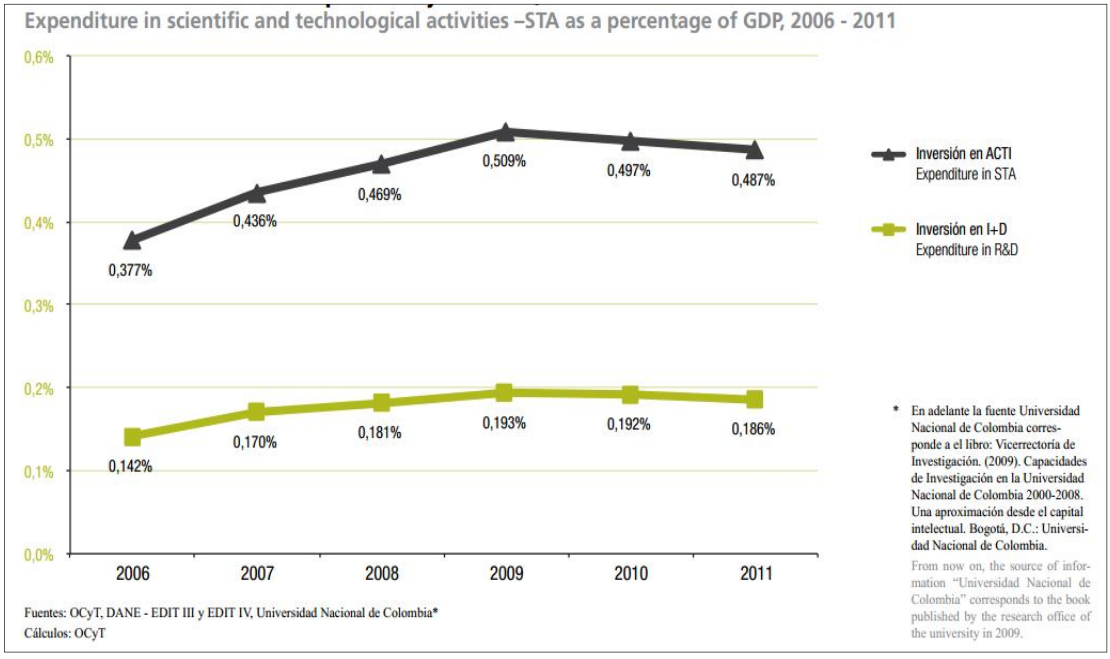
appropriation of knowledge beyond the policy and the science and technology national system, making explicit its importance in the development of a democratic society.

Key words: Social Appropriation of Knowledge, Social innovation, social impact, Public Goods, Knowledge and democracy.

Colombian policy in science, technology and innovation

Colombian is a country with approximately a 46.5 million of inhabitants. Almost eight millions (16.2% of total) live in Bogota and around tree quarter parts of population in urban areas. Colombia has experimented deep changes regarding its economic grown and social development in spite of the permanent situation of "Internal Conflict" (Guerrillas, paramilitarism and narcotraffic) during the last 20 years. Currently, Colombia is a middle-income country; its GDP (nominal) is $328.422 million of USD (2011). Nevertheless, the GDP per capita (ppp) is $9.800 USD (2010), the 45.5% of population is below poverty line (CIA Factbook, 2011) and has a Gini coefficient 0.57, the worst in South America.

Traditionally Science and Technology policy has not been a central problem for Colombian governments. The investment in science and technology has always been under 1% of GDP. The Colombian Observatory of Science and Technology (OCyT its acronym in Spanish) estimates the current expenditure in activities of science and technology (STA) around 0.48% of GDP and the expenditure in Research and Development (R&D) around 0.18%[1]. In 2011 the expenditure in STA was 6.932 (millions USD) in R&D was 2.659 (millions USD). These expenditures are below of investments in science, technology and innovation made by countries such as Brazil, Chile and Argentina (RICYT, 2010).



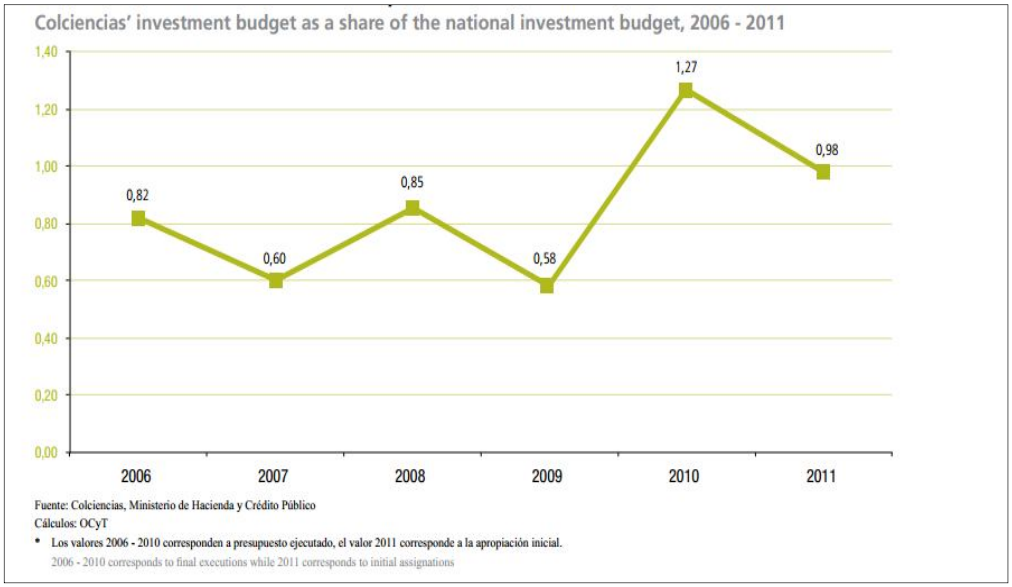
1 "To calculate the national expenditure in science, technology and innovation activities (STA), which has been carried out in the OCyT since 2007, different activities were done: (i) 232 institutions of different type including governmental organizations, R&D centers, and clinics and hospitals, were directly surveyed; (ii) an estimation was made for higher education institutions (IES for its name in Spanish); and (iii) results from the third and fourth innovation surveys (EDIT III and EDIT IV) developed by the National Statistics Department (DANE for its name in Spanish) were used." (OCYT, 2012: 19).

Graphic 1. Expenditure in scientific and technological activities as a percentage of GDP (Source: OCYT, 2012)

Despite this situation, the science and technology agenda has gained visibility among politicians and the general public in the last two decades. Two Acts about science technology and innovation (STI) have been enacted since 1990 (Law 29 of 1990 and Law 1286 of 2009) and a set of institutions for STI has surged, the National System of Science, Technology and Innovation (NSSTI). In terms of policy, the different activities of science and technology have been embedded in NSSTI. According to Law 1286 of 2009, "The NSSTI is an open system which contains the policies, strategies, programs, methodologies and mechanisms for the management, promotion, financing, protection and dissemination of scientific research and innovation technology, as well as public, private or mixed organizations that perform or promote the development of scientific, technological and innovation activities".(Law 1286, 2009).

It is important to point out that the NSSTI is a normative representation of articulation of institutions, sectors and actors. In some extent the system is a representation of the whole society, a society of knowledge whose pivot is science and technology practices and discourses. Nevertheless, the "real" articulation of these actors, in a descriptive sense, is a different issue. In spite of STI policy institutions points out that its field of action is the whole Colombian society, in practice a very few number of institutions such as research universities and big and medium companies are engaged with STI policies and strategies (OCYT, 2012).

On the other hand, the rise of STI agenda could be perceived in the transformation of policy institutions involved in its management. During 40 years COLCIENCIAS has been the institution in charge of STI policy in Colombia. This institution surged in 1968, as a research Fund, following a trend of Latin American development policy. In 1990, the institution was organized as "institute" part of National Planning Department.[2] Then, COLCIENCIAS was transformed in Administrative Department, almost a Ministry of the National government, in 2009. The evolution of its budget, which has been doubled in a period of 2 years, shows these transformations (see graphic 2).



[2] The National Planning Department is the executive administrative agency of Colombia in charge of defining, recommending and promoting public and economic policy. http://en.wikipedia.org/wiki/National_Planning_Department_(Colombia)

Graphic 2. COLCIENCIAS' budget 2006-2011 (Source: OCYT, 2012)

These processes suggest an increasing engagement (at least in policies) of different actors around scientific knowledge and its relation with society. In Colombian case, discourses about "social appropriation of knowledge"[3] and innovation allow understanding how these "new concerns" interact with traditional frameworks about development. The use of these concepts makes visible the question about legitimacy of policies in democratic societies, opening a wide range of questions about the relationship among knowledge, participation, equity and sustainability.

Building bridges between knowledge and society: Social Appropriation of knowledge

The term social appropriation of knowledge was originally conceived by science and technology institutions concerned for establishing mechanisms and opportunities to engage science and technology with society in general. Although, historically this process has been parallel to the institutionalization of science and technology, strictly the term appears in Colombia during the late 1990's. In the beginning, social appropriation of knowledge was defined as the integration of science and technology values and representations with the "national" culture. In this discourse S&T have been perceived as a key factor in generation of modernisation processes in a country where a complete modernity seems distant. Thus social appropriation strategies have been focus in the popularisation of science and technology through deficit model of communication (Daza and Arboleda, 2009; Lewenstein, 2007).

Nevertheless, a change of discourse has been made by COLCIENCIAS in the last two years. The definition of Social appropriation of knowledge has been redefined using different frameworks such as public participation and sustainability. According to National Strategy for social appropriation of science, technology and innovation (EASCTI acronym in Spanish) (COLCIENCIAS, 2010): "The social appropriation of knowledge is a process of understanding and intervention of relations between technoscience and society, that is built upon the active participation of various social groups that generate knowledge.(...) the dynamics of production of knowledge beyond go the synergies between academia, productive and state, including communities and stakeholders in civil society "(COLCIENCIAS, 2010: 22).

This definition attempts to establish a symmetric relation between science and society, opening the set of social groups that are acknowledged as knowledge producers. In this sense, social innovation is presented as a social appropriation of knowledge strategy. However, the traditional definition of "social appropriation" is still the main reference for this subject in more general policies. For example, the current National Plan of Development emphasizes that popularization should be focus in communicating social benefits of scientific and technological activities. "The social appropriation of knowledge includes the divulgation of the impact of research and innovation among Colombian population on different media such as radio, television, internet and press. Moreover, it is included the promotion of museums and science and technology centres. The goal is building and common languages and communicating successful cases about the capacity of knowledge for creating social value and wellbeing" (NDP-Santos, 2010).

The establishment of this relation between knowledge institutions and society is fundamental for designing and implementing policies because it provides social and political legitimacy that makes effective and possible governance (Hilgartner, 2009). This concern, in the science and technology policies (Law 1286, 2009, Conpes 3580 of 2009) has been translated into the promotion of

[3] Although in Spanish the term is "Apropiación Social de la Ciencia" whose translation literally is "social appropiation of knowledge" refers to divulgation, education and popularization of Sciencia and Technolgy. A new National Strategy of Social Apropiation of Sicence, echnology and Innovation was launched in order to defined some practices in 2010.

"scientific culture" in Colombian society, understanding “scientific culture” as the development of a set of favourable attitudes and values toward scientific knowledge and institutions that support it. Social appropriation of knowledge -as a policy concept- is in principle the result of the social legitimacy need in science and technology policies. If we assume that S&T policies have a fairly small number of direct beneficiaries: researchers, research centres, universities, companies with R&D units, then it is necessary to develop a legitimation discourse aimed to society in general that supports these policies.

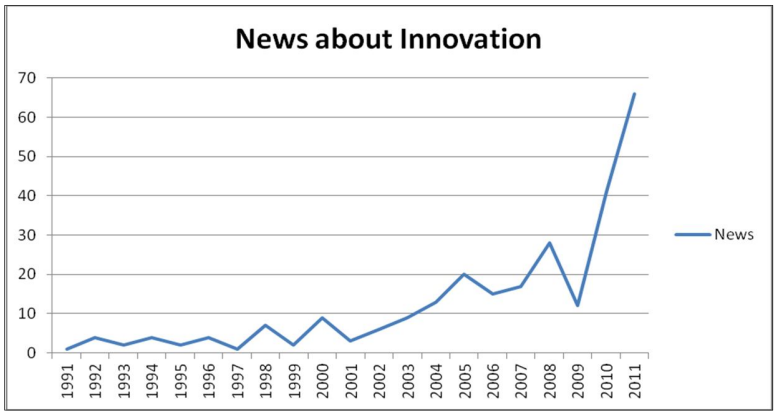
In these discourses the question about scientific knowledge role for solving social priorities (assuming those are basic needs shared by the majority of the population) is a central element. When the answer is weak and tangential, the relations between science and society appear as a residue, an accessory. This occurs in productive innovation discourse, where the impact in society just is perceived in the end of the process in relation to the competitiveness and productivity of the country. (DNP, Visión Colombia 2019). On the contrary, if the answer takes into account the complexity of knowledge production, the innovation appears as a political matter, making explicit the importance of knowledge in the Rights exercise in contemporary societies. The question of the political and social implications of knowledge is a central issue that would change the relation among social groups around government and the technical practices that support its development. (COLCIENCIAS, 2010).

As can be seen, there is a gap between COLCIENCIAS and Central Government (President) regarding the definition of science and society relations. The difference in “social appropriation of knowledge” notions shows that COLCIENCIAS effort for opening this debate and making more horizontal the hierarchies does not have enough impact in professional politicians and other government agencies. On the contrary, the discourses of Central Government have had an important impact in the representation of S&T by universities and research centres in relation to innovation agenda.

Innovation discourses in National Development Plans

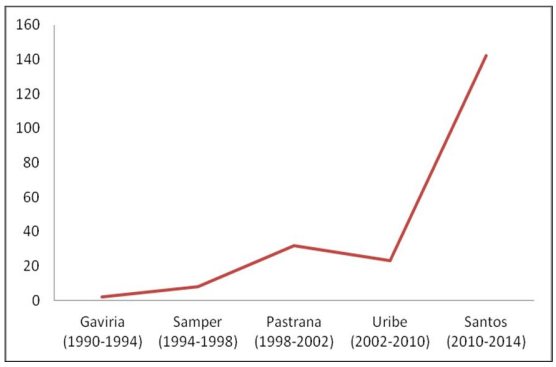
Despite “social appropriation of knowledge” discourse provides an important set of elements to promote the relation between science and society, in National Development Plans the main discussion about knowledge-society is the innovation policy. As a topic of discussion and debate the innovation has reached gradually an important interest among politicians, media and general public. In recent years, “there has developed a recognition that the country has great potential for innovative growth and development through the action of its national innovation system” (Velazco and Gregson, 2011: 1).

The way how this “awareness” has risen is a discussion matter. The traditional stakeholders of S&T policy in Colombia (universities, research centres and COLCIENCIAS) have used the innovation discourse as a strategy for making visible the importance of long term investment on science and technology in a country where this agenda is not a political priority. At the same time, the strong relation between competitiveness and innovation in the contemporary development discourse in Latin America (CAF, 2004: World Bank, 2001; IADB, 2004) is a key factor on awakening of innovation interest among politicians, business associations and media. On the other hand, the attention of public and media on innovation issues has had a steady increase during the last 20 years (See graph. 3).



Graphic 3. Direct reference to Innovation in news published in El Tiempo 1990-2011

However, where this discourse has attained the most political visibility is in the National Development Plan (NDP). The National Development Plan is a document defined as the main guideline for each Presidential Term; and it is assumed to enact the proposals, now policies, written by the president of Colombia and his close advisers, (policymakers, politicians and experts -most of them economists-). The institution in charge of it is the National Planning Department DNP (acronym in Spanish). A national development plan is a very special document, more than any other disposition it has a special performative sense regarding governance. Within the document can be found all the action plans to "solve the urgent issues of the country establishing the foundations of the country itself" (NPD-Santos, 2010).



Graphic 4. Direct reference to "innovation" in Government Plan of Colombian presidents (1990-2010)

It is interesting to point out how the references to innovation have been presented in the different National Development Plans since 1990. From the National Development Plans of Gaviria's administration (1990) until Uribe's administration Plan, innovation appears like a policy of second level, with very few references associated with the technological development. These development plans show an "evolution" of concepts since technological development in relation to the problem of innovation. The innovation discourse has been a key factor in the transit of science and technology as a "cultural" problem to a matter related to competitiveness and economic development.

The policies in S&T started with the establishment of COLCIENCIAS[4] in 1968. With the rise on "Neoliberal" administrations in the 1990's, fundamental changes were made in the management of the State and its rhetoric. A "new" technocratic style was presented with a strong emphasis on macroeconomic language and competitiveness. However, even though the idea of innovation is presented, the idea of technological development is stronger in this context. For example, the administration Samper (1994-1998) made a special emphasis in productivity, technological development and the good governance. Samper's Plan of Development -designed by the economist Jose Antonio Ocampo- pointed out the need of strong investment in Social Capital in relationship with the development of capacities in S&T.

In this Plan, possibly the most involved with science and technology discourse before Santos's programme, an important set of strategies, that currently are linked to innovation, were presented as part of a wider policy of technological development.[5] Moreover, the system that supported it was not NSSTI; it was just a System of Science and Technology[6]. Similarly, the development was linked to the integration of S&T with Colombian culture and society. This strategy pretended to enhance the training on basic sciences inside the Education System. A starting point was the Popularization of S&T programmes (such as the promotion of Science and technology centres and science and technology divulgation material) as well as the promotion of "scientific activities" with young people; Also it promoted the use of ICT's in order to articulate the country to information (and knowledge) networks. As a consequence S&T would be incorporated in the (national) culture[7] guaranteeing general process of innovation for most of the Colombians. (NDP-Samper. 1994). Nevertheless, despite the last part, innovation, as concept, goal or discourse did not have a central place. It was just another element of S&T transit toward market and "culture".

Finally, it is important to point out that explicit references to innovation were made in relation to a good governance policy. In this case, the promise is a technical state with innovative capacities. A redefinition of planning, coordination and assessments processes will generate a public administration based on a managerial system that should lead to a better effectiveness in the government manage. Nevertheless, other actions were required for improving these institutional capacities. In this matter, the government would promote organizational structure reforms with technological and innovative solutions over all in the development of a public culture services on the citizens (NDP-Samper, 1994).

According to this Plan, institutional restructurings are needed to adequate the State institutions in order to success on challenges imposed by the "new" National Constitution. In contrast, technological innovation "will be prioritized overall those related to communication and data processing". (NDP-Samper, 1994).

Santos's Innovation policy: Innovation as "locomotive" of Development

According to Santos' guidelines, innovation is not just a policy, it is a government principle. Santos's National Development Plan (2010-2014) understands the innovation as "big policy", therefore, references to innovation are presented through different sectors, institutions and levels. Moreover, this discourse has appeared in other policies instruments such as sectorial policies and development planes. Indeed, for NDP 2010-2014, innovation is not only the improvement or developing of new products but the creation of new ways of production, delivery and trading, in

[4] This institution was born at the same time that other institutions designed to "boost" the national culture: Coldeportes (Sports policy) and Colcultura (Cultural policies, defined as support to fine arts).

[5] Investment in researchers training, increasing of the national S&T budget to, at least, 1% GDP; promotion of technologic development in companies.

[6] Yes, without innovation.

7 The constructivist approach has researched how S&T is part of all narratives of Modern Societies.

order to create value throughout the value chain. What follows is a brief description of Santos' innovation policy made from his National Plan of Development (2010-2014). Here, as it is described by Edgerton, the conception of science and technology as innovation "should be" strongly institutionalized. Following Edgerton, when governments propose new policies in S&T in general they mean research and innovation policies. Innovation seems to have a central role in these policies (Edgerton, 1999).

Generally speaking this policy is denominated **Innovation for prosperity**. There, innovation processes depend on the following factors: Strengthening of intellectual property policies; access and diversification of financial tools; more use and better performance of information technologies; strengthening on higher education system, promotion of business and companies' associations around the development of clusters based on innovation, and consolidating productive alliances among universities, companies and government at a local and regional level, in other words the so-called NSSTI.

For this policy the main actors of the process are the entrepreneurs. "Dynamism of private actors depends on the creation of innovation culture in the Colombian society. In this regard, this policy promotes a regulatory environment that gives a boost to competence among markets and that encourages the creation of enterprises and the development of business" (NDP-Santos, 2010). A successful policy of entrepreneurship does not punish the failure but encourages the learning from the mistake. The innovative entrepreneurs require enough flexibility for changing the business according to environment conditions (NDP-Santos, 2010).

Although innovation agenda is defined as a particular sector of development, knowledge and the innovation are also presented as "transversal pivots"[8] that will support the locomotives of infrastructure, housing, agriculture and mining; allowing the reduction of costs, extending coverage and competing in global markets (NDP-Santos, 2010).

In this plan of development unlike to former plans is made a brief diagnosis of the national obstacles for generating innovation process. The main problems identified are: 1. Low levels of innovation expenditure in companies. 2. Deficit in human resources for innovation. 3. Weakness of NSSTI. 4. Lack of long-term strategic areas. 5. Regional gaps in science and technological capacities (NDP-Santos, 2010). The strategies for solving these problems are: 1. Financing research and innovation projects according to productive structure and regional needs. 2. Training of highly qualified human resource that can transform the knowledge into **innovations**. 3. It is necessary to development a set of institutions that organize and support these processes (NDP-Santos, 2010).

Moreover, innovation discourse is not homogeneous in Santos's policy. The innovation is divided in types: **Productive innovation, Social Innovation and Innovation in governance.** They are part of the same policy: the innovation locomotive, the use of the knowledge as path for the social and economic development. This classification of innovation is defined from a particular conception of society, where this is though as the coordination among market, civil society and State.

Productive Innovation

Although the innovation policy in Santos' Development Plan pretends giving strategies and instruments for the different types of innovation (NDP-Santos, 2010), in concrete, more attention is put on productivity and competitiveness. The resources are aimed to improve the productive capacities in strategic areas of investment such as biotechnology, energy and natural resources,

[8] In Spanish the expression is "Eje transversal", this is a very common metaphor for describing some problems and interests as central issues.

information technologies, materials science and electronics, health, design and creativity, and logistics. The productive and technological innovation would allow making more efficient the use of water, land and other productive factors (NDP-Santos, 2010).

Among the different policy instruments that are presented in the Plan, there is a particular emphasis in intellectual property regulation. For this document, "the intellectual property such as in the case of cultural industries contributes to the transmission of the cultural identity, the social cohesion and the quality of life" (CPC, 2009: 175). "The protection of author rights generates incentives to foreign direct investment and consumer's trust" (NDP-Santos, 2010).

The policy argues that despite the efforts for developing an intellectual property regulation according to features of Colombian society such as the presence of indigenous communities, the protection of collective rights of indigenous communities has been exerted with very limited human and financial resources (NDP-Santos, 2010). For example, the case of access to genetic resources and fair distribution of derivative benefits there are high transactions costs that have made difficult its use (NDP-Santos, 2010).

Social Innovation

It is essential to point out that the innovation and the investments in R&D are not exclusive of a specific sector. Therefore, Innovation should be a direction for each link of the value chain" (NDP – Santos. 2010:62). In recent years the adjective "Social" has been added to Innovation. Whereas Innovation has a special emphasis on economic development and competitive increasing, Social Innovation is focus on social development at the solution of exclusion problems.

Santos' Development Plan introduces the concept of social innovation for the first time in a Colombian national policy. Although there is not a clear definition of what social innovation is, it is related with the development of technology and knowledge based solutions for solving social problems. The social innovations are engaged with the policies for of vulnerable populations care such as corporate social responsibility and poverty reduction policies (NDP-Santos, 2010).

Moreover, social innovation also should be a real interest of private sector, specifically, Social Corporate Responsibility. "Finally, if a social strategy really improve the quality of life of Colombian communities, it is required the active participation of both private sector and civil society". The document actually underlines the "crucial and growing" importance of private social investments through different kind of Social Corporate Responsibility. In the same way, the document indicates that those investments, based on a sing of voluntariness, can (and should) be articulated to national and local government programmes in order to impact vulnerable population (NDP Santos, 2010: 100)

Since the presentation of the Development Plan innovation policy, the Government has created a Centre for Social Innovation. It is part of the "new" Agency for the attention of vulnerable population and the fight against the poverty (ANSPE acronym in Spanish). The agency is currently under definition, the program in social innovation is just defining activities and policy instruments. The agency is very focus in low-technologies solution for social and environmental problems and pro-poor design of technologies. COLCIENCIAS would mainly support it in subjects related with productive innovation and social would be defined as part of social policies.

As can be seen, innovation discourse has become in an opportunity to "link" Science and Technology to certain policies "more relevant" in the national context. This discourse had already been promoted by the traditional interests groups that historically have support its promotion (COLCIENCIAS, Universities, scientific associations, research centres and Science Museums). In a

general perspective, the STI policies are presented as instruments for generating "the environment in which the knowledge might be a development instrument" contributing to accelerate the economic growing and the social inequity" (COLCIENCIAS, 2008).

Although social Innovation is embedded into social policies, COLCIENCIAS is the institution that defines the criteria to identify what a social innovation is. In this framework is presented social innovation. Although, according to COLCIENCIAS there is no clear definition of social innovation, they agree to point out that it must be related with solving social problems and main society challenges. They include the following issues:

- Creation, adoption and diffusion of new social practices in diverse realms of society.
- New production process of things and artefacts and new governance strategies that allow engagement of local communities.
- Technical innovations from social innovations and production of social innovation from technical issues.
- New communication and cooperation strategies
- Knowledge for developing better social policies (COLCIENCIAS, 2012).

Innovation in governance

Finally, the Development Plan presents a description of Innovation in Governance as a part of the wider principle of Good Governance. In this case, the government innovation is fundamental for attaining a more efficient state that makes the best use of state resources according to national and local priorities. "An efficient State requires human resources engaged with Good governance principle, as well as, better institutions. This is the result of structural reforms" (NDP-Santos, 2010).

The government agenda for the promotion of innovation in governance have the following strategies: 1. Efficiency in public state management. 2. Institutional organization in strategic areas. 3. Organizational and institutional restructuration of the State. 4. Efficiency in transactions. 5. Results-oriented Public management. 6. Incentives for public management (NDP-Santos, 2010).

Santos' Innovation in governance is more related with a creative and efficient public management than with the development of evidence based policies. On the other hand, innovation in governance has been understood as the development of institutional and regulatory support for establishing of science, technology and innovation processes. In this regard the most important development has been the inclusion of STI agenda into National System of Mining and Petroleum royalties.

According to Legislative Act No 5 of 18th July 2011, the 10% of mining and petroleum royalty incomes will be earmarked for Science, Technology and Innovation Fund. In 2012 the income for royalties was 4.493 million USD; the STI fund received 429 millions USD. This is a very important change for STI expenditure, taking into account that STI investment fund was 180 million USD the year before (2011).

This change of economic resources has had a deep impact in STI governance. The traditional stakeholders of STI policy (universities, research centres and scientific associations), even COLCIENCIAS had planned a central management of these resources through traditional S&T accountability systems, (v.g.) Peer review and resource distribution based on scientific productivity. Nevertheless, the regulatory framework of Royalty distribution requests active participation of local and regional government in the definition of royalties' expenditure. According to this regulation economic resources must be designated for funding projects with regional impact in the poorest areas of the country. The resources will be distributed according to the Unsatisfied Basic Needs Index favouring periphery areas. This regulation governs also STI funding.

A controversy between politicians and technocrats about the distribution and management of those resources and the definition of strategic innovation areas has risen. COLCIENCIAS is an institution whose management has been exerted by scholars, technicians and bureaucrats linked to academic and research institutions. Moreover, COLCIENCIAS has relatively been independent of the mainstream politicians and clientelism. Nevertheless, COLCIENCIAS is not a technocratic institution (Fischer, 1990) [9] as the National Development Department, Banco de la República (Central Bank of Colombia) of Ministry of Finance and Public Credit.

Knowledge and contemporary governance

This descriptive approximation provides several elements to identify some key points about the relationship between innovation and governance in the Colombian context. What follow we present this topic around three problems: The issue of knowledge investment impact, the social character of innovation and the notion of public realm in these policy discourses.

The (social) impact issue

Policy impact, in particular social impact is a contested issue because it involves complex relations as well as the difficulty of constructing measurement standards. Moreover, all these elements have serious political consequences. In the Colombian case, although this problem has been part of science and technology institution agenda since almost 4 decades, the advance of impact measurement has been scarcely developed.

As a consequence the policymakers usually attempt to avoid the question of policy "impact" or they limit impact assessment to idea of management results. "The goals can be the clearest impact measure. Nevertheless, it is important taking into account goal measure is a second grade measurement: it does measure the result itself but the concordance between proposal and results. Thus it is necessary to consider the result, the declared intention and then their concordance. Because of this, it is important to connect the science and technology impact measuring with policy impact indicators" (Villaveces et al., 2005: 128).

In science and technology policy case the consequence has been to define the "impact" in an endogenous sense: the science impacts itself (Godin y Doré, 2005). The reference to bibliometric indicators has limited the "impact" to social and institutional networks of primary policy beneficiaries (scientist and innovators). The same happens with other sector policies, there is a political and methodological discomfort in relation to impact idea, in particular, the social impact.

The social impact question has a big importance itself because it makes visible the gap between primary beneficiaries of policies and the rhetorical promises in their formulation. Moreover, this question has had made explicit the necessity of opening the current policy assessment methodologies (Godin y Doré, 2005). Currently there is an implicit relation between social impact of research and social appropriation of knowledge; this is evident in some science and technology policy forms and bureaucratic technologies such as SIGP (acronym in Spanish for Project Manage System). This technology allows standardizing the research projects that are presented by the different research groups of the country. This format requests to present in the research projects, activities of social appropriation of knowledge as well as to define direct beneficiaries of the research. In the first case, impact is described as research vulgarisation activities, in the second; this is a description of groups and beneficiaries. According to Ariza (2010) a detailed review of these projects shows how researchers present vaguely the research impacts. He makes a review of the

9 "Technocracy, in classical political terms, refers to a system of governance in which technically trained experts rule by virtue of their specialized knowledge and position in dominant political and economic institutions" (Fischer, 1990: 17).

projects presented for COLCIENCIAS's funding on SIGP 2009-2010. According to his description 72% of projects point out as primary beneficiaries of their research the scientific community.

Appropriation of knowledge and innovation discourses are embedded into a framework that assumes a priori the benefits of STI, these discourses are intended to "reveal" the real impact of such investments on common good and promote favourable attitudes and values toward activities and projects that they promote. On the other hand, these discourses are framed in a particular sort of "technological determinism", which defines the social change as a consequence of technical innovations. According to Phills, Deiglmeier and Miller innovation is both process and an outcome. In one hand innovations could be an organizational and a social process that produces specifics sorts of knowledge that then are incorporated by society or market. On the other hand innovation also can be an outcome such as new products; new production method or product features (Phills et al, 2008: 38).

In the case of the policies presented the question for knowledge impact is avoided and on the contrary the emphasis is made in some assumptions regarding to social and public realm.

What's the "social" in innovation?

As has been said, the main objective of the National Policy of Research and Innovation is: "Generate the environment in which the knowledge might be a development instrument" contributing to accelerate the economic growing and the social inequity" (COLCIENCIAS, 2008). Moreover, this discourse has appeared in other policies instruments such as sectorial policies and development planes. Indeed, for the first version of de National Development Plan innovation 2010-2014, to innovate is not only the improvement or developing of new products but the creation of new ways of production, delivery and trading, in order to create value throughout the value chain. It is essential to point out that the innovation and the investments in R&D are not exclusive of a specific sector. Therefore, Innovation should be a direction for each link of the value chain" (NDP – Santos. 2010:62).

In recent years the adjective "Social" has been added to Innovation. Whereas Innovation has a special emphasis on economic development and competitive increasing, Social Innovation is focus on social development and the solution of exclusion problems. This distinction has made invisible the social nature of innovation and knowledge production present in market-directed innovation. On the other hand, social innovation becomes a second class innovation, more related with social assistance. In the case of social innovation strategies in Colombia the social is defined as the problems related with poverty, violence and in general with different basic necessities. On the other hand, the social innovation are defined as organisational arrangements, however, this definition has had few development in the policy.

Knowledge and Public Realm

The production of knowledge is considerate as a public good. A public good, is a good or a service that benefits the whole society private entrepreneurs cannot afford or do not get enough incentives to produce them. The public goods have two characteristics: first, the consumption of a person does not affect the consumption of others; second, nobody can be excluded of its benefits, although have not "contributed" directly in the production of the good. According to liberal economy, only who can afford a good is able to obtain it; thus the public goods could not be produced neither provided by the market (Samuelson, 1954: 387; Stiglitz, 1999).

The definition of Science and Technology as a public good has been important on the STI policies formulation. Because of technical progresses are "consequence" of scientific research they are

positive externalities that are used by free-riders. The support to particular research based on public funding is held on basis of knowledge public good character and the social character of the taxation.

Knowing the Public Good definition, it is easy to understand why the State directly promotes science and technology activities. Nevertheless, some innovation dynamics, practices and outcomes which are inserted in a knowledge economy, could contradict some of those public good principles. Moreover, the knowledge production implies sort of restrictions that hardly make science, in practice, be perceived as a public good. Those can be material restrictions, for instance "free" access to data bases and books; Also there are symbolic restrictions such as the control or manage of languages and experts representations likewise the complex regulations, socio-legal networks built around intellectual property. Furthermore, some social forms of knowledge production are closer to democratic values than others (Winner, 1986).

This assumption is present in Colombian innovation discourse. The emphasis in productive innovation is based on the idea of the correspondence between particular benefit and common good. In order to create a similar debate around knowledge production it is essential to make visible the role of social movements, stakeholders, institutions and actors in the discussion of public agendas. Think about the knowledge production in terms of rights. The social innovation, because of the problems which deal with, has many references to rights and participation. On the contrary, the others forms of innovation, in particular, productive innovations are presented as apolitical, just defined by the knowledge itself.

On the other hand, it is important to point out that public realm is not given a priori. It is an election and a social goal. The classic definition of public realm has been constantly reproduced in different spheres of public policies. In the S&T policies, each private appropriation of knowledge would be a social and public appropriation. This argument has made relevant the "social impact" of policies, which eventually provides ways to construct legitimacy, as long as it were an effort to establish "objective" measures between particular (or private) benefit and collective welfare.

CONCLUSION

The "knowledge society" has become an important framework for developing policies. This framework has generalized representation and concerns around the role of knowledge in contemporary forms of governance, in particular with innovation and based-knowledge decision making narratives. At national level, this discourse has been appropriate by politicians and decision makers, in the Colombian case, it is a common reference in policy rhetoric and different public government presentation. Moreover, this has had an important impact in the rise of STI expenditure. The innovation discourse has reached a high popularity among the different institution of the government. Innovation has become a new word for describing quality and creativeness, as well as, the importance of taking into account knowledge in contemporary societies.

On the other hand "traditional" stakeholders of STI policies have developed different discourses for creating links with broader publics and the "general" society. They have generated the term "Social appropriation of knowledge" for describing the necessity of integration between science and other social representation and values. Moreover, they have used the rise of innovation discourse for promoting their agenda. These discourses are the result of the search of legitimacy and public support to an agenda that has not been very strong in Colombia.

The innovation discourse is a trading zone between politicians, policymakers, companies and researchers. One of the most exciting arenas for understanding these processes is social policy, its problems, priorities and mechanisms. In this type of policy problems, expertise connects economic,

national and international public agendas, promotion of rights and different representations and technoscientific discourses. This combination makes politics a field of prime importance for understanding the relationships between science and society.

It is necessary to see the relation among different instruments of governance such as policies, legal settings, regulations, budgets and standardisation for tracing the multiple notions of innovation discourse. On the other hand, the multiplicity is present in the gaps and discontinuities between traditional stakeholders of S&T and "professional" politicians and high level planners and policymakers. These differences have had impact in the development of some debates around the legitimacy of innovation discourse and the experts' role, such as the case of Royalties regulation and regional budget planning.

The rise of innovation discourse in Colombia has important assumptions regarding the relationship between knowledge and society. First, it is no clear the discussion about impact of this investment in public welfare. The impact is defined as endogenous to NSSTI system; the benefits are defined a-priori following the dynamic of a market society. Knowledge as public good assumption made that these policies do not present strategies for distributing innovation benefits. Although Santos innovation discourse attempts to present a diverse definition of innovation, on practice, the policy emphasises the role of productive innovation in economic and social development.

On the other hand, the distinction between social and productive innovation have an important impact in the way how is understood the social in policy. The social innovation discourse makes explicit the importance of considering the knowledge and experts role in the solution of key problems for society such as poverty, social sustainability and violence. Nevertheless, this restricts the social to a particular type of innovation. The social disappear of the discussion about innovation in general, the role of communities and interest groups is limited to a very specific type of activities with fewer resources and political visibility.

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