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INSTITUTE FOR TECHNOLOGY AND RESOURCES MANAGEMENT IN THE TROPICS AND SUBTROPICS

# GOVERNANCE OF SUSTAINABLE SOCIAL HOUSING PROGRAMS:

# Potential for Implementation of UNEP-SUSHI in Uruguay.

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*Gretel Clausen*

*Cologne, August 2012.*

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# Abbreviations.

| | |
|---|---|
| **UNEP** | United Nation Environment Program |
| **UNESCO** | United Nations Educational, Scientific and Cultural Organization |
| **IDB** | Inter-American Development Bank |
| **GEF** | Global Environment Facility |
| **MINURVI** | Entidad de Coordinación Intergubernamental de los Países de Latinoamérica y del Caribe |
| | -Intergovernmental Entity from Latin-American and Caribbean Countries- |
| **ECLAC** | Economic Commission for Latin America and the Caribbean |
| **ROLAC** | Regional Office for Latin America and the Caribbean |
| **SB** | Solar Board |
| **CEUTA** | Centro de Tecnologías Apropiadas |
| | -Suitable Technologies Centre- |
| **UTE** | Administración Nacional de Usinas y Transmisiones Eléctricas |
| | -National Administration of Electric Power Generation and Transmission- |
| **MVOTMA** | Ministerio de Vivienda, Ordenamiento Territorial y Medio Ambiente |
| | - Uruguayan Ministry of Housing, Regional Planning and Environment-Dirección Nacional De Aguas |
| **DINAGUA** | Dirección Nacional de Agua |
| | -National Water Directorate- |
| **DINAMA** | Dirección Nacional de Medio Ambiente |
| | -National Environment Directorate- |
| **DINOT** | Dirección Nacional de Ordenamiento Territorial |
| | -National Bureau of Land Directorate- |
| **DINAVI** | Dirección Nacional de Vivienda |
| | -The National Housing Directorate- |
| **BHU** | Banco Hipotecario del Uruguay |
| | - Uruguayan Mortgage Bank- |
| **BPS** | Banco de Previsión Social |
| | -Social Security Bank- |
| **FNVyU** | Fondo Nacional de Vivienda y Obras |
| | -Housing and Construction Work National Funds- |
| **MIDES** | Ministerio de Desarrollo Social |
| | -Ministry of Social Development- |
| **MEF** | Ministerio de Economia y Finanzas |
| | -Ministry of Economy and Finances- |
| **MIEM** | Ministerio de Industria, Energia y Mineria |
| | -Ministry of Industry, Energy and Mining- |
| **MIEMDNE** | Dirección Nacional de la Energía |
| | -National Directorate of Energy- |
| **OPP** | Oficina de Planeamiento y Presupuesto |
| | -Planning and Budget Office- |
| **ANV** | Agencia Nacional de Vivienda |
| | -National Housing Agency- |
| **MEVIR** | Movimiento de Erradicación de la Vivienda Rural Insalubre |
| | -Movement for the Eradication of Unhealthy Rural Housing- |
| **PIAI** | Programa de Integración de Asentamientos Irregulares |
| | -Program of Irregular Settlements Integration- |
| **BID** | Banco Interamericano de Desarrollo |
| | -Inter-American Development Bank- |
| **CIVIS** | Cartera de Inmuebles de Interés Social |
| | -Properties Portfolio for Social Interest- |

| | |
|---|---|
| **FUCVAM** | Federación de Cooperativas de Vivienda y de Ayuda Mutua<br>-Housing Cooperative Federation and Mutual Aid- |
| **FECOVI** | Federación de Cooperativas de Vivienda de Usuarios por Ahorro Previo<br>-Hosuing Cooperative Federation of User with Prior Savings- |
| **IAT** | Instituto de Asistencia Tecnica<br>- Institute of Technical Assistance- |
| **CAIVIS** | Comisión Asesora para la Inversión en Vivienda de Interés Social<br>- Advisory Committee for Investment in Affordable Housing- |
| **MLG** | Multi Level Governance |
| **IG** | Interactive Governance |

## Abstract.

Currently, population growth creates the necessity to rapidly increase the number of housing units. Thus, public authorities in developing countries have started social housing programs; large volume – low cost residential construction projects seeking to supply the housing markets with affordable housing. As this strategy is linked to low budget it creates considerable short and long-term problems. Therefore, with the demand of social housing being so significant, the application of sustainability concepts may bring relevant savings of natural resources.

S.U.S.H.I. (Sustainable Social Housing Initiative) is a United Nations Environment Program that aims to develop a methodology to apply concepts of sustainable construction in popular social housing projects. Beyond making social housing more sustainable in energy and water savings, it is also designed to provide comfort and wellbeing to end users.

At the same time on a national level, the Uruguayan government is taking measures in order to implement sustainable development plan actions, including sustainable social housing programs. These programs are expected to lower costs for housing maintenance, to reduce the natural resources consumption and should generate and distribute wealth for the society with less environmental consequences.

The aim of this master thesis is to assess the SUSHI project implementation adaptability within the Uruguayan governance of sustainable social housing programs, delivering recommendations for adaptive implementation for both UNEP-SUSHI and Uruguayan decision-makers.



**Keywords:** governance, interactive governance, sustainable social housing, UNEP-SUSHI, Uruguay.

## Resumen.

En la actualidad, el crecimiento de la población crea la necesidad de aumentar rápidamente el número de unidades de vivienda. Por lo tanto, las autoridades públicas en los países en vía de desarrollo han iniciado programas de vivienda social; proyectos de construcción residenciales de gran volumen y de bajos costos que están tratando de abastecer al mercado inmobiliario con viviendas asequibles. Esta estrategia está siempre relacionada con bajos presupuestos, lo cual crea problemas considerables a corto y a largo plazo. La demanda de vivienda social es tan importante, que la aplicación de conceptos de sustentabilidad pueden suponer un ahorro importante de recursos naturales.

S.U.S.H.I. (Sustainable Social Housing Initiative) es un Programa de las Naciones Unidas para el Medio Ambiente que tiene como objetivo desarrollar una metodología para aplicar conceptos de construcción sustentable en proyectos de vivienda social popular. Más allá de hacer una vivienda social más sustentable para el ahorro de energético y de agua, a su vez también está diseñada para proporcionar comodidad y bienestar a los usuarios finales.

Al mismo tiempo, a nivel nacional, el gobierno uruguayo está tomando medidas con el fin de poner en práctica acciones del plan de desarrollo sostenible, incluyendo programas de vivienda social sustentable. De estos programas se espera reducir costos de mantenimiento de la vivienda y el consumo de recursos naturales, así como también generar y distribuir beneficios para la sociedad, con menos consecuencias para el medio ambiente.

El objetivo de esta tesis de maestría es evaluar la capacidad de adaptación de implementación del proyecto SUSHI en la gobernanza de vivienda social sustentable uruguaya, generando recomendaciones para la aplicación el PNUMA-SUSHI y para los tomadores de decisiones uruguayos.



**Palabras clave:** gobernanza, gobernanza interactiva, la vivienda social sustentable, PNUMA-SUSHI, Uruguay.

## Zusammenfassung.

Zur Zeit erzeugt das Bevölkerungswachstum die Notwendigkeit schnell die Anzahl der Wohneinheiten zu erhöhen. Daherstarteten die Behörden in den Entwicklungsländern Sozialwohnungsprogramme, großes Volumen - kostengünstige Wohnungsbauprojekte, die die Wohnungsmärkte mit bezahlbarem Wohnraum versorgen. Da diese Strategie an niedriges Einkommen gekoppel ist, entstehen kurz- und langfristige Probleme. Die Nachfrage des sozialen Wohnungsbaus ist so signifikant, dass die Anwendung von Konzepten der Nachhaltigkeit relevante Einsparungen von natürlichen Ressourcen mitbringen kann.

S.U.S.H.I. (Sustainable Social Housing Initiative) ist ein United Nations Environment Program, das eine Methodologie entwickelt, um Konzepte des nachhaltigen Bauens in populären Projekten des sozialen Wohnungsbaus anzuwenden. Neben einer nachhaltigeren Energie-und Wassereinsparung wurde der soziale Wohnungsbau auch entworfen, um den Endnutzern Komfort und Wohlbefinden zu bieten.

Auf nationaler Ebene ergreift die Regierung Uruguays Maßnahmen , um nachhaltige Planungsmaßnahmen zu entwickeln, einschließlich die Implementierung eines nachhaltigen sozialen Wohnungsbauprogrammes. Von diesen Programmen wird erwartet , dass sie die Kosten für die Instandhaltung von Wohnungen senken, die Ausbeutung natürlicher Ressourcen reduzieren und Wohlstand für die Gesellschaft generieren ohne dabei die Umwelt weiter zu belasten.

Das Ziel dieser Masterarbeit ist es, die Anpassungsfähigkeit für die Durchführung des SUSHI Projekts innerhalb der uruguayischen Governance des nachhaltigen sozialen Wohnungsbau Programme zu bewerten und um Empfehlungen für eine adaptive Umsetzung sowohl für UNEP-SUSHI als auch uruguayischen Entscheidungsträger zu liefern.



**Schlüsselwörter:** Governance, interaktive Governance, nachhaltige sozialen Wohnungsbaus, UNEP-SUSHI, Uruguay.

# 1. Introduction.

Following natural resource depletion, urban environment degradation is the most serious and a short-long term problem faced worldwide. The chaotic and unrestrained growth of cities has exposed a large proportion of the population to deteriorating air and water quality, solid and hazardous waste, and coastal degradation. Lack of infrastructure, urban increment and overcrowding, all rapidly increase exposure to pollutants, usually resulting that the underprivileged sectors of society are the first victims of pollution and climate change effects.[1] The poor too frequently pay the price for development failures or for unexpected side-effects of success[2]. In addition, urbanization is causing, in most cases, undesirable consequences like urban sprawl and peripheralisation. Besides, for the first time in history, 50% of the world's population now lives in urban areas, which is responsible for 60-80% of energy consumption and carbon emissions.[3] According to the United Nations Environment Program (UNEP):

> *"The future will be predominantly urban, and the most immediate environmental concerns of most people will be urban ones."*[4]

Also, it is well known that the global civil construction industry is the most significant contributor to socio-economic development as well as the largest energy and natural resources user, responsible for the consumption of a significant share of materials extracted from nature and for the generation of greenhouse gases and acid rain promoting agents[5]. Moreover, poorly designed and constructed buildings also contribute to waste of natural capital. The building sector is by far the most resource intense sector in society, contributing to an average 40% of energy use, 30% of materials use, and 20% of water use. In addition, about 30-40% of greenhouse gas emissions, 30% of solid waste, and 20% of waste water are caused by buildings.[6]

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[1] UNEP, **Green Report: Cities, Investing in Energy and Resource Efficiency**, 2011 s.458. Available at: http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/9.0-BUI-Buildings.pdf (Access February 2012).

[2] UN, **Sustainable human settlements development in Latin America and the Caribbean**, Lucy Winchester, Sustainable Development and Human Settlements Division, 2005. s. 9.

[3] UNEP, **Green Report: Cities, Investing in Energy and Resource Efficiency**, 2011 s.458. Available at: http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/9.0-BUI-Buildings.pdf (Access February 2012).

[4] **World Commission on Environment & Development**, 1987.

[5] Asif M., Muneer T., Kelley R., **Life cycle assessment: a case study of a dwelling home in Scotland. Building and Environment**, 2005. Available at: http://www.sciencedirect.com. (Access January 2012).

[6] UNEP- SBCI, **Buildings Can Play Key Role In Combating Climate Change**, Available at: http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=502&ArticleID=5545&l=en> (Access January 2012).

At the present time, the largest and fastest growing building markets are located in cities of developing countries. In 1950, 29% of the world population lived in urban areas, the percentage increased in 1965 with 36% and up to 50% in 1990, it is expected that by 2025 it will grow up to 60%. In addition, the annual growth rate of the world urban population was 2,6% between 1965 and 1980, and 4,5% between 1980 and 1990. Unfortunately, almost all of these growth rates are taking place in the poorest countries, where there are less resources and they have a far worse capacity for waste management.[7] Furthermore, population growth and rapid urbanization are key factors contributing to the pressure on building markets to increase the number of housing units, particularly in urban centers. Worldwide, the assessed population living nowadays in slums and irregular settlements goes beyond a billion. This urgent need for affordable housing is further accentuated by an often inadequately maintained and deteriorating existing building stock.[8]

Searching to bridge this gap, governments in developing countries have started social housing programs; large volume – low cost residential construction projects seeking to supply the housing markets with affordable housing of adequate standard. Social housing programs are today common in many developing countries, and until recently, these were linked to low budget and short and long-term problems faced by the end user. Consequently, the construction industry plays a key role for society's sustainable development. Sustainable design seeks to support solutions in order to reduce the needs for natural resources, food, water, energy, housing, industrialized products and transportation usage, keeping and protecting environmental quality and the sources of natural resources that are essential for development and warranty of life in the future.[9] Furthermore, sustainable construction also carries important health and livability benefits. Poor quality in the construction is directly linked to indoor pollution from poorly combusted solid fuels, that, in combination with little ventilation, implies one of the major causes of serious illness and death in developing countries. According to the UNHABITAT, 11% of mortality all over the world is caused by consequences of indoor pollution, such as lower respiratory infections (pneumonia and tuberculosis). Also, sustainable housing comes along with extra improvements like access to water and basic sanitation.[10]

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[7] Rogers R. and Gumuchdjian P., **Ciudades para un pequeño planeta**, 2008. s.vii.

[8] Chandrasekar V., **Affordable Housing: Opportunities in emerging markets**, 2008. Article available at http://viewswire.eiu.com/report_dl.asp?mode=fi&fi=1434193728.PDF&rf=0 (Access June 2010).

[9] Taborianski V.M., **Contributions to the method for evaluating Co2 emissions generated during the life cycle of the façades of office buildings**, Sao Paolo University, 2009.

[10] UNEP, **Green Report: Cities, Investing in Energy and Resource Efficiency**, 2011 s.336. Available at: http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/9.0-BUI-Buildings.pdf (Access February 2012).

However, in most cases, the concepts of green buildings are only applied to high-standard buildings, both residential and commercial. Few or none of the sustainability concepts have been applied to social housing.[11] One of the main issues is the erroneous idea that social housing consumes less energy than high-standard buildings and that therefore there is no need for investing in energy reduction for this type of building construction. However, like mentioned before, given the considerable scale of the social housing demand in developing countries, the application of sustainability concepts in that social layer may bring relevant savings of natural resources.[12] Despite the urgency to significantly increase appropriate housing supply to address needs of the present and future society, the significance of proper housing to human beings in a healthy environment cannot be over-estimated.[13]

Indeed today, like rarely before, there is an awareness toward the imperative necessity of addressing environmental issues at the moment of urban planning and the importance of learning how to work with informality, instead of neglecting it, so as to reduce poverty and environmental damage.[14] Responding to these great issues, the United Nations Environment Program (UNEP) established in 2006 the Sustainable Buildings and Construction Initiative (SBCI) in partnership with concerned stakeholders, mainly from the private sector. The initiative is promoting relevant tools and policies, such as the elaboration of a common benchmarking system for this sector, and is identifying and supporting sustainable building practices in developing countries. SBCI is also developing research and information to facilitate the adoption of measures in the Kyoto Protocol that would encourage energy efficiency and greenhouse gas emission reduction in buildings.[15]

S.U.S.H.I. (Sustainable Social Housing Initiative) is a UNEP project based on the outcomes of the Sustainable Building activities including SBCI. It focuses on urban areas in developing countries: population growth and urbanization, demand and supply of existing and new buildings. There are already two SUSHI pilot projects, one in Sao Paolo and the other in Bangkok. Thus, the SUSHI project aims to develop a methodology to

[11] Taborianski V.M., **Contributions to the method for evaluating Co2 emissions generated during the life cycle of the façades of office buildings**, Sao Paolo University, p.186, 2009.

[12] UNEP, **SUSHI Mapping Report - Final Version**, 2010.

[13] UN-HABITAT, **A Practical Guide for Conducting: Housing Profiles**, 2010. Available at: http://www.unhabitat.org (Access January 2012)

[14] UN-HABITAT, **Planning Sustainable Cities, UN-HABITAT Practices and Perspectives**, 2010. Available at: http://www.scribd.com/doc/32041802/Planning-Sustainable-Cities-UN-HABITAT-Practices-and-Perspectives (access June 2011)

[15] UNEP, **SUSHI Preliminary Report,** 2010.

apply the concepts of sustainable construction in popular social housing projects, not only in order to make social housing more sustainable in energy and water savings, but also to provide comfort and wellbeing to end users. The application of the concept of sustainable development upon social housing requires as a key factor the incorporation and integration of a variety of strategies during the design, construction and operation of building projects.[16]

Facing these great issues, the Uruguayan government is taking measures in order to increment sustainable policies and therefore sustainable development plan actions. According to Uruguay's statement during the World Summit on Sustainable Development in Johannesburg 2002, the country's posture is clear toward environmental vocation and the will to change from conventional to renewable energy resources:

> *"We want for our people a sustainable development as a result of the protection of the environment, the recognition of all human rights, including the gender perspective and the necessities of our vulnerable groups, as well as a better quality of life, to be achieved in peace and equality, being our responsibility that this summit helps us to obtain it."*[17]

Also, the Permanent Mission of Uruguay to the United Nations presented a clear posture toward sustainable construction when stating that the country strived for a:

> *"... promotion of a sustainable social habitat by using clean technologies for construction and by creating employment opportunities in the construction industry."*[18]

This environmental aptitude also applies to sustainable housing including social housing programs. In the 90s, the foundation of the Ministry of Social Housing, Territory Planning and Environmental Affairs (MVOTMA) allowed the country to be up to date with the environmental issues. Together with the BHU (Banco Hipotecario del Uruguay), this foundation emerged like one of the principal actors in social housing projects.[19]

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[16] UNEP, **SUSHI Mapping Report - Final Version**, 2010.

[17] Cat C., **Uruguay Statement to the World Summit on Sustainable Development**, Johannesburg 2002.

[18] UNEP, **General considerations regarding the objectives and expectations of the Rio+20 Conference and its outcome document**, Permanent Mission of Uruguay to the United Nations, 2012. Available at: http://www.uncsd2012.org/rio20/index.php?menu=119 (Access January 2012).

[19] MVOTMA, **Mi lugar, entre todos, Plan Nacional de Vivienda 2010-2014**, Uruguay, 2010.

In addition to the Uruguayan vocation, other important aspects must also be considered, like the fact that most of the resource use in the construction business takes place during construction and manufacturing of building components. Besides, up to 90% of energy and water use takes place by the end users of the buildings, however, this need for water and energy is to a large extent decided in the design and construction phase of the buildings. In this context, the potential for drastic reductions of the energy consumption in buildings is very significant. With proven and commercially available technologies, the energy consumption in both new and old buildings can be cut by 30-50% without significantly increasing the investment costs of new construction or renovation projects. The importance of careful selection of materials and methods to include in the buildings are not only important for the life cycle performance of the building (i.e. the total consumption of resources in the building from construction to demolition), but can also have significant impact on local resource use.[20]

In developing countries, there is a great opportunity to set an environmental-friendly establishment for the upcoming building stocks generations. During the followings years, governments will have to provide adequate social housing for millions of people, which is directly linked to the current and future very rapid urbanization and economic growth.[21] Thus, the implementation of sustainable concepts in the existing and future social housing programs has many benefits for Uruguay. It implies lower costs for housing maintenance, reducing the natural resources consumption (water, energy, etc), and transportation. Therefore, it guarantees a better life quality and comfort for the most vulnerable population: it could improve children performances at school, increase productivity, reduce government costs (e.g. electricity, water, gas) and generate wealth for society with less environmental consequences. Finally, taking sustainable measures in social housing programs carries much more benefits in a large scale point of view: it will head Uruguay toward becoming more sustainable, which is one of the long-term purposes of sustainable development. How Montevideo's city will be able to deal with the current and future environmental, social and economic issues, is and will be directly linked to the effectiveness of its multi-level governance strategy. The fact that there are multilevel stakeholders involved, within the public housing field, calls for a carefully studied and a systematic analysis of the local stakeholders and decision-making as well as resources allocation processes. Therefore, an interactive governance analysis becomes a must for considering simultaneously key dynamic aspects, like in the case of opportunities, barriers, options for action, elements, orders and modes of governance;

[20] IPCC, **Intergovernmental Panel on Climate Change**, 2007.

[21] UNEP, **Green Report: Cities, Investing in Energy and Resource Efficiency**, 2011 s.337. Available at: http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/9.0-BUI-Buildings.pdf (Access February 2012).

all this, with the objective of assessing the implementation ability for adoption of sustainable initiatives, such as SUSHI, within the general social housing industry.

Uruguay has just started taking sustainable decisions toward social housing programs, which will make it one of the pioneers in the developing countries of South America regarding this subject. It is imperative for future generations that these sustainability measures expand globally to all cities without exceptions. My thesis results will show how to assess the suitability of sustainable initiatives projects within social housing governance in a selected developing country, in this case, SUSHI in Uruguay.

## 1.1 Background.

In the transition phase from dictatorship to democracy, the new governments in Latin America increased the public spending on social housing but did not change the logic of subsidy, which has given rise to enormous and extremely precarious social housing neighborhoods. There are some analysts today that suggest that it has formed a new social segment called: "los pobres con techo" ("the poor with a roof")[22]. Thus, Uruguay consolidated earlier than all other neighbor countries a "welfare state" or "redistributive state", whose features emphasize a combination of political liberalism with a strong state control of the economic arena and a preponderant role of the political parties to deal in the distributive field[23]. However, at the moment, 20% of the low-income population considers housing to be a big issue, while 6% of the total Uruguayan inhabitants still live in irregular settlements (aprox. 196,000 people living in 53,700 housings).[24]

At the present time, the Uruguayan President Jose Mujica seeks to integrate the NGO's UTPMP work ("Un techo para mi país" or "A roof for my country") into the country's national housing plan in order to improve the living conditions in Uruguay's poorer neighborhoods and shantytowns. Thus, UTPMP operates already in 16 Latin-American countries (including Uruguay), which aims to better the substandard housing that affects more than 200 million Latin Americans by using the "hammer and nail".[25] Yet, there are

[22] Garces M., Giraldez S., Goldar M.R., Albuquerque M., Riquelme Q. and Buroni T., **Democracia y ciudadanía en el MERCOSUR**, Programa MERCOSUR Social y Solidario, 2006.

[23] **Idem.**

[24] Magri A., **Una reforma exitosa: la política de vivienda entre 1985 y 2000**, 2002.

[25] Urwicz T., **Uruguayan government seeks to work with housing philanthropy**, article for Infosurhoy.com, 2010 (access May 2011).

only very few social housing projects that can truly be called "sustainable". One of them was developed by the Cooperative of Afro-Uruguayan Women-headed household, World-Habitat award finalist project, which is explained in the annex 1. Even when this kind of project in Uruguay is very significant for this investigation, the most important precedent that must be taken into account is, however, the SUSHI pilot project in Brazil.

SUSHI rises from the idea that social housing programs in developing countries represent an important opportunity to improve significantly the quality of life of the end users and aims to move these enormous construction markets toward adopting more sustainable criteria. Thus, the goal is to bring sustainable building practices to these social housing programs: the starting objectives for the SUSHI pilot project in Sao Paolo were to increase environmental performance, make significant progress toward end user satisfaction and reduce life cycle costs.[26] The SUSHI project's multidisciplinary team in Brazil prioritized the water and energy agendas, which include, on the one hand, the rational use of water and demand management and, on the other hand, thermal and lighting comfort, prevention of air conditioning use, renewable energy and solar heating. The whole was possible through addressing specificities of social housing and local conditions, involving all stakeholders in the process, and preparing a replication methodology for global applicability and local flexibility.[27]

Therefore, because each country manages its own rules, it is important to underline the necessity of developing a systematic analysis that assesses the local social and sustainable housing interactive governance of a selected country, in order to enable project decision-makers to evaluate the adaptability of the incorporation of sustainable criteria within local social housing context. This thesis will develop an evaluation methodology to assess the suitability of projects like SUSHI into a country, in this particular case, Uruguay.

## 1.2 Research Objectives.

### 1.2.1 General Objective.

Assess the SUSHI project implementation adaptability within the Uruguayan context of governance of social housing and sustainability.

[26] UNEP, **SUSHI Preliminary Report**, 2010.

[27] UNEP, **SUSHI Mapping Report - Final Version**, 2010.

### 1.2.2 Specific Objectives.

**[1]** Discuss the success criteria for the implementation of a sustainable social housing policy framework.

**[2]** Evaluate the current Uruguayan framework of sustainable social housing policies.

**[3]** Evaluate the SUSHI project demands toward its respective implementation context.

**[4]** Discuss recommendations of adaptive implementation of SUSHI in Uruguay.

**[5]** Discuss the possibilities for further improvements of the success criteria evaluation matrix.

## 1.4 Reference Framework.

It is important to understand the following concepts in order to comprehend the conceptual foundations of this project:

**Governance:**

Governance is a multiple representative process, that links actors within an international or local context in order to generate new norms and rules for a collective-working aiming to solve global and regional problems or conflicts[28]. Following this concept, March & Olsen describe that the governance concept involves affecting the framework within which citizens and (state) officials act and politics occurs. It explores the examination of norms in order to fulfill the requirements of more intricate societal systems[29]. Considering this, the governance concept implies a much more extensive meaning than government, as it entails that society as well as government actors may influence the modification processes of policies. The idea of concentrating the power in the government context may or may not apply to governance.[30]

In the words of Hyden, governance is a *"conscious management of regime structures with a view to enhancing the legitimacy of the public realm"*. It focuses on set of laws as reflected in "regime" structures and how they are managed.[31] It also emphasizes the

[28] Bigsten A., **Contract Facilities Dispute Resolution**, Journal of Development Studies 36, 2000. s.1-37.

[29] March J.G. & Olsen J.P., **Democratic Governance**, 1995.

[30] Mette Kjaer A., **Governance**, 2004. s.164,165

[31] Hyden G., **Governance and the Study of Politics**, 1992.

institutional framework within which public decisions and policies are made. In this context, governance is characterized by four attributes: *authority* referring to legitimate power; *reciprocity* as an aspect of social interaction aiming new ways of consensus in decision-making; *trust* of the society in public authorities; and *accountability,* meaning responsibility of public authorities for outcomes and feedback towards citizens.[32]

Continuing with those ideas, Lynn, Heinrich and Hill attach the concept of governance to citizens´ values and interest, as well as legislative choice, executive and organizational structures and roles, and judicial oversight suggesting interrelationships among them that might generate significant consequences for performance. Governance is a process that brings administrators into a new relation based on cooperation in order to get better results than within the conventional organizational framework.[33]

Nevertheless, even when the authors mentioned before follow a very similar line of thoughts, the World Bank sustains that governance's analytic and operational framework does not deal with political issues, but only includes the process by which authority is exercised in the management of a country's economic and social resources for development and the capacity of governments to design, formulate, and implement policies and discharge functions. In this context, the "governance" concept avoids the form of political regime.

In this thesis, contrary to this last point of view, the "governance" concept to be used will be the one from the United Nations, which describes it as the exercise of economic, political, and administrative authority to manage a country's affairs at all levels.[34] Thus, it comprises the mechanisms, processes and institutions, through which citizens and groups articulate their interest, exercise their legal rights, fulfill their obligations, and arbitrate their conflicts. Is an all-encompassing concept making no distinction between governance-policy, governance-making and policy-implementation. This enhances economic governance that includes decision-making processes that affect the country´s own economic operations and its relations to others; the political governance that encloses the policies formulation and finally the administrative governance, system where the policy is implemented.[35] Similar to Hyden´s concept, in this case governance promotes equity, participation, pluralism, transparency, accountability and the rule of

[32] Onibokun A.G., **Managing The Monster, Urban Waste and Governance in Africa**, International Development Research Centre, Canada, 1999. s177-178.

[33] Hyden G. and Cort J., **Governance and Development**, World Governance Survey Discussion, 2002.

[34] UN, **United Nation Governance concept**, available at: http://www.un.org/en/globalissues/governance/ (Access August 2012).

[35] Hyden G. and Cort J., **Governance and Development**, World Governance Survey Discussion, 2002.

law; all key factors for "good" governance.[36] Expanding the scale of the concept of governance, we found the idea of Multi-Level Governance, which is explained below.

**Multi-Level Governance:**

Indeed, during the last years, the significance of the supra-, international-, regional- and local- scale levels has been gaining more and more relevance for social and political processes, and therefore, acclaimed as an research's object of the political sciences. The reason why it came into scope is because of the late rise of globalization, where new vertical political linkages have emerged that are related, with several spatial scale levels between the international and the local arenas.[37] The term of Multi-Level Governance (MLG) is an extremely extensive and complex "multi-level" concept, due to its cross-linkages, which attach at many stages.[38]

The MLG concept is understood as an open and dynamic system in which powers are distributed over several spatial scale levels, and where all stakeholders involved and the institutions from the different scale levels exist in an independent way from each other, and yet, they are functionally interdependent at the same time. Therefore, an efficient coordination is needed, which is fulfilled if there is a functioning negotiation framework between the state and the stakeholders.[39] The negotiation tasks then perform and take place in different and nested policy arenas, where the State acts as moderator in the common attempt to come up with universal policies within the challenging environment of discussion of different conflict interests and needs of the different stakeholders.[40] Therefore, the idea of MLG, within contemporary governing, is to express the attempt to sum up the features of all stakeholder interactions and authorities at all levels.[41]

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[36] UN, **United Nation Governance concept**, available at: http://www.un.org/en/globalissues/governance/ (Access August 2012).

[37] Wissen M., **Politics of Scale, Multi-Level-Governance aus der Perspektive kritischer (Raum-) Theorien**. In: Brunnengräber A., Walk H., **Multi-Level-Governance: Klima-, Umwelt- und Sozialpolitik in einer interdependenten Welt**, Wissenschaftszentrum Berlin für Sozialforschung, 2007.

[38] Piattoni S., **Multi-level Governance in the EU. Does it Work?**, University of Trento, Italy, 2009. Available at: http://www.princeton.edu/~smeunier/Piattoni (Access February 2012).

[39] Wissen M., **Politics of Scale, Multi-Level-Governance aus der Perspektive kritischer (Raum-) Theorien**. In: Brunnengräber A., Walk H., **Multi-Level-Governance: Klima-, Umwelt- und Sozialpolitik in einer interdependenten Welt**, Wissenschaftszentrum Berlin für Sozialforschung, 2007.

[40] Grande E., **Multi-Level Governance: Institutionelle Besonderheiten und Funktionsbedingungen des europaeischen Mehrebenensystems**, 2000. In: ders.; Jachtensfuchs M., **Wie problemloesungsfaehig ist die EU? Regieren im europaeischen Mehrebenensystem**. In: Wissen M., **Politics of Scale, Multi-Level-Governance aus der Perspektive kritischer (Raum-) Theorien**. In: Brunnengräber A., Walk H., **Multi-Level-Governance: Klima-, Umwelt- und Sozialpolitik in einer interdependenten Welt**, Wissenschaftszentrum Berlin für Sozialforschung, 2007.

[41] Awesti A., **The European Union, New Institutionalism and Types of Multi-Level Governance**, University of Warwick, Political Perspectives EPRU, 2007. Available at: http://www.politicalperspectives.org.uk/wp-content/uploads/2010/08/EPRU-2007-S1-08.pdf (Access February 2012).

MLG rose from the thought of distributing the governing system into new fragmented political structures.[42] The authors Marks and Hooghe state that non-monopolistic authorities are more proficient and "normatively superior". Both agree that when it comes to efficient governance, these must work at a multilevel scale, being the only way for taking into account the latest updates of global policies within a local context. The governance scale must be adapted up to the externalities.[43] Therefore, MLG challenges the conservative and monopolistic idea of the state being the only dominant and most important actor within the policy-making process.[44] A key factor for the dynamics of MLG is to observe the dispersion of authority, which becomes visible when there is an absence of a permanent dominant single actor and a lack of traditional hierarchies from territorial or political administrative origin.[45] In this context, our own perception of the state's role is challenged by the MLG framework.[46] The Multi-Level-Governance debate aims to explain the influence of the multi-level systems, due to their institutional condition with the policy problem-solving government capacity.[47] In the words of Marks, pioneer author in explaining the MLG concept, who expressed the following:

> *"The point of departure for this multi-level governance is the existence of overlapping competencies among multiple levels of governments and the interaction of political actors across those levels. … Instead of the two level game assumptions adopted by state centrists, MLG theorists posit a set of overarching, multi-level policy networks. … The presumption of multi-level governance is that these actors participate in diverse policy networks and this may involve sub-national actors – interest groups and subnational governments – dealing directly with supranational actors".*[48]

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[42] Bache I., Flinders M., **Multi-level Governance**, Oxford University Press, New York, 2004.

[43] Marks G. and Hooghe L., **Optimality and Authority: A Critique of Neo-Classical Theory**, Journal of Common Market Studies, 2000. Available at: http://www.falw.vu/~mlg/papers/jcms.2000.pdf (Access February 2012).

[44] Awesti A., **The European Union, New Institutionalism and Types of Multi-Level Governance**, University of Warwick, Political Perspectives EPRU, 2007. Available at: http://www.politicalperspectives.org.uk/wp-content/uploads/2010/08/EPRU-2007-S1-08.pdf (Access February 2012).

[45] Rosenau J.N., Czempiel E.O., **Governance without government: order and change in world politics**, Cambridge University Press, 1992. In: Wissen M., **Politics of Scale, Multi-Level-Governance aus der Perspektive kritischer (Raum-) Theorien**. In: Brunnengräber A., Walk H., **Multi-Level-Governance: Klima-, Umwelt- und Sozialpolitik in einer interdependenten Welt**, Wissenschaftszentrum Berlin für Sozialforschung, 2007.

[46] Marks G. and Hooghe L. and Blank K, **State-Centric v. Multi-Level Governance**, Journal of Common Market Studies, 1996. Available at: http://www.unc.edu/~gwmarks/assets/doc/marks.hooghe.blank-european%20integration%20from%20the%201980s.%20state-centric%20v.%20multi-level%20governance.pdf (Access February 2012).

[47] Jachtenfuchs M., **Die Problemloesungsfaehigkeit der EU: Begriffe, Befunde, Erklaerungen**, 2000. In: Grande E., Jachtenfuchs M., **Wie problemloesungsfaehig ist die EU? Regieren im europaeischen Mehrebenensystem**. In: Wissen M., **Politics of Scale, Multi-Level-Governance aus der Perspektive kritischer (Raum-) Theorien**. In: Brunnengräber A., Walk H., **Multi-Level-Governance: Klima-, Umwelt- und Sozialpolitik in einer interdependenten Welt**, Wissenschaftszentrum Berlin für Sozialforschung, 2007.

[48] Marks G., Nielsen F., Ray L., Salk J. E., **Competencies, Cracks, and Conflicts, Regional Mobilization in the European Union**, Comparative Political Studies, 1996. Available at: http://www.unc.edu/~gwmarks/assets/doc/Marks.Nielsen.Salk.%20Ray%20-%20%20competencies,%20cracks,%20and%20conflicts.pdf (Access February 2012).

The same author also argues that MLG fundamental nature is a *"system of continuous negotiations among nested governments at several territories"* where the decision-making process takes place in-between global and local scenarios that are *"enmeshed in territorially overarching policy networks"*.[49]

The so called *jurisdiction* is a very important field when it comes to measuring statehood changes as an expression of the distribution of responsibilities, which, besides to the duty and resources assignments, refers to the legitimacy as well.[50] In addition, according to Bache and Flinders (2004) and followed by Skelcher (2005), MLG systems build up *"jurisdiction integrity"*. There are two types of MLG divided in Type I and Type II to make it more understandable as showed in the Table 1.1. The first characteristic describes the variations among individual jurisdictions, followed by systematic properties.

| Type. | Individual Jurisdiction Variations. | Systematic Properties. |
|---|---|---|
| I | **a]** General-purpose jurisdictions.<br>**b]** Non-intersecting memberships. | **a]** Jurisdiction at a limited numbers of levels.<br>**b]** System-wide architecture. |
| II | **a]** Task-specific jurisdictions.<br>**b]** Intersecting memberships. | **a]** No limit to the number of jurisdictional levels.<br>**b]** Flexible design. |

**Table 1.1 : Types of multi-level governance.[51]**

Following this context, and taking into account the assumption that "good" governance should be multi-level (or multi-jurisdictional), there is no specific settlement, yet, on how MLG should be structured. There are still juxtapositions depending on the point of view. On one hand, Type I contemplates the authority's distribution as a restricted amount of "general-purpose" levels, which are divided into international, national, regional, meso and local jurisdictions. In this particular case of governance, all actors involved do not overlap in their jurisdiction and the provision of policy capabilities across levels is adaptable. Nevertheless, the definitory core of type I MLG remains the individual government instead of the individual policies or institutions. Type I can be found in conventional territorial government within local and national level, and, as Skelcher

[49] Marks G., **Structural Policy and Multi-Level Governance in the EC**, The State of the European Community, 1993. Available at: http://www.princeton.edu/~smeunier/Piattoni (Access February 2012).

[50] Burchardt H.J., Ernst T., Isidoro Losada A.M., **More Levels than Governance: Transnationale Mehrebenenpolitik am Beispiel lateinamerikanischer Sozialfonds**. In: Wissen M., **Politics of Scale, Multi-Level-Governance aus der Perspektive kritischer (Raum-) Theorien**. In: Brunnengräber A., Walk H., **Multi-Level-Governance: Klima-, Umwelt- und Sozialpolitik in einer interdependenten Welt**, Wissenschaftszentrum Berlin für Sozialforschung, 2007.

[51] Source: Table modified by author, from Bache I., Flinders M., **Multi-level Governance**, Oxford University Press, New York, 2004.

pointed out, being *"the predominant mode within national politics"* with a *"hierarchically ordered system of multi-purpose government"*.[52,53]

On the other hand, Type II has another point of view of governance and envisions *"specialized jurisdictions"* at the time to solve each problem. The jurisdiction's amount in this case is great, as much as its scale variations. One of the most important characteristics of this kind of jurisdiction, contrary to Type I, is that it is much more flexible (instead of durable) depending on the governance demands and changes: each one of them is specificly targeted. MLG type II has the tendency of being inserted within legal frameworks of Type I, as it works well when it comes to tackle issues that are not suitable for Type I's policy actions.[54,55]

One of the biggest advantages of MLG is the flexibility of its scale at the moment to take action toward all kind of externalities. Even when Type I and Type II have many differences of governance approaches and unique characteristics, they both present scale flexibility. However, the first one is more intrinsic communities oriented, with their self-rule requirements and their conflict resolution purposes, while the second type is more appropriate for extrinsic communities and conflict avoidance. Even though there are many differences between these two types of governance, they balance and complement each other.[56]

As can be seen in Table 1.2, according to Piattoni and Wissen, at the time of assessing if a policy-making process belong to an order of MLG, it is necessary to meet four requirements:

[52] Bache I., Flinders M., **Multi-level Governance**, Oxford University Press, New York, 2004.

[53] Skelcher C., **Jurisdictional Integrity, Polycentrism, and the Design of Democratic Governance**, Governance, 2005. Available at: http://onlinelibrary.wiley.com/doi/10.1111/j.1468-0491.2004.00267.x/pdf (Access February 2012).

[54] Bache I., Flinders M., **Multi-level Governance**, Oxford University Press, New York, 2004.

[55] Skelcher C., **Jurisdictional Integrity, Polycentrism, and the Design of Democratic Governance**, Governance, 2005. Available at: http://onlinelibrary.wiley.com/doi/10.1111/j.1468-0491.2004.00267.x/pdf (Access February 2012).

[56] Bache I., Flinders M., **Multi-level Governance**, Oxford University Press, New York, 2004.

| The MLG concept must meet four requirements: |
|---|
| **1]** involve great attention to the social production of multi-level systems, due to different levels of regimes that are simultaneously engaged in policy making. |
| **2]** to assess the stakeholder's range in order to complement those stakeholders, whose problem definition and social practices are outside the dominant perception's patterns, institutions and decision-making systems and, therefore, neglected or existentially treated, even though they represent the answers to many overall social questions. Therefore, non-public stakeholders also need to be identified at public levels, because the probable interrelationships created by them may resist existing governmental hierarchies and rather take the composition of non-hierarchical systems. |
| **3]** strengthen not only the vertical, but also bring into focus the horizontal displacements of power. |
| **4]** require a correction of the problem-solving orientation of the multi-level debate in favor of a stronger weighing of the analysis of social power and domination relationships. |

**Table 1.2: Four requirements for MLG**[57]

Thus, MLG always incorporates a spatialized understanding of governance which may emerge in deliberate politics of scale. Therefore, a conceptual connection between the different stakeholder groups, social interactions and spatial configurations is required. Spatial conflicts are seen and understood as "problems", based on asymmetric distribution of power and manifest themselves in space or spatial development. In such a case, the intrinsic conflict problems need to be identified, and the patterns of interests and power relations need to be explored. Finally, the framework of spatial conflict approaches within the MLG should be discussed.[58]

The subsequent Table 1.3 illustrates the characteristics of the regional spatial references, which are classified according to the three references: 1] space, 2] scale, and finally, 3] issues.

[57] Source: **Own Creation** after Wissen M., **Politics of Scale, Multi-Level-Governance aus der Perspektive kritischer (Raum-) Theorien**. In: Brunnengräber A., Walk H., **Multi-Level-Governance: Klima-, Umwelt- und Sozialpolitik in einer interdependenten Welt**, Wissenschaftszentrum Berlin für Sozialforschung, 2007. **and** Piattoni S., **Multi-level Governance in the EU. Does it Work?**, University of Trento, Italy, 2009. Available at: http://www.princeton.edu/~smeunier/Piattoni (Access February 2012).

[58] Pütz M., Vogelpohl K., **Raumbezogene Konflikte bei Multi-Level-Governance: Fallstudien zu Strukturpolitik und Raumplanung**. In: Brunnengräber A., Walk H., **Multi-Level-Governance: Klima-, Umwelt- und Sozialpolitik in einer interdependenten Welt**, Wissenschaftszentrum Berlin für Sozialforschung, 2007.

| References | Characteristics | | |
|---|---|---|---|
| **1] Space** | traditional spatial understanding describes physical space regions. The space is seen as something given, a material nature property that outlines an abstract container for ideologies, a region that is not a formal container for the economy and society, but rather an institutional intertwining-based relation and action context. It is important to take into consideration that regions cannot be defined exclusively as functional, but always represent a spatial category or (sub) spaces. Additionally, regions are a characteristic of modern regionalization, and the resulting structures are rather discontinuous, heterogeneous and distinguishably blurred. | | |
| **2] Scale** | In everyday's language, regional scale refers to a scale area above the local or municipal level and below the national level, also described as Meso-Level. Within this scale range, usually several regions overlap with each other. This spatial-scale term contains three conceptual connotations: | | |
| | a) in political terms, the region is not only a spatial neutral intermediate level, but implies also a tension between the local and higher levels of government. | b) social life at the different scales is structured differently, so that there are qualitative jumps between the local and regional level, on the one hand, and between regional and national government on the other. | c) there are divergent cultural visions depending on the forms of communication at several scale varieties. While at the local level face-to-face contacts are usually easily created, at the regional scale communication must be conveyed through technical and media ways. |
| **3] Issues** | regions can be considered as being related to different criteria contents from the perspective of the different stakeholders with their different interests. Therefore, regions are constructed in two ways: | | |
| | a) as the result of human activity and, consequently, a historical and social construction. | b) as an analytical tool of science, and therefore, an intellectual and epistemological construction. | |

**Table 1.3: Regional Spatial References and it characteristics**[59]

The concepts of Governance and MLG are directed linked to the idea of Interactive Governance (IG) that practically uses MLG as keystone.

**Interactive Governance:**

This concept underlines *"the whole of interactions taken to solve societal problems and to create societal opportunities; including the formulation and application of principles*

[59] Source: Own Creation after Blotevogel H.H., **Zur Konjunktur der Regionsdiskurse. Informationen zur Raumentwicklung**, 2000. In: Pütz M., Vogelpohl K., **Raumbezogene Konflikte bei Multi-Level-Governance: Fallstudien zu Strukturpolitik und Raumplanung**. In: Brunnengräber A., Walk H., **Multi-Level-Governance: Klima-, Umwelt- und Sozialpolitik in einer interdependenten Welt**, Wissenschaftszentrum Berlin für Sozialforschung, 2007.

*guiding those interactions and care for institutions that enable and control them"*[60]. According to Kooiman, the *"interaction"* ingredient is what makes this conception so original. He argues that these interactions are necessary in order to be able to tackle barriers and go after new openings. Thus, the classification of a difficulty or an opportunity is subjected to the point of view and perception of the spectator. In this context, the IG approach supposes that the governance system is attached to constant alterations, reacting to external as well as to internal factors.[61] This theory of IG studies the governing system according to the elements, modes and orders of governance.[62] In the following figure, we can appreciate the components of the IG model:

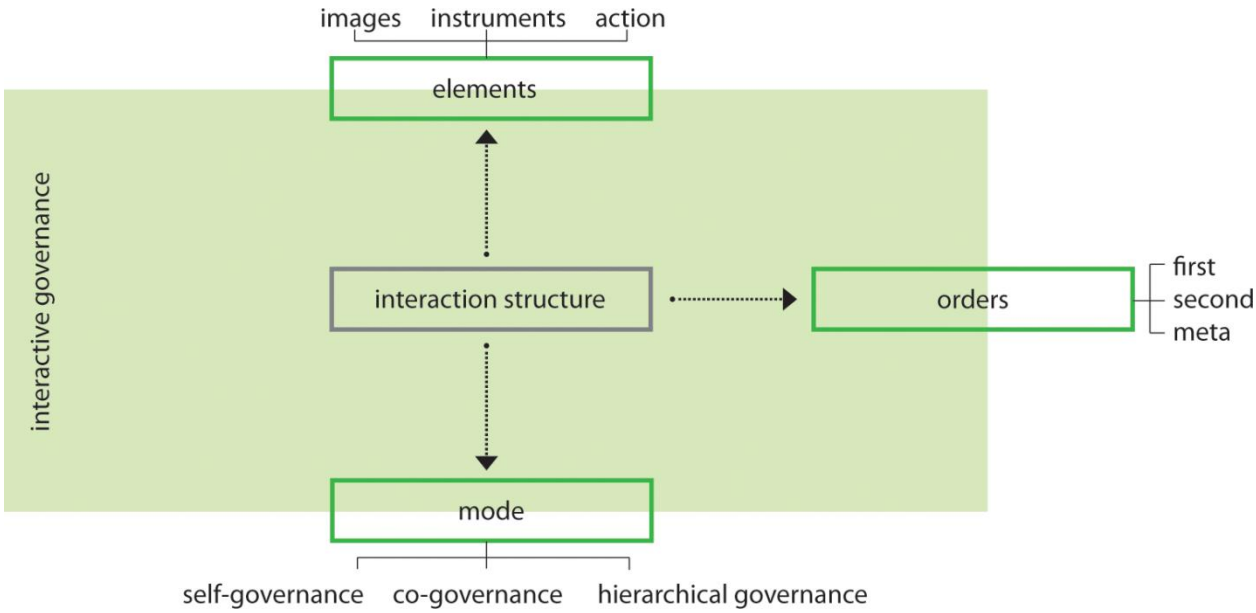



**Figure 1.1: Components of the Interactive Governance model.**[63]

As showed in the Figure 1.1, the **elements** of the IG are subdivided into images, instruments and action. In this context, **images** are referred to guidelines toward *"the how and why"*: it is all about visions, awareness, facts, conclusions, suppositions, goals, etc. **Instruments** are in charge of connecting the images into **action**, while this last one is responsible of executing the instruments, for instance, policies implementation.[64]

[60] Kooiman J., Bavinck M., Jentoft S. and Pullin R., **Fish for life**, Amsterdam University Press, 2005. s.17

[61] Kooiman J., Bavinck M., Chuenpagdee R., Mahon R., Pullin R., **Interactive Governance and Governability: An Introduction**, The Journal of Transdisciplinary Environmental Studies vol.7, no.1, 2008. Available at: http://www.journal-tes.dk/vol_7_no_1/no_2_Jan.pdf (Access February 2012).

[62] Kooiman J., **Governing as Governance**, 2003. p.135

[63] **Source:** Kooiman J., Bavinck M., Chuenpagdee R., Mahon R., Pullin R., **Interactive Governance and Governability: An Introduction**, The Journal of Transdisciplinary Environmental Studies vol.7, no.1, 2008. Available at: http://www.journal-tes.dk/vol_7_no_1/no_2_Jan.pdf (Access February 2012). **Modified by Author.**

[64] Kooiman J., Bavinck M., Chuenpagdee R., Mahon R., Pullin R., **Interactive Governance and Governability: An Introduction**, The Journal of Transdisciplinary Environmental Studies vol.7, no.1, 2008. Available at: http://www.journal-tes.dk/vol_7_no_1/no_2_Jan.pdf (Access February 2012).

Another important part of the IG is the **Orders of Governance** (See Figure 1.1 and 1.2), where it is possible to visualize *"the who does what"*. **The First Order of Governance** refers to stakeholders tackling *"problems or creating opportunities on a day-to-day basis"*. In this governance layer, societal difficulties are detected and formulated, such as supply, values, services, etc. It is also were the problems are solved: a "solution space".[65] **The Second Order of Governance** denotes the institutional agreements between the first order and the third order of governance. This order also offers the measures for success and failure criteria. **The Third Order or Meta-Governance** supplies, connects and assesses the governing exercise.[66]

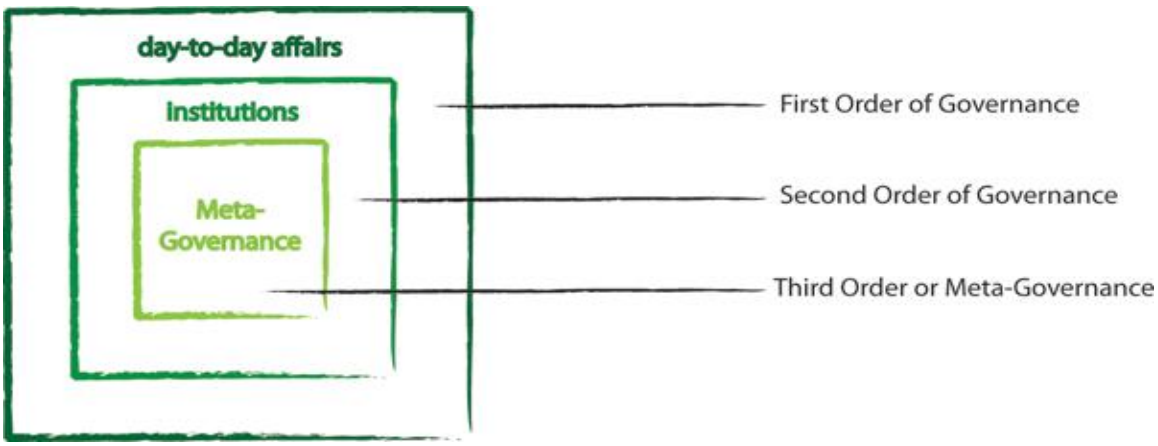



**Figure 1.2: Orders of Governance.**[67]

The **Mode of Governance** is classified in Self-Governance, Co-Governance and Hierarchical-Governance. As the words already indicate, **Self-Governance** assumes that stakeholders watch out for situations by themselves, while the **Co-Governance** mode implies that different societal actors get together within a common goal, which usually involves the use of planned forms of interaction for specific intentions (for instance, public-public and public-private partnership networks). **Hierarchical-Governance** is the *"classical mode"* and handles the relation between the state and its citizens, which is a clear top-down approach, where control is articulated through policies and laws application.[68]

[65] Kooiman J., **Governing as Governance**, 2003. p.135

[66] Kooiman J., Bavinck M., Chuenpagdee R., Mahon R., Pullin R., **Interactive Governance and Governability: An Introduction**, The Journal of Transdisciplinary Environmental Studies vol.7, no.1, 2008. Available at: http://www.journal-tes.dk/vol_7_no_1/no_2_Jan.pdf (Access February 2012).

[67] Source: **Own creation** after Kooiman J., Bavinck M., Chuenpagdee R., Mahon R., Pullin R., **Interactive Governance and Governability: An Introduction**, The Journal of Transdisciplinary Environmental Studies vol.7, no.1, 2008. Available at: http://www.journal-tes.dk/vol_7_no_1/no_2_Jan.pdf (Access February 2012).

[68] Kooiman J., Bavinck M., Chuenpagdee R., Mahon R., Pullin R., **Interactive Governance and Governability: An Introduction**, The Journal of Transdisciplinary Environmental Studies vol.7, no.1, 2008. Available at: http://www.journal-tes.dk/vol_7_no_1/no_2_Jan.pdf (Access February 2012).

Governance, MLG and IG effectiveness advance toward sustainable development, which is the following concept to be explained.

**Sustainable Development:**

Even when the concept of "Sustainable Development" has different definitions depending on the author or organization, the concept that will be implemented in this investigation follows the World Commission on Environment and Development, and is the one used by the UNEP at the pilot SUSHI projects.

Sustainable development is defined as the "*capacity to meet the needs of the current generation without compromising the ability of future generations to meet their own needs*"[69]. The concept is based on the triple bottom line and involves environmental, social and economic dimensions, as illustrated in Figure 1.3.

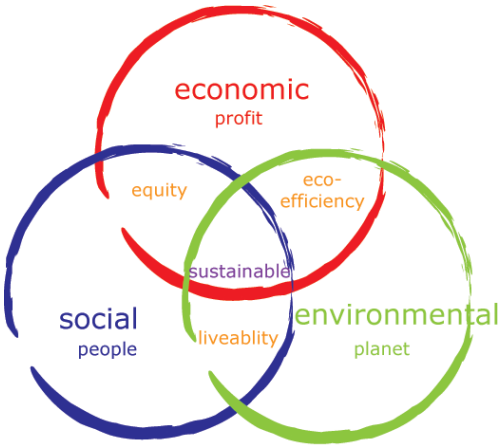



**Figure 1.3 – Sustainability dimensions.**[70]

Therefore, the UNEP sustains that in order to apply the sustainability concept to social building constructions, the following aspects should be observed in each of its dimensions:

**1) Environmental dimension:** minimizes the global environmental impact according to global and local priorities. This means that each country, region and even each housing project needs to identify the main environment impacts, establish environment priorities (environmental agenda) and seek and develop solutions to minimize impact. Therefore, the importation of diagnoses is not

[69] **World Commission on Environment and Development**, 1987.

[70] **UNEP**, 2007.

adequate and the knowledge and solutions generated in other contexts should be carefully discussed.

**2) Social dimension:** the main concern is to provide comfort and maximize society's quality of life and, more specifically, the quality of life of users. Of course, housing *per se* – provided it has an adequate technical performance – is an important quality-of-life improvement. However, on the other hand, one cannot forget that workers quality of life, occupational health and safety, the impact of social housing projects on the neighborhood during construction and the use of those homes are also part of the equation.

**3) Economic dimension:** promotes the search for solutions that are economically viable, throughout the life cycle, in the real situation of use.

**Sustainable Social Housing:**

*Sustainable Housing* has many different meanings, depending in the context and approaches in which is used. Actually, there is no accurate definition about its significance. [71] This concept was brought into discussion at the beginning of the 70's, after the Club of Rome reports and the oil crisis. Some years later, this was further accentuated after the Brundtland report results, where the concept was extended into all sustainable development dimensions: social, economic and environmental.[72] The UN-HABITAT defined Sustainable Social Housing as a *"housing which is reasonably affordable to the population that it will serve. It is not synonymous with 'social' or low income housing. And, generally speaking, the sustainable aspect of this term refers to housing which minimizes environmental impacts and is durable and permanent"*.[73] Hereby, and following this line of thinking, the author will utilize this terms of concept when referring to *sustainable social housing* during this master thesis.

**Sustainable Solution (or alternative solution):**

The context of the definition of sustainable solution will be the same as the one utilized for the SUSHI project, which diverges from the business-as-usual solution. Its definition is utilized as a solution that enhances a positive impact within one or more of the sustainable development dimensions: environmental, social and/or economic. The

[71] Hyde R., **Bioclimatic Housing: Innovative Designs for Warm Climates**, 2008.

[72] Nijenmanting F.C., Senel M.S., **Design of an affordable and sustainable house concept for the Netherlands**, Main Report, Technische Universiteit Eindhoven, University of Technology. Department of ARchitecture, Building and Planning & Department of Mechanical Engineering, 2010. Available at: http://sts.bwk.tue.nl/PaulRutten/SET/Past%20projects/MSc%20thesis%20Nijenmanting%20Senel.pdf (Access August 2012).

[73] UN-HABITAT, **Sustainable Building Practices for Low Cost Housing: Implications for Climate Change Mitigation and Adaptation in Developing Countries**, 2011. Available at: http://www.unhabitat.org/downloads/docs/10785_1_594340.pdf (Access August 2012).

sustainable solutions adopted in the SUSHI project centered on energy efficiency and natural resources efficiency subjects.[74]

## 1.5 Methodology.

To design an evaluation strategy that brings together all levels of key factors into an integrated evaluation methodology, allowing at the same time that the results of one step are used as the key in the next one, is only possible when creating a multivariable tool with several key points; first, the identification of the steps to be evaluated; second, the decision on the proper technique and evaluation tools suitable for each step in the process; and third, the need of a transfer system among the evaluated steps, in order to guarantee their proper work and connection.[75]

When we talk about evaluation methods, there are plenty of instruments as well as literature that describe them. Some of the most known and easy-to-implement evaluation methods are: ABC analysis, AHP-based approach, A-T-A-R model, consensus mapping, cost-benefits analysis, decision threes, delphi technique, evaluation matrix, FMEA (Failure Modes and Effects Analysis), grid analysis, impact analysis, kano model, Kepner Tregoe matrix, NAF (Novelty Attractiveness Feasibility), paired comparison analysis, pareto analysis, PMI analysis, Respetable questions diagrams, sticking dots, SWOT analysis, TRIZ, Value analysis, Vroom-Yetton-Jago Decision Model, among many others.[76]

When dealing with desicion-makers, leaders, requiring to find a methodology for structuring the needs and finding solutions in order to meet appropriate answers, an evaluation matrix is a very suitable system, and these are the steps to be followed:

[74] UNEP, **Sustainable Social Housing Initiative (SUSHI) Phase II, Latin America and the Caribbean**, Draft Project Document v.1

[75] ISSCO, **Evaluation Methodology**, Genève University, 2008. Available at: http://www.issco.unige.ch/en/research/projects/ewg95//node225.html (Access July 2012).

[76] Rebernik M., Bradač B., **Module 4: Idea evaluation methods and techniques**, Available at: http://www.creative-trainer.eu/fileadmin/template/download/module_idea_evaluation_final.pdf (Access July 2012).


**Graph 1.1: Evaluation Matrix Steps.**[77]

The evaluation matrix (also known as decision matrix, AHP matrix, among others) helps the researcher to evaluate something following certain pre-defined success criteria. This instrument of evaluation has many possible application options and is very useful at the time to consider multi-factors within multi-level targets to be evaluated, as it helps to choose the most suitable solutions among many potential ideas. At the same time, it is a proper tool to solve problems. However, the efficiency of its results is direct linked to its previously selected achieving criteria.[78]

The nature of the evaluation matrix is to support decision-makers as an instrument of their Decision-Support System (DSS) toolbox, which presents a range of priority's needs on one axis, with the aim of evaluating them through a criteria score, which is located in the other axis. Therefore, the matrix is usually built up between 2 dimensions. The final results after being evaluated, according to the scores set up in the success criteria, will influence the final decision-making-process.[79] In addition, the Evaluation Matrix supports the possibility to categorize the strengths-weaknesses of the selected options through a very rapid process, ideal for decision-makers to organize imperative factors when it comes to designing implementation strategies.[80]

The methodology for this master research is developed through five steps, each one of them belonging to a specific objective of this research. These are illustrated in the following Figure 1.4:

[77] **Source: Own creation** after **Decision matrix: definition and examples**, 2012. Available at: http://rfptemplates.technologyevaluation.com/What-is-a-Decision-Matrix.html (Access July 2012).

[78] Rebernik M., Bradač B., **Module 4: Idea evaluation methods and techniques**, Available at: http://www.creative-trainer.eu/fileadmin/template/download/module_idea_evaluation_final.pdf (Access July 2012).

[79] **Decision matrix: definition and examples**, 2012. Available at: http://rfptemplates.technologyevaluation.com/What-is-a-Decision-Matrix.html (Access July 2012).

[80] Rebernik M., Bradač B., **Module 4: Idea evaluation methods and techniques**, Available at: http://www.creative-trainer.eu/fileadmin/template/download/module_idea_evaluation_final.pdf (Access July 2012).

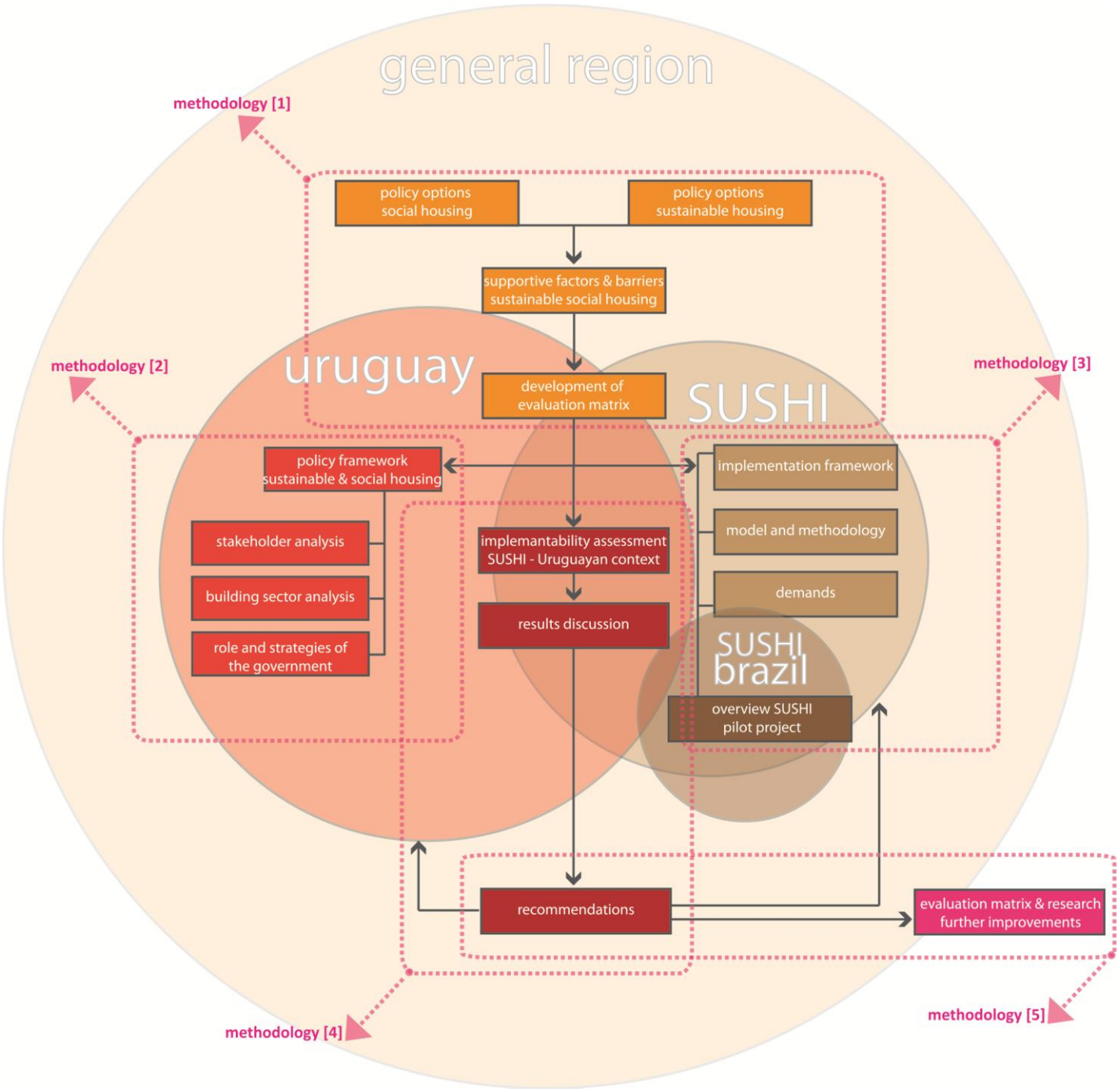



**Figure 1.4: Methodology Workflow.**[81]

**[1] Methodology for specific objective 1: discuss the success criteria for the implementation of a sustainable social housing policy framework.**

The most important first step is to find supportive factors and possible obstacles for sustainable social housing implementation., The generalized policy framework for social housing as well as for sustainable housings generated based on a profound literature

[81] Source: **Own creation.**

review and already drawing on general input from expert interviews. This framework will be used to identify the opportunities and barriers for sustainable social housing and how to implement specific policy instruments and tools.

The output of this study will be crucial at the time of creating a systematic schema for success criteria of policy framework in sustainable social housing. Therefore, the aim is to find success criteria will that enable this investigation to measure success factors from the SUSHI project in Brazil as well as from the Uruguayan conditions that are suitable for the SUSHI implementation. In order to do this, a Matrix for evaluating success criteria of policy framework in sustainable social housing will be created, starting as key targets energy efficiency, the water agenda and social welfare. The framework of these three targets is going to be analyzed within the social housing and the sustainable housing context of the region by focusing on policies and standardized instruments. A bibliographical study is the principal tool to be used to achieve this first objective of the master thesis. This approach will allow me to identify criteria patterns in both the SUSHI Brazil and the Uruguayan social housing situation in such a way as to be able to underline their matches and discrepancies.

**[2] Methodology for specific objective 2: evaluate the current Uruguayan framework of sustainable social housing policies.**

The core at this point of the research is going to be the case study: the Uruguayan sustainable and social housing situation. **First**, it is necessary to analyze the policy framework for social housing in Uruguay. Therefore, a Stakeholder Analysis (SA) is the method selected by the author, such SA is usually applied, not only in order to identify stakeholders, but rather to understand institutional and policy processes. SA emerged and was traditionally used within the business sciences, and yet, nowadays has spread and is very common in economics, politics, decision-making and environmental sciences.[82] A SA assists at the time for researchers to recognize stakeholders interests, possible barriers, opportunities and relationships necessary to develop a project or program, potential local group partners as well as suitable stakeholders approach and negotiation strategies.[83] Additionally, plenty of instruments are available for SA and it is

[82] **World Bank**. Available at: http://www1.worldbank.org/publicsector/anticorrupt/PoliticalEconomy/stakeholderanalysis.htm (Access July 2012).

[83] **WWF**, Cross-Cutting Tool: Stakeholder Analysis, 2005. Available at: http://www.google.de/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CEwQFjAA&url=http%3A%2F%2Fwww.panda.org%2Fstandards%2F1_1_stakeholder_analysis%2F&ei=bngOUKCHM8uL4gSJwYC4Cg&usg=AFQjCNGN-Si2XqAe1oxStjGLZERzI6THQ&sig2=oN_Nyk7u5LqeNULHNPoh6w (Access July 2012).

very flexible when it comes to the data origin, due that both qualitative and qualitative information apply.[84]

**Second**, a building sector analysis will be made in order to determine the market statistics and detect actors and responsibilities in building life cycle within the Uruguayan situation. In addition, the role and strategies of the government within its sustainable development dimensions will be scrutinized: social dimension (public policies), economic dimension (public policies and incentives) and environmental dimension (environmental policies and incentives).

To conclude with this specific objective, the outcome will be discussed in order to be able to evaluate the Uruguayan situation toward sustainable social housing according to the Matrix of Success Criteria created previously. Also, another instrument that will be applied is the: expert interviews, in this case with policy makers, government representatives, technical professionals, etc. Where the selection of interviewees will follow the *Snowball sampling*, as the range of experts is assumed to be a rather small and closely linked group of stakeholders, and therefore, this technique is well known as being very suitable to identify them.[85]

**[3] Methodology for specific objective 3: evaluate the SUSHI project demands toward its respective implementation context.**

To meet objective 3 it will be required to have a detailed overview of the implementation framework of the SUSHI. This includes a study of the SUSHI's demands toward sustainable development conditions (social, economic and environmental dimensions), implementation model and methodology as well as success factors of the pilot project in Sao Paolo, Brazil.

The aim of this specific objective is to get indispensable results that also will be later discussed in order to be able to evaluate its implementability (matrix) within the Uruguayan context. Besides the already mentioned Matrix, other instruments will be used in this case as well, some interviews with end users currently living in the pilot SUSHI project in Sao Paolo.

[84] **World Bank**. Available at: http://www1.worldbank.org/publicsector/anticorrupt/PoliticalEconomy/stakeholderanalysis.htm (Access July 2012).

[85] Varvasovszky Z., Brugha R., **How to do (or not to do) ... A stakeholder analysis**, Health Policy and Planning; 15(3): 338-345, Oxford University Press, 2000. Available at: http://heapol.oxfordjournals.org/content/15/3/338.full.pdf (Access August 2012).

**[4] Methodology for specific objective 4: discuss recommendations of adaptive implementation of SUSHI in Uruguay.**

Once the results of the evaluation matrix are properly compared and analyzed, the decision-makers encompass the knowledge required in order to recognize the weakness and strength of the case study policy framework and be able to assess the implementability of SUSHI within the Uruguayan context.[86] Therefore, this last step of the research's methodology will analyze the adaptability of the SUSHI project within the Uruguayan context contrasting the results of the Matrix of Success Criteria from the Uruguayan framework and the SUSHI implementation demands.

The conclusions of these results discussion will lead toward two types of recommendations: on one hand, an adaptation strategy for the SUSHI project implementation for the Uruguayan context; and on the other hand, recommendations for improving the Uruguayan framework towards sustainable social housing. The tools to be used in this case are the outcomes of previous methodology steps enriched by theoretical bibliography in order to support recommendation's arguments.

**[5] Methodology for specific objective 5: discuss the possibilities for further improvements of the success criteria evaluation matrix.**

In order to fulfill this objective, the author will discuss possible further improvements for the success criteria evaluation matrix and further research needs, that because time issues was not possible to develop within this thesis. To do so, bibliography will be used, as well as the results of the entire research. These will be analyzed and the respectively outcome will be discussed and recommendations will be developed for additional investigation.

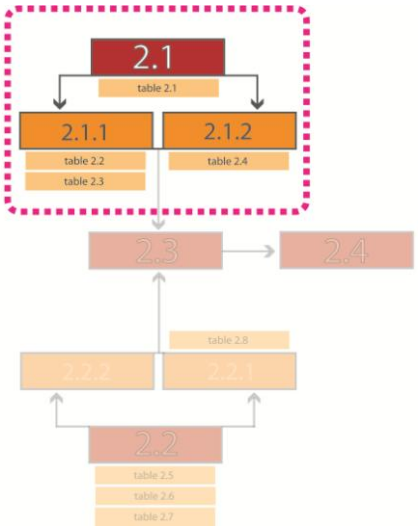
[86] **Evaluation Methodology Report: Benchmarking of virtual campuses**, Benchmarking of Virtual Campuses Project, 2002, Available at: http://www.benvic.odl.org/16_02_tot.pdf (Access July 2012).

# 2. Supportive Factors and barriers for Sustainable Social Housing Implementation.

Before starting with this chapter, the author decided to show the figure 2.1, in order to give the reader a clear overview about its content distribution.


**Figure 2.1: Chapter's Content Overview.**

## 2.1 Policy Framework.




It is a fact, countries in Latin American and Caribbean own the largest urbanism rates and housing ownership among all developing countries. In addition, the average-income is also very high. However, the gap between poor and rich is also huge; from the 130 million families living in urban areas, 5 million depend on others help for refugee, 3 million live in extreme poorly constructed houses and the great number of 34 million subsist in irregular settlements, with no services, no infrastructure or public transportation, in acute poor conditions and overcrowded. Nevertheless, many families living in these situations do not belong necessarily to the poorest population sector, but rather from middle-income layers of society.[87]

Cities growth depend on how the land is managed and build up, if the populations layers are integrated or segregated within the city's neighborhoods, if there is a sprawl or a compact city, formality or informality tendencies, among others. Therefore, setting a stage for a good policy framework among social housing that controls the housing development is a very important role of the government.[88] According to the Inter-American Development Bank (IDB), governments have the tools to take the initiative in designing legal frameworks in order to enable low-income families to get access of proper housing in order to create more equally heterogenic organization among the population.[89]

In addition, the largest part of Latin America's government have already realized that providing access to housing for low-income families has become a key issue, which made the authorities and its policies the most important factor among social housing subjects.[90] Notwithstanding Latin American countries efforts, the deficit within social housing policies is big. The most tangible proof of that is the permanent growing of the informal housing market, that nowadays round the 70% of the housing construction, that has being built through informal methods. Reinforcing this vacuum, in most cases,

[87] Buillon C.P., **Room For Development, Housing Markets in Latin America and the Caribbean**, IBD, 2012.

[88] UN-HABITAT, **Affordable Land and Housing in Latin America and the Caribbean**, 2011, Available at: http://www.unhabitat.org (Access July 2012).

[89] IDB 2004, in UN-HABITAT, **Affordable Land and Housing in Latin America and the Caribbean**, 2011, Available at: http://www.unhabitat.org (Access July 2012).

[90] UN-HABITAT, **State of the world's cities 2006/7**, Nairobi, 2006. Available at: http://www.unhabitat.org/pmss/listItemDetails.aspx?publicationID=2101 (Access July 2012).

governments respond to this tendency more in a reactive than a proactive way, situation that usually ends up in an increase of informality.[91]

Ever since 2001, after the United Nations General Assembly's "Declaration on cities and other human settlements in the new millennium", it became clear that social housing policies - with its respectively implementation strategies - started to be considered as an additional ingredient within urban governance practices. Therefore, in need of supporting decentralization processes and the enforcement of financial and institutional capacities of local governments as promoters of the Habitat Agenda. At the same time, guaranteeing, at all governance levels, transparency, accountability and people needs responses. In addition, there was a broader consensus on the fact that there is more community involvement, which is also very important. Besides, the tendency of taking more into consideration poor`s real needs and the improved operation of the existing housing supply, as well as supporting the security tenure in order to avoid force evictions. [92,93]

Given the scale of the challenge, UN-HABITAT underlines the importance of participation and coordination of the local populations, governments, NGOs, local and international stakeholders, in the constantly search of alternatives. This, in order to deliver multi-level-governance solutions for social housing improvements.[94] It is essential not to forget the fact that a good social housing governance is a key issue, and the reason why is because it settles on the hierarchy, finance tools available, level of housing development and management activities, among all the stakeholders involved.[95] Hence, crucial factors are the knowledge and understanding from decision makers of local authorities on the multi-level governance of social housing, thus, in order to achieve successfully results from the designed social housing programs. In this case, one thing is direct linked to the other. For example, if the housing finance sector is not properly developed, this will lead

[91] UN-HABITAT, **Financing Urban Shelter: Global Report on Human Settlements, United Nations Human Settlements Programme**, Nairobi, 2005. Available at: http://www.unhabitat.org (Access July 2012).

[92] United Nations, **Resolution adopted by the General Assembly**, General Assembly, 2001. Available at: http://www.google.de/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CE4QFjAA&url=http%3A%2F%2Fwww.unhabitat.org%2Fdownloads%2Fdocs%2F2071_246_A_RES_S25_2.doc&ei=_qgCUPf2Nsbk4QT6q6GFCA&usg=AFQjCNHibOBBn2ETMDoY6PJJEJZXz1Z08g&sig2=e3xJpuMsHzmop5Po2T6eMQ (Access July 2012).

[93] Erguden S., **Low-Cost Housing: Policies and Constraints in Developing Countries**, Housing Policy Section, United Nations Center for Human Settlements (Habitat). Available at: http://www.fig.net/pub/proceedings/nairobi/erguden-CMTS1-1.pdf (Access July 2012).

[94] UN-HABITAT, **Affordable Land and Housing in Latin America and the Caribbean**, 2011, Available at: http://www.unhabitat.org (Access July 2012).

[95] Council of Europe, **Housing Policy and Vulnerable Social Groups**, Report and guidelines prepared by the Group of Specialists on Housing
Policies for Social Cohesion (CS-HO), 2008. Available at:
http://www.coe.int/t/dg3/socialpolicies/socialrights/source/Publication_Housing%20policy%20vulnerable%20groups.pdf (Access July 2012).

to end users (low and middle- income families in this case) not to be able to manage to pay for those housing costs. Therefore, when the finance programs within social housing are well managed, there is also less pressure from society for subsidies.[96]

In addition, it is expected for local authorities' objectives to enclose targets that adopt the Agenda 21 and Habitat Agenda criteria. Within this strengthening approach, it increases the importance to include in their strategies, as major responsibility of the local authorities, the implementations of appropriate sustainable programs for the poor layer of its society.[97] According to the World Bank (WB), policies implemented by governments should also support the local housing market, and in order to do so, the authorities responsible for the decision-making process count with seven tools that facilitate the achievement of this goal, these are explained in the following table, which is divided in two major groups: the demand- and supply-side.[98]

| Demand-Side | |
|---|---|
| **Develop property rights** | Establish by law the right to ownership.<br>Develop programs that regulate and register irregular tenures. |
| **Incentive mortgage finance** | Develop finance institutions that enable the loan accessibility of the poor. |
| **Appropriate subsidies** | Make sure that subsidies and incentives are suitable, well-targeted, measurable, transparent and up to the poor needs, that, at the same time, do not overlap with the housing market. |

[96] Council of Europe, **Housing Policy and Vulnerable Social Groups**, Report and guidelines prepared by the Group of Specialists on Housing
Policies for Social Cohesion (CS-HO), 2008. Available at:
http://www.coe.int/t/dg3/socialpolicies/socialrights/source/Publication_Housing%20policy%20vulnerable%20groups.pdf (Access July 2012).

[97] United Nations, **Resolution adopted by the General Assembly**, General Assembly, 2001. Available at: http://www.google.de/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CE4QFjAA&url=http%3A%2F%2Fwww.unhabitat.org%2Fdownloads%2Fdocs%2F2071_246_A_RES_S25_2.doc&ei=_qgCUPf2Nsbk4QT6q6GFCA&usg=AFQjCNHibOBBn2ETMDoY6PJJEJZXz1Z08g&sig2=e3xJpuMsHzmop5Po2T6eMQ (Access July 2012).

[98] Council of Europe, **Housing Policy and Vulnerable Social Groups**, Report and guidelines prepared by the Group of Specialists on Housing
Policies for Social Cohesion (CS-HO), 2008. Available at:
http://www.coe.int/t/dg3/socialpolicies/socialrights/source/Publication_Housing%20policy%20vulnerable%20groups.pdf (Access July 2012).

| Supply-Side | |
|---|---|
| **Ensure suitable infrastructure for urban development** | Incentive and coordinate infrastructure-supply stakeholders in order to join efforts focused on the improvement of infrastructure and services for proficient residential development. |
| **Regulate land and housing development** | Balance cost-benefits of regulation framework for land and housing markets. |
| **Organize the building industry** | Encourage more competiveness among the construction industry.<br>Eliminate constrains to the develop and use of local construction materials.<br>Shrink constrains for housing inputs trade. |

**Table 2.1: Instruments to support Housing Market within Social Housing policies.**[99]

## 2.1.1 Policy Options for Social Housing.

Apart from the reality that in the last decades a lot of improvements within social housing policy formulation have been made, there is still a significant gap between the policy formulation and the implementation phase, resulting in very disappointing achievements when it comes to the social housing's end product.[100] With regard to this policy-implementation-gap, many barriers and limitations can be found within social housing governance. According to the author Erguden, some of these issues are lack of effective implementation strategies and promotion of security tenure, lack of available affordable land with appropriate infrastructure and services, insufficiency and/or not suitable finance system and bad quality of construction materials and technologies. Additionally, another important "hold back" issues are the lack of public support in case of small-scale projects, as well as the utilization of standards and legislation unsuitable and out of place within the local context, insufficient participation of the civil population supporting self-help projects, poor research and pilot projects and inadequate

[99] Source: Own Creation after World Bank reference founded in **Housing Policy and Vulnerable Social Groups**, Report and guidelines prepared by the Group of Specialists on Housing Policies for Social Cohesion (CS-HO), 2008. Available at: http://www.coe.int/t/dg3/socialpolicies/socialrights/source/Publication_Housing%20policy%20vulnerable%20groups.pdf (Access July 2012).

[100] Erguden S., **Low-Cost Housing: Policies and Constraints in Developing Countries**, Housing Policy Section, United Nations Center for Human Settlements (Habitat). Available at: http://www.fig.net/pub/proceedings/nairobi/erguden-CMTS1-1.pdf (Access July 2012).

interpretation and utilization of research lesson-learned.[101] More details about barriers and opportunities will be discussed in the section *2.2.2 Barriers and Opportunities* of this chapter.

Governments should be gradually improving security of land tenure. Additionally, they should support improvements in management and land administration, thus reducing transaction costs and limiting bureaucratic procedures that inhibit and slow down the desired development.[102] Shaping land regulations in a way that result suitable for private developers to invest in social housing projects[103], as well as accelerate projects approval processes, and encourage housing market for the low-income population. Following these purposes, the government can also act as backup guarantee for loans targeting the low-income families, in a way that encourage the private financial institution to participate more actively in social housing programs. Improving the cadastral and general information flow quality about the housing and land market also enables the private investor to have a better and clear vision of market rules at the time of taking decisions. [104]

The following table will describe possible policy options and action strategies available for governments, in order to achieve good governance approaches within social housing.

| Local Authority Actions | Characteristics |
|---|---|
| **Effective implementation strategies** | Promote social housing stakeholder potential roles. Support implementation strategies in order to facilitate the stakeholders in the social housing delivery process. |
| **Promotion of security of tenure** | Regularization framework system that incentives citizens to invest in their own tenure status. |

[101] Erguden S., **Low-Cost Housing: Policies and Constraints in Developing Countries**, Housing Policy Section, United Nations Center for Human Settlements (Habitat). Available at: http://www.fig.net/pub/proceedings/nairobi/erguden-CMTS1-1.pdf (Access July 2012).

[102] UN-HABITAT, **Secure Land Rights for All, United Nations Human Settlements Programme**, Nairobi, 2008. Available at: http://www.responsibleagroinvestment.org/rai/sites/responsibleagroinvestment.org/files/Secure%20land%20rights%20for%20all-UN%20HABITAT.pdf (Access July 2012).

[103] FAY M., **The urban poor in Latin America International Bank for Reconstruction and Development**, World Bank, Washington DC, 2005. Available at: http://siteresources.worldbank.org/INTLACREGTOPURBDEV/Home/20843636/UrbanPoorinLA.pdf (Access July 2012).

[104] UN-HABITAT, **Affordable Land and Housing in Latin America and the Caribbean**, 2011, Available at: http://www.unhabitat.org (Access July 2012).

| | |
|---|---|
| **Adequate supply of affordable land** | Improve reliable data and registration of land in order to be able to formulate accurate strategies of implementation.<br>Develop an consistent cadastral system of the land.<br>Provision of suitable land for social housing program purposes.<br>Strength municipalities financial and technical capacities in order to be able to supply the necessary territory.<br>Encourage private sector through suitable regulatory framework, facilitating the investments in housing projects for the low-income layer of society. |
| **Improving infrastructure and services** | Finance and facilitate infrastructure and services in order to assemble basic needs within the urban context.<br>Increase knowledge of public authority decision-makers in order to target subsidies within a sustainable strategy. |
| **Promotion of housing finance mechanisms** | Enforce national policies for encouraging domestic savings.<br>Strengthen financial mechanism and instruments in order to offer accessible credits to low-income families. |
| **Utilization of local building materials and technologies** | Incentive the research and knowledge dissemination about local construction materials, encouraging its use among the local community and constructor developers. |
| **Support to small-scale construction activities** | Support small-scale construction enterprises and NGOs that work with irregular settlements, by the formulation of more suitable planning standards and simplifying public bureaucracy in order to accelerate the obtention of permits and licenses. |
| **Adjusting standards for building and land subdivision** | Update standards and adjust them to current needs and affordability criteria. |
| **Promotion of community participation and self-help** | Support end-users self construction systems by providing technical training and assistance, financial loans and construction materials subsidizes. |

| | |
|---|---|
| **Investing in pilot projects** | Promote pilot projects in order to develop innovative approaches, standards, construction materials and technologies, thus, in order to improve know-how knowledge among all levels social housing stakeholders. |

**Table 2.2: Actions to enforce Good Social Housing Governance.**[105]

It is a fact, formal mortgage finances mechanisms are unthinkable for more than 2/3 of the low- and middle-low income families in developing countries, meaning that most population is far away from having the possibility of financing its own housing. When dealing with incentive tools, direct-demand subsidies are among the strongest ones, and, at the same time, the most used by governments to increase the acquisition possibilities of low-income families.[106] Hence, there are many options and tools available for governments to facilitate access to housing finance for low- and middle income families. The following table explains the most important ones, which are divided in two major groups: the supply-side subsidies, and the demand-side subsidies. In the case of demand-side subsidies, governments intend to support those low income groups that do not boast the minimum requirements to have access to long-term mortgages or saving for down payments. In the other case, demand-side subsidies enable public support to population to spend more capital in housing.[107]

## Supply-Side Subsidies

| | |
|---|---|
| **Capital grants** | Typical public sector subsidies, coming from the central budget.<br>Capital grants are very important to non-governmental agencies and private sector investing in social housing. |

[105]Source: Own creation after Erguden S., **Low-Cost Housing: Policies and Constraints in Developing Countries**, Housing Policy Section, United Nations Center for Human Settlements (Habitat). Available at: http://www.fig.net/pub/proceedings/nairobi/erguden-CMTS1-1.pdf (Access July 2012).

[106] UN-HABITAT, **Affordable Land and Housing in Latin America and the Caribbean**, 2011, Available at: http://www.unhabitat.org (Access July 2012).

[107] Council of Europe, **Housing Policy and Vulnerable Social Groups**, Report and guidelines prepared by the Group of Specialists on Housing
Policies for Social Cohesion (CS-HO), 2008. Available at:
http://www.coe.int/t/dg3/socialpolicies/socialrights/source/Publication_Housing%20policy%20vulnerable%20groups.pdf (Access July 2012).

| | |
|---|---|
| **Tax credit** | Tax credits are very common within the typical financial incentive combo.<br>In many countries, social housing programs within a cooperative systems are base on special tax exceptions.<br>There are many different tax benefits that can be applied to support the private sector investing in social housing projects.<br>Tax credits can be used for new construction, refurbishment and rehabilitation and acquisition of an existing housing unit. |
| **Interest rate subsidies** | They can be managed by public or private institutions. In both scenarios, the government reduces the interest rate paid by the developer.<br>When managed by public institutions, usually other hidden subsidies are also enclosed.<br>Interest rate programs usually use different funds, like pension funds, social security funds, special wage taxes, budget reserves, among others. |
| **Guarantees and insurance** | The government can provide guarantee and insurance to low-income families in need for a long-term loan from the private sector.<br>These type of subsidies can be used for group systems, like in the case of the cooperatives, or individuals. |
| **Demand-Side Subsidies** | |
| **Capital grants** | Public financial institutions offer capital grants directly targeting the households.<br>It is usual for countries that do not have well developed finance systems, otherwise, there are not often utilized as financial tools, because families that apply for a social housing already cover an "affordable" loan (within the package of preferential interest rate, tax exceptions, guarantees, etc.).<br>Usually replace the below-market interest rate mortgage finance program.<br>They are efficient in terms of targeting a desire group, transparent and predictable. |
| **Shared ownership, equity loan** | Shared ownerships are suitable for those low-income families that cannot meet the costs of buying a housing unit by their own.<br>Those interested can buy a portion of the property and rent the remaining part from a social housing association. Thus, the ownerships is shared by the program institution and the householder, this last one makes mortgage payments for its part and rent for the missing part. |

| | |
|---|---|
| **Contract saving system** | Some governments support special saving systems for housing, which are voluntary schemes with the public financial incentives in ways of tax exemptions, among other economic benefits. |
| **Guarantees** | There are two types of guarantee:<br>1) state-owned public mortgage,<br>2) providing low-income families with a public guarantee in order to meet the requisites for a loan of a private financial institution. |
| **Interest rate subsidy** | Very popular finance mechanism, which help to reduce the interest rate of the loan.<br>There are two types of interest rate subsidy:<br>1) public institution pays a fixed price or a portion of the interest to the loan provider,<br>2) public institution offers support for funding housing loans. |
| **Tax exemptions** | These are subsidies by means of tax relief or tax credit for mortgage payments, tax advantages of capital, reduced property tax, among others, and are very common financial tools. |
| **Support for first-time-home-buyers** | These kind of programs assist low-income families in getting their first new housing unit. |
| **Land provision** | Land provisioning can provide accessible housing for low-income families, especially by those within a self-help system. |

**Table 2.3: Types of subsidies for Social Housing programs.**[108]

### 2.1.2 Policy Options for Sustainable Buildings / Housing.

Generally speaking, there are many ways to move a society towards sustainability, nevertheless, there are also many barriers and challenges to be tackled in order to reach

[108] Source: Own Creation after Council of Europe, **Housing Policy and Vulnerable Social Groups**, Report and guidelines prepared by the Group of Specialists on Housing Policies for Social Cohesion (CS-HO), 2008. Available at: http://www.coe.int/t/dg3/socialpolicies/socialrights/source/Publication_Housing%20policy%20vulnerable%20groups.pdf (Access July 2012).

the desired goals.[109] Due the building sector is, by far, the most greatest resource demander sector in society,[110] the construction industry plays a key role for the community's sustainable development. Furthermore, housing quality is directed linked to health, nutrition, education and economic issues. Most of the irregular settlements in the Latin American region are situated in environmental risk locations. Many of these places are in danger of landslides, floodplains, contaminated and polluted areas, mostly located in the urban periphery.[111] Therefore, it is of great importance to develop sustainable social housing, not only for its environmental impact, but also for its economic and social benefits.

Financial instruments within environmental policy have become a trend in the last years, which, in any case, are instruments, tailoring to incentive an environmental friendly behavior providing financial incentives.[112] When we are talking about *financial* or *economic* instruments or tools, the author is referring to regulatory ones like in the case of taxes, charges, subsidies, tradable permits, among others.

Even though financial tools have been proved as being very successful, yet, the sword cuts both ways when it comes to impose policies. This means that in order to be suitable, they cannot achieve its goals in seclusion, but as a part of an elaborated strategy with wider sustainable mid- and log-term goals, rather than just economics. Therefore, for a victorious sustainability implementation, government authorities and all stakeholders involved must have a broader vision and understanding of the range possibility and local availability of these tools as part of a policy framework context. [113]

The following table illustrates some of the most important opportunities of action for local governments in order to impulse and support sustainable initiatives:

[109]Roseland M., **Sustainable community development: integrating environmental, economic, and social objectives**, 2000. Available at: http://www.sciencedirect.com (Access July 2012).

[110] UNEP- SBCI, **Buildings Can Play Key Role In Combating Climate Change**, Available at: <http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=502&ArticleID=5545&l=en> (Access January 2012).

[111] Buillon C.P., **Room For Development, Housing Markets in Latin America and the Caribbean**, IBD, 2012.

[112] Roseland M., Jacobs M., **Sustainable Development, Economic Instruments, and the Sustainable Management of Aquatic Resources and Ecosystems: A New Framework for Water Management in the Fraser River Basin**, 1995; in Roseland M., **Sustainable community development: integrating environmental, economic, and social objectives**, 2000. Available at: http://www.sciencedirect.com (Access July 2012).

[113]Roseland M., **Sustainable community development: integrating environmental, economic, and social objectives**, 2000. Available at: http://www.sciencedirect.com (Access July 2012).

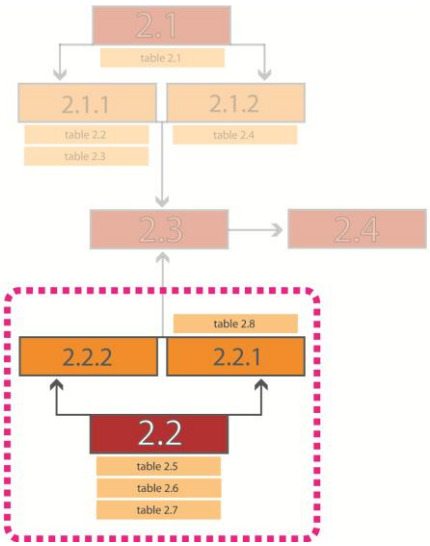
| Local authorities Action | Characteristics |
|---|---|
| **Set a Long-Term Plan** | It is very important to place a long-term multi-level governance strategy, in order to follow a plan that enables other projects to progress following the same strategy action line. |
| **Measurement of water and sanitary services** | Assessing the demand of water and sanitary services and implement a demand management planning that promotes efficient measures, rainwater collection and reuse, etc. |
| **Waste management in constructions** | There is a big opportunity in saving construction costs by managing materials and waste in an efficient way. |
| **Adapting other case studies strategies to the local context** | Governments can use, as a base policy framework strategy, other countries experiences. But in order to be able to implement them well, it is necessary to adapt it within the local governance in all its levels. |
| **Local Policy Report and Local Plan** | Recognition of the local important issues and priorities, in order to provide information consistency for decision-makers for the design of local policy frameworks. Thus, with the objective of propose successful implementation methods. . |
| **Land Use Plan** | Reviewing the existing or designing a new Land use Plan is an opportunity to make deep changes, it is possible to remove barriers controls for sustainable procedures and design more targeted controls where needed . |
| **Subdivision Plan** | Like in the above mentioned action, this is a very important weapon in order to ensure sustainability potentials on a local level, which gives the decision-makers the possibility to take solar orientation and on-site management into consideration when determinating the scale of the subdivision. |
| **Practice Codes and Standards** | These are a very traditional tool. Developing and adapting a systematic approach and detailed guidance of alternative solutions into business-as-usual systems, brings development practices into sustainability. |

| | |
|---|---|
| **Building Codes Administration** | Administrating the building codes employed in the country gives government the opportunity to keep up with the latest information and streamlined processing. In addition, authorities have the capacity to modify requirements for minimum building standards of the Building Code. |
| **Ruling** | When indispensable, governments can alter regulations, in order to reinvent them as a way to reach behavioral changes . |
| **Fee reductions and incentives** | Financial incentives support, in order to lower initiatives costs. |
| **Loans** | Facilitating loans to householders in order for them to do housing renovations implementing sustainable alternative solutions. This is a possibility to increment eligibility criteria than rather subsidies and grants. |
| **Raising funds-targeted rates** | This method applies for supporting other sustainable initiatives, and its success is direct linked to how these funds are used. |
| **Rates postponements and remissions** | Remitting or postponement rates help to eradicate barriers for sustainable improvements. |
| **Education** | This is a long-term action, but very necessary. When the community is well informed and educated about sustainability, this may bring as a result a lesser enforcement of obligatory regulatory standards. |

**Table 2.4: Possible local authorities action toward sustainable building/housing.**[114]

[114] Source: Own creation after Howell M., Birchfield D., **Policy Options for Sustainable Homes: A Resource for Local Government**, Report HR2420/6 for Beacon, 2010. Available at: http://www.beaconpathway.co.nz/images/uploads/Resource_Manual_Local_Government_Apr10.pdf (Access July 2012).

## 2.2 Sustainable Social Housing




Sustainable social housing is a concept usually excluded within the social housing programs context. Nevertheless, the outcome of this investigation will show possible strategies in order to integrate sustainable solutions within social housing. There are multi-level challenges to be faced, as well as barriers, however, there are also opportunities coming with the great potential of environmental, economic and social benefits.

According to the IBD, recent studies revealed that more than 1/3 of Latin American and Caribbean population has distressing housing issues and the economic increase will help very little in comparison to the scale of the problem. It is expected in 2015 that only 36% of the population in need of a better housing quality will be helped, which means that about 59 million people living in urban and rural areas will be still living in housings with no standard quality.[115]

Therefore, an important challenge is to design suitable strategies for social housing's sustainable development, where public incentives and subsidies are well balanced with the private sector activities, as well as incorporating environmental and social purposes. Furthermore, since these challenges are multifaceted, implementation strategies should incorporate these complex sustainable development dimensions in order to achieve social housing projects that add quality social, economic and environmental purposes, rather than only urgent short-term solutions for the poor's needs. [116]

The next tables show necessary sustainable considerations divided into three different dimensions: environmental, economic and social. Afterwards, this will be followed by the barriers and opportunities of sustainable social housing.

[115] Buillon C.P., **Room For Development, Housing Markets in Latin America and the Caribbean**, IBD, 2012.

[116] Erguden S., **Low-Cost Housing: Policies and Constraints in Developing Countries**, Housing Policy Section, United Nations Center for Human Settlements (Habitat). Available at: http://www.fig.net/pub/proceedings/nairobi/erguden-CMTS1-1.pdf (Access July 2012).

| Environmental Dimension |
|---|
| Quality of housing environment |
| Quality of neighborhood environment |
| Housing density/building type |
| Architectural solution to energy efficiency and thermal comfort |
| Type of building/construction materials |
| Construction techniques |
| Landscaping elements |
| Location and transport dependency |
| Storm water discharge system |
| Waste management system |
| Power sources and water supply |
| Open public spaces and green areas |
| Compactness of housing for land conservation |
| Noise level |

**Table 2.5: Considerations for Sustainable Social Housing Programs: Environmental Dimension Evaluation Criteria**[117]

| Economic Dimension |
|---|
| Housing affordability |
| Job creation within sustainable construction industry |
| Tenure options |
| Availability and accessibility of housing units |
| Cost of living |
| Housing adaptability structure for future needs |

**Table 2.6: Considerations for Sustainable Social Housing Programs: Economic Dimension Evaluation Criteria**[118]

[117] Source: Own creation after Ibem E. O. Azuh D. E., **Framework for Evaluating the Sustainability of Public Housing Programmes in Developing Countries**, Journal of Sustainable Development and Environmental Protection Vol.1 No.3, 2011.

[118] Source: Own creation after Ibem E. O. Azuh D. E., **Framework for Evaluating the Sustainability of Public Housing Programmes in Developing Countries**, Journal of Sustainable Development and Environmental Protection Vol.1 No.3, 2011.

| Social Dimension |
|---|
| **Access to social infrastructure** |
| **Social networks** |
| **Recreational facilities provision** |
| **Security and safety issues** |
| **Housing location near to work places** |
| **Level of social integration within the neighborhood** |
| **Quality of the housing interiors** |
| **Privacy** |
| **Suitable aesthetics characteristics of the social housing project to the environment** |
| **Relationship between architectural design and local culture** |
| **End users acceptance to alternative solutions** |

**Table 2.7: Considerations for Sustainable Social Housing Programs: Social Dimension Evaluation Criteria.**[119]

## 2.2.1 Specific Policy Instruments and Tools.

National and local governments have the responsibility to gather the available resources in order to tackle the environmental issues faced by their population[120], and in this case, social housing programs. As we just mentioned, even though there are many barriers and difficulties that challenge the progress toward sustainable construction. Nevertheless, there are also opportunities, in this case, tools and ways that enable governments and citizens to achieve goals within sustainable concepts. Generally speaking, we cannot expect the majority of population to decide by choice toward energy-efficiency improvements, especially since, for instance, unsustainable construction appears to be more "easy going" and less expensive at first sight. At the end of the day, it is a matter of changing the entire community's behavior towards this subject. The key question is what kind of existing policy tools are available for governments and citizens that allow them to move towards sustainability.[121]

[119] Source: Own creation after Ibem E. O. Azuh D. E., **Framework for Evaluating the Sustainability of Public Housing Programmes in Developing Countries**, Journal of Sustainable Development and Environmental Protection Vol.1 No.3, 2011.

[120] **Toronto Declaration on World Cities and Their Environment**. World Cities and Their Environment Congress of Municipal Leaders, Toronto 1991.

[121] Roseland M., **Sustainable community development: integrating environmental, economic and social objectives,** Community Economic Development Centre, Dep. of Geography, Simon Fraser University, Canada, 2000.

Policy instruments like taxes, extra charges, subsidies, tradable authorizations, etc. are some of the tools used with more or less success by governments worldwide as regulation measures for addressing environmental objectives. These kinds of "economic tools" have been gaining interest during the last years within green policies as an influence toward a more "environmental friendly behavior".[122] Before exploring other possible policy instruments and tools, it is important to know that these instruments and tools cannot be considered individually, but have to be seen within an entire policy framework, interacting and reinforcing with each other in order to be able to reach a common objective. The key factor is the ability of citizens and their governments to understand the reach and availability of policy tools and how to apply them wisely.[123] The following figure explores the policy instruments and tools for greening buildings, which has been analyzed by the UNEP SBCI.

| Policy Category | Policy Tools |
|---|---|
| **Regulatory & Control Mechanism** | Appliance Standards<br>Building Codes<br>Procurement Regulations<br>Energy-Efficiency Quotas<br>Mandatory Audit Programs<br>Utility Demand-Side Management Programs |
| **Financial-Based Instruments** | Energy Performance Contracting<br>Cooperative Procurement<br>Efficiency Certificate Schemes |
| **Fiscal Instruments & Incentives** | Energy or Carbon Taxes<br>Tax exemptions and Reductions<br>Public Benefits Charges<br>Capital Subsidies, Grants, Subsidized Loans & Rebates |
| **Information & Voluntary Instruments** | Voluntary Certification & Labeling Programs<br>Voluntary & Negotiated Agreements<br>Public-Leadership Initiatives<br>Awareness Raising & Education<br>Detailed Billing & Disclosure Programs |

**Table 2.8: Policy Instruments and Tools.**[124]

[122] Roseland M., Jacobs M., **Sustainable Development, Economic Instruments, and the Sustainable Management of Aquatic Resources and Ecosystems: A New Framework for Water Management in the Fraser River Basin**, School of Resource and Environmental
Management, Simon Fraser University, Burnaby, BC, 1995. Available at: http://www.tandfonline.com/doi/pdf/10.1080/13549839608725492 (Access January 2012).

[123] Roseland M., **Sustainable community development: integrating environmental, economic and social objectives,** Community Economic Development Centre, Dep. of Geography, Simon Fraser University, Canada, 2000.

[124] Source: Own creation after UNEP, **Green Report: Buildings, Investing in energy and resource efficiency**, 2011. Available at: http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/9.0-BUI-Buildings.pdf (Access January 2012).

First, there is the **Regulatory and Control Mechanism** that needs to be monitored, evaluated and updated regularly in order to keep track of the current technologies and economic updates. In this case, new buildings are easier targets of this regulatory and control tools than existing constructions. The most usual devices are appliance standards, buildings codes, procurement regulations, energy-efficiency requirements, mandatory-audit and utility-demand-side programs, etc. Barriers of these regulatory instruments are the lack of enforcement and the rebound effect, both of which can be avoided when they are associated to other tools that educate users to employ the available technology in a more efficient way. In this context, adequate education and training are required.[125]

According to the UNEP's Green Report for Buildings, in the case of new buildings in developing countries, building codes apply as a tool linked to sustainability. These can be reinforced by starting with a voluntary system followed by incentives and enhanced inspections.[126] Some authors recommend for developing countries to utilize a structured implementation phase that also embraces the necessary building code administration and enforcement arrangements, the corresponding training programs and the construction of exhibition buildings.[127] Regulatory and Control mechanisms such as building codes and standards are tools linked to fast implementation of efficient technology and good practices.[128] Energy Efficiency Quotas allow policy makers to measure buildings energy consume and balance, bringing the possibility to use this information to integrate an energy performance labeling scheme and energy audits.[129]

The **Financial-based Instruments** embrace energy performance contracting, cooperative procurement, efficiency certificate and credit schemes. In the case of Energy Performance Contracting, it is necessary to engage an energy service company as an executing manager, which guarantees an assured energy savings in a certain amount of time. This instrument requires legal, financial and business enforcement. In addition, energy subsidies that affect the final prices should be avoided. In this regard, no energy

[125] UNEP, **Green Report: Buildings, Investing in energy and resource efficiency**, 2011. Available at: http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/9.0-BUI-Buildings.pdf (Access January 2012).

[126] UNEP, **Green Report: Buildings, Investing in energy and resource efficiency**, 2011. Available at: http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/9.0-BUI-Buildings.pdf (Access January 2012).

[127] Deringer J. and Huang Y., **Transferred Just on Paper? Why Doesn't the Reality of Transferring/Adapting Energy Efficiency Codes and Standards Come Close to the Potential?**, ACEEE, 2004. Available at: http://www.aceee.org/sites/default/files/publications/proceedings/SS04_Panel8_Paper07.pdf (Access January 2012).

[128] Granade H.C., Creyts J., Derkach A., Farese P., Nyquist S., Ostrowski K., **Unlocking energy efficiency in the U.S. economy**, 2009. Available at: http://www.mckinsey.com/mgi/publications/ (Access January 2012).

[129] Hitchin R., **Can building codes deliver energy efficiency? Defining a best practice approach**. A report for the Royal Institution of Chartered Surveyors by the Building Research Establishment, UK, 2008. Available at: http://www.rics.org/site/download_feed.aspx?fileID=4128&fileExtension=PDF (Access January 2012).

subsides should artificially affect the final prices, especially when the energy comes from non renewable resources.[130] For Efficiency Certificate and Credit Schemes, it is essential to rely on highly developed institutional organizations in order to be able to implement them correctly.

According to the UNEP's Green Report, **The Fiscal Instruments and Incentives** consists of energy or carbon taxes, tax exemptions and reductions, public benefits charges, and capital subsidies, grants, subsidized loans and rebates.[131] Regarding the instruments that promote sustainable buildings, the most important ones, according to the UNEP's Green Report are, first, **Carbon Credits**, that encloses great improvement potential for large scale projects[132]; in the case of **White Certificates** -usually utilized in Australia, France and Italy- aloud buildings owners to deal emissions grants.[133]

In addition, there are also **Intermediary Financing Agreements**, where Energy Service Companies (ESCOs) make arrangements with stakeholders within energy savings performance contracting[134]; **Refunds**, which can act within the tax mechanisms in order to offer benefits to housing user for implementing specific sustainable measures; and there are also **Feebates**, by means of new incentives based on building's carbon footprint tax, which recompenses owners with energy efficiency homes.[135] **Green mortgages** are other additionally energy efficiency kind of credits introduced into the mortgage with the objective of facilitating users to finance energy efficiency technologies for their homes.[136] Apart from the already mentioned tools, there is **additionally equity finance or external capital**, which is only utilized in cases or high risk

[130] UNEP, **Green Report: Buildings, Investing in energy and resource efficiency**, 2011. Available at: http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/9.0-BUI-Buildings.pdf (Access January 2012).

[131] UNEP SBCI, **Assessment of policy instruments for reducing greenhouse gas emissions from buildings**, Budapest, 2007. Available at: http://www.unep.org/themes/consumption/pdf/SBCI_CEU_Policy_Tool_Report.pdf (Access January 2012).

[132] Fenhann J., and Staun F., **An analysis of key issues in the Clean Development Mechanism based on the UNEP Risoe Clean Development Mechanism pipeline**, *Carbon Management, 2010. Available at:* http://www.future-science.com/doi/abs/10.4155/cmt.10.13 (Access July 2012).

[133]Ries C., Jenkins J and Wise O., **Improving the energy performance of buildings: Learning from the European Union and Australia**, RAND Corporation, 2009, Available at: http://www.rand.org/pubs/technical_reports/2009/RAND_TR728.pdf (Access July 2012).

[134] Bleyl-Androschin J.W. and Schinnerl D., **Comprehensive refurbishment of buildings through energy performance contracting: A guide for building owners and ESCos,** Grazer Energieagentur, 2008. Available at: http://www.ieadsm.org/Files/Exco%20File%20Library/Key%20Publications/IEAdsm-TaskXVI_Bleyl,%20Schinnerl_Comprehensive%20Refurbishment%20of%20Buildings%20through%20EPC_081118_vers2.pdf (Access July 2012).

[135] UNEP, **Green Report: Buildings, Investing in energy and resource efficiency**, 2011. Available at: http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/9.0-BUI-Buildings.pdf (Access January 2012).

[136] Hendricks B., Goldstein B., Detchon R. and Shickman K., **Rebuilding America: A national policy framework for investment in energy efficiency retrofits**, Center for American Progress and Energy Future Coalition, USA, 2009. Available at: http://www.americanprogress.org/issues/2009/08/pdf/rebuilding_america.pdf (Access January 2012).

projects; and **revolving funds** that are basically energy-savings repayable loans. These types of repayable funds are invested later on in new energy efficiency programs.[137]

In many countries, public authorities employ taxes as a policy instrument for reinvestment of the profits into sustainability. These usually come along with other policy tools, mostly subsidies and standards. Also, tax reductions or exemptions are successfully implemented as encouragement for new green technologies. Energy taxes are public benefits charges utilized as a way for governments to reinvest in energy-efficiency development.[138] When it comes to low-income households, where energy efficiency is not a priority, the prospects of subsidies and grants have a high acceptance.[139]

The **Information and Voluntary Instruments** enclose certification and labeling programs, voluntary and negotiated agreements, public leadership initiatives, awareness raising and education, detailed billing and disclosure programs.[140] Labeling and standards created in developed countries require to be readjusted to the situation of the building's location, particularly if it is going to be applied in developing countries. Nevertheless, these voluntary policy tools are very important in order to achieve sustainable goals.[141] Policy instruments like *Public leadership programs* can perform as a paradigm towards environmental objectives, which can be used to lead the public segment to reduce costs and become an example to be adapted by the private segment. In developing countries there is always the necessity for professional experts in environmental friendly technology, as well as codes and standards, in order to accomplish more sustainable constructions.[142]

### 2.2.2 Barriers and Opportunities.

On one hand, there are many barriers and challenges when it comes to bringing sustainable criteria into social housing programs. Setting a stage for sustainability among

[137] UNEP, **Green Report: Buildings, Investing in energy and resource efficiency**, 2011. Available at: http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/9.0-BUI-Buildings.pdf (Access January 2012).

[138] UNEP, **Green Report: Buildings, Investing in energy and resource efficiency**, 2011. Available at: http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/9.0-BUI-Buildings.pdf (Access January 2012).

[139] UNEP SBCI, **Greenhouse gas emission baselines and reduction potentials from buildings in Mexico**, A discussion document, United Nations Environment Programme Sustainable Buildings and Climate Initiative, Paris, 2009. Available at: http://www.unep.org/sbci/pdfs/ SBCI-Mexicoreport.pdf (Access January 2012).

[140] UNEP, **Green Report: Buildings, Investing in energy and resource efficiency**, 2011. Available at: http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/9.0-BUI-Buildings.pdf (Access January 2012).

[141] Meyers S., McMahon J., Atkinson B, **Realized and projected impacts of U.S. energy efficiency standards for residential and commercial appliances**, 2008. Available at: http://ees.ead.lbl.gov/staff/current_staff/mcmahon_james (Access January 2012).

[142] UNEP, **Green Report: Buildings, Investing in energy and resource efficiency**, 2011. Available at: http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/9.0-BUI-Buildings.pdf (Access January 2012).

these kinds of social public-private projects requires a very flexible and political enforced strategy in order to be effective. Specially for cases when the bureaucracy is intricated and interspersed within a wide range of stakeholders engaged, which have their own hierarchies, concerns, interest's conflicts and needs. On the other hand, while there is a clear need of a very high amount of low-budget social housing units, there is also an opportunity to make changes in order to set examples for future building generations. This, by helping to reduce the consumption of a significant share of materials extracted from nature and for the generation of greenhouse gases (GHG) and acid rain promoting agents.[143]

In the following paragraphs, **1) barriers** and **2) opportunities** will be analyzed among its sustainable development dimensions; therefore, they are divided in **a] environmental**, **b] social** and **c] economic dimensions**.

**1) Barriers.**

**a] Environmental Dimension.**

One environmental dimension barrier could be seen as the local environmental context itself: each country and each region has its own bioclimatic and natural risks situations. Therefore, there is no fix and standard solution to be applied to sustainable social housing. Thus, it denotes that each social housing program needs to add certain sustainable criteria and solutions depending on the project site location.

One of the major challenges for sustainable construction governance is to incorporate sustainability into all their stakeholder's agendas. Furthermore, as a result of lack of proper legislation and well-targeted incentives, today's construction industry has very little consideration regarding environmental issues. In addition, there is no clear awareness among local stakeholders about the fabulous necessity of improvements required within the nationwide governance, in order to re-design the construction industry without negative environmental impacts.[144]

In addition, **competing priorities** are one of the principal barriers for sustainability. To bring sustainable practices and concepts into mainstream business-as-usual habits within a population, call for a very

[143] ASIF M., MUNEER T., KELLEY R., **Life cycle assessment: a case study of a dwelling home in Scotland. Building and Environment**, 2005. Available at: http://www.sciencedirect.com. (Access January 2012).

[144] CIB & CSIR, **Agenda 21 for Sustainable Construction in Developing Countries**. First Discussion Document, 2001. Available at: http://www.sustainablesettlement.co.za/docs/a21_discussiondocexecsum.pdf (Access July 2012).

strong willingness from the government and its society. However, in many developing countries, there are lots of priorities, yet, sustainability is not one of them.[145] Following the authors line of thinking, Gill Seyfang affirms, in order to bring a more sustainable vision into the construction industry, it is necessary to have a suitable local political and social framework. Consecutively, for socio-technical transformation to occur, it is imperative to act at all governance levels at the same time. The reason is very simple: acting just by niches do not bring success.[146]

**b] Social Dimension.**

One of the major social barriers is **knowledge gaps**, and when it comes to decision-making processes, local authorities are a reflection from its local population, its culture and values, and therefore, its available information and awareness. The lack of perception of local leaders about accessible opportunities, barriers, costs and benefits of alternative solutions ends up in generating wrong decisions-making. This applies when it comes to design the policy framework for the local sustainable social housing (i.e. not well targeted incentives and unclear or sometimes even contradictory rules).[147] In the authors understanding, main cultural barriers for sustainable social housing are lack of knowledge; the so called "know-how" and communication among all level of social housing governance stakeholders; no cultural acceptance from end users toward alternative solutions; lack of policies enforcement, tools support and public incentives. As part of knowledge gaps, there are also behavioral and organizational limitations. These are very important barriers to be taken into consideration, as it is very hard to change individuals' behavior with particular lifestyles and cultures.[148] Finally, another important gap among awareness is the lack of strong sustainable matters within the university study programs.

[145] OECD, **Strategies for Sustainable Development**, International Development, The DAC Guidelines, 2001. Available at: http://www.oecd.org/dataoecd/34/10/2669958.pdf (Access July 2012).

[146]Seyfang G., **Community action for sustainable housing: Building a low-carbon future**, 2009. Available at: www.elsevier.com/locate/enpol (Access July 2012).

[147]Lantsberg A., **Sustainable Urban Energy Planning: A Roadmap for Research and Funding**, Prepared for Calofornia Energy Commission, 2005. Available at: http://www.energy.ca.gov/2005publications/CEC-500-2005-102/CEC-500-2005-102.PDF (Access July 2012).

[148]Chappells H., Shove E. **Debating the future of comfort: environmental sustainability, energy consumption and the indoor environment**. Building Research and Information, 2005. Available at: http://www.tandfonline.com/doi/pdf/10.1080/0961321042000322762 (Access January 2012).

**Technical gaps** are also main barriers. Technical experts are not traditionally prepared in sustainable infrastructure, because it is - in most cases - a government duty.[149] The lack of awareness and information about, for instance, energy-efficiency benefits, is a current problem in less developed countries[150], because there are no many "experts" that are "real experts" on the issue.

In addition, **institutional mismatch** barriers are crucial too. High rates of corruption, poor governance, weak and inefficient institutional structures, the need of policies enforcement and lack of knowledge, are some examples of it. This last example leads us to the next key barrier, the information, or rather, the lack of it. Unknown sustainability's possibilities, techniques and potentials are a major obstacle, particularly in poor countries.[151] In developing countries, besides the lack of institutional capacity and precise data for decision-makers authorities, there are also high poverty rates, poor urban infrastructure and investment. Furthermore, missing initiatives and awareness from local stakeholders in sustainable issues sum up more obstacles, additionally, there is a high dependency on locally-unadoptable codes and technology from developed countries.[152]

**d] Economic Dimension.**

When it comes to economic barriers, higher costs in first investments are naturally involved, being one of the most relevant obstacles in developing countries.[153] The fact that initial costs are "much higher" than business-as-usual systems is a reason for investors to decide not to build sustainable buildings. Later on in this investigation, different points of view from local Uruguayan experts and SUSHI team members will be

[149]Lantsberg A., **Sustainable Urban Energy Planning: A Roadmap for Research and Funding**, Prepared for Calofornia Energy Commission, 2005. Available at: http://www.energy.ca.gov/2005publications/CEC-500-2005-102/CEC-500-2005-102.PDF (Access July 2012).

[150]UNEP SBCI, **Assessment of policy instruments for reducing greenhouse gas emissions from buildings**, Budapest, 2007. Available at: http://www.unep.org/themes/consumption/pdf/SBCI_CEU_Policy_Tool_Report.pdf (Access January 2012).

[151] Deringer J. and Huang Y., **Transferred Just on Paper? Why Doesn't the Reality of Transferring/Adapting Energy Efficiency Codes and**

**Standards Come Close to the Potential?**, ACEEE, 2004. Available at: http://www.aceee.org/sites/default/files/publications/proceedings/SS04_Panel8_Paper07.pdf (Access January 2012).

[152] CIB & CSIR, **Agenda 21 for Sustainable Construction in Developing Countries**. First Discussion Document, 2001. Available at: http://www.sustainablesettlement.co.za/docs/a21_discussiondocexecsum.pdf (Access July 2012).

[153] Carbon Trust, **The UK Climate Change Programme: Potential Evolution for Business and the Public Sector**, 2005. Available at: www.carbontrust.co.uk (Access January 2012).

exposed in order to deepen in detail about this problem. In addition, another barrier is that sometimes is it very difficult to find sustainable materials, technology and equipment into the existing local market. If there is no strong demand, there is, as well, no offer, and prices are mostly very high for too little options.

In addition, investor's *market failures* are also very important barriers that can be found. In this context, the concept of market failure consists on the unsuccessful rendition of some energy-efficiency investments into energy savings benefits.[154] This is a key barrier in the case of energy-efficiency investments, particularly in many developing countries, where is very common for energy incentives to be misplaced. This is the case, for example, of strongly subsided energy from non renewable sources, and therefore, artificially low priced, making "real benefits" of energy efficiency not noticeable.[155]

There is another very important barrier to be faced in cases of **regulatory obstacles**, in some cases they are the responsible for slowing down local efforts for encouraging local participation, as well as increasing the shortcomings among fiscal and technical issues.[156]

## 2) Opportunities.

### a] Environmental Dimension.

Environmental opportunities are many, and they bring long-, mid- and short-term benefits. Sustainable social housings have much lesser impact on the environment and from the beginning of the project - meaning the construction process - already have positive improvements. Enclosed in the *sustainable construction* concept is the good management of

[154] Carbon Trust, **The UK Climate Change Programme: Potential Evolution for Business and the Public Sector**. Technical Report available online: www.carbontrust.co.uk., 2005; in SBCI, **Assessment of policy instruments for reducing greenhouse gas emissions from buildings**, Budapest, 2007. Available at: http://www.unep.org/themes/consumption/pdf/SBCI_CEU_Policy_Tool_Report.pdf (Access July 2012).

[155] Urge-Vorsatz D., Koeppel S., **An assessment of Energy Service Companies worldwide**. Report submitted to the World Energy Council, 2007; in UNEP SBCI, **Assessment of policy instruments for reducing greenhouse gas emissions from buildings**, Budapest, 2007. Available at: http://www.unep.org/themes/consumption/pdf/SBCI_CEU_Policy_Tool_Report.pdf (Access July 2012).

[156] Lantsberg A., **Sustainable Urban Energy Planning: A Roadmap for Research and Funding**, Prepared for Calofornia Energy Commission, 2005. Available at: http://www.energy.ca.gov/2005publications/CEC-500-2005-102/CEC-500-2005-102.PDF (Access July 2012).

materials and construction wastes, as well as the efficient usage from natural resources within the building construction.

Climate change is forcing us to take radical measures in order to reduce CO2 emissions, being the building sector one of the biggest producers of it; therefore, building technologies need to evolve in order to face these new challenges.[157] Governments of developing countries need to use this as an opportunity for setting sustainable social housing projects as an example for sustainability construction. Hence, by creating propitious frameworks for its replication within the building industry. Furthermore, environmental benefits prevail over investment costs when it comes to protecting the ecosystems, meaning there is a win-win chance opportunity, which includes poverty eradication and social equity.[158] In addition, like it was already mentioned in the past chapter, well designed sustainable social housings will reduce the need for energy and water through its entire life-cycle, which is also very important in order to preserve natural resources for future generations.

**b] Social Dimension.**

Sustainable social housing includes, during the construction phase, better conditions for the construction workers. It also entails that the project product allocates and ensures cultural continuity, social inclusion and improvements of life quality.[159]

A sustainable structure for social housing also may bring potential opportunities, like in the case of sustained employment through formal construction, as well as sustained employment through material supply (production and distribution), related services and operation and maintenance during the life cycle of the building. [160]

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[157] Seyfang G., **Community action for sustainable housing: Building a low-carbon future**, 2009. Available at: www.elsevier.com/locate/enpol (Access July 2012).

[158] Division for Sustainable Development, UN-DESA, UNEP, UN Conference on Trade and Development, **The Transition to a Green Economy: Benefits, Challenges and Risks from a Sustainable Development Perspective**, Report by a Panel of Experts to Second Preparatory Committee Meeting for United Nations Conference on Sustainable Development, 2012. Available at: http://www.uncsd2012.org/rio20/content/documents/Green%20Economy_full%20report.pdf (Access July 2012).

[159] CIB & CSIR, **Agenda 21 for Sustainable Construction in Developing Countries**. First Discussion Documment, 2001. Available at: http://www.sustainablesettlement.co.za/docs/a21_discussiondocexecsum.pdf (Access July 2012).

[160] Cities Action for Sustainable Housing, **Energy Efficiency for Social Housing,** Baseline Study, 2010. Available at: http://urbact.eu/fileadmin/Projects/CASH/documents_media/cash_brochure_Baseline_Study_web-1.pdf (Access July 2012).

Seeing the entire situation from a positive point of view, in developing countries, changing the business-as-usual system into a more sustainable one should be easier than in developed countries. One of the reasons for this thought is the fact that population in developing countries are still living in a different life paradigm, with different values and survival instinct, with proven ability to innovate and adapt to all kind of situations with minimum resources, which could be used as an example of sustainable living style. Nevertheless, both developing and developed countries should gain forces and knowledge and work together in order to create an Agenda that helps countries worldwide to reach sustainability.[161]

**c] Economic Dimension.**

Sustainable social housing also brings many economic opportunities, apart from the fact that a more sustainable construction industry means lesser construction costs methods, it also carries optimal allocation and minimum wastes.[162]

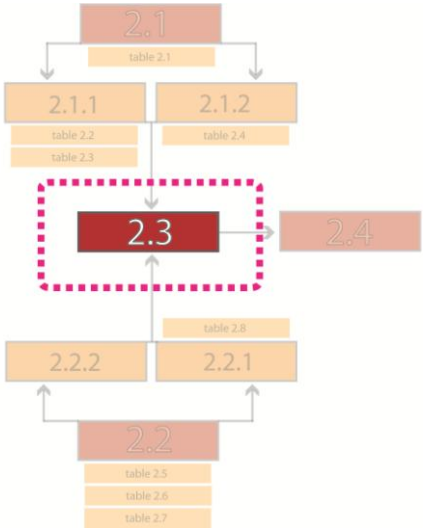
In addition, sustainable development carries long-term economic growth possibilities which are directly linked to environmental benefits, because it help to mitigate climate change issues, energy costs, water scarcity, losing of services coming from the ecosystem, increase "green" employments, and poverty reduction.[163]

[161] CIB & CSIR, **Agenda 21 for Sustainable Construction in Developing Countries**. First Discussion Documment, 2001. Available at: http://www.sustainablesettlement.co.za/docs/a21_discussiondocexecsum.pdf (Access July 2012).

[162] CIB & CSIR, **Agenda 21 for Sustainable Construction in Developing Countries**. First Discussion Documment, 2001. Available at: http://www.sustainablesettlement.co.za/docs/a21_discussiondocexecsum.pdf (Access July 2012).

[163] Division for Sustainable Development, UN-DESA, UNEP, UN Conference on Trade and Development, **The Transition to a Green Economy: Benefits, Challenges and Risks from a Sustainable Development Perspective**, Report by a Panel of Experts to Second Preparatory Committee Meeting for United Nations Conference on Sustainable Development, 2012. Available at: http://www.uncsd2012.org/rio20/content/documents/Green%20Economy_full%20report.pdf (Access July 2012).

## 2.3 Success Factors Criteria.




The success factors criteria help us to evaluate and identify alternative solutions or situations within sustainability, in order to assess if it succeeded in its implementation or not. This is going to be utilized in the case studies: the SUSHI project and Uruguay. This will be done by confronting the expectations and the successful implementation factors in the evaluation matrix in order to identify common patterns. The success factor criteria founded should be able to help the author as a tool for the development of the evaluation matrix, which enable to assess future sustainable initiatives among social housing projects. Both success factors criteria and the evaluation matrix depend on each other, the recommendations to be realized in the last chapter of this thesis will be based on the results of the success factors identified with the evaluation matrix.

This kind of methodology brings as an outcome the information that will be utilized as a key instrument for further examination and conclusions. The aim of designing an evaluation matrix is to differentiate important procedures and stakeholders involved at all levels of governance. The success of the innovation depends very strongly on the local circumstances where it is introduced, which includes the acceptance of the society, responsible of the creation of an improvements and awareness transfer environment.[164] Therefore, the evaluation of the case studies intends to recognize success factors and barriers for the application of sustainability among social housing. Nevertheless, we are aware that creating a strong multilevel system that applies to all countries is a very intricate task and the reason is because each country has a different agenda, and therefore, priorities and issues are diverse.[165]

At the time of measuring sustainability within a determinate context, like in this case the SUSHI project and the country Uruguay, the most important tools to be taken into account are indicators, that *"inform decision making, and facilitates communication about complex systems or realities, measures progress towards sustainability and assists*

[164] RAPIDO, Rural Areas, People & Innovative Development, **Deliverable No.: 1.1 Best practice database on case studies for innovation development and transfer in rural areas Deliverable No.: 1.2 Evaluation matrix to assess future initiatives and projects in the area of innovation**, 2010. Available at: http://www.rapido-fp6.eu/download/44264_RAPIDO_D1-1_1-2.pdf (Access July 2012).

[165] Department of Economic and Social Affairs, **Indicators of Sustainable Development: Frameworks and Methodologies**, Commission on Sustainable Development, Ninth Session, 16-27April 2001, New York. Available at: http://www.un.org/esa/sustdev/csd/csd9_indi_bp3.pdf (Access July 2012).

*monitoring of development and policy impacts on territorial different scales"*.[166] Thus, the indicators have the competence of interpreting all kind of information into handy information units for sustainability measurement, which is of essential importance in occasions when different levels of policy and stakeholders roles need to be compared.[167] In order for the project to step into the different levels of the selected country's governance, both the evaluation criteria and the matrix need to follow the interactive governance concept already explained in the previous chapter.

For a project like SUSHI, that aims to bring sustainability criteria into social housing, it is imperative to recognize the possible **barriers**, in order to be able to design an enter strategy for its implementation into the selected country. It is also necessary to learn the **interaction structure** within the local governance. In order to do so, there are five key factors to be clarified before, during and after the project implementation, which are *purpose, scope context, stakeholder identification* and *interaction forms*.

**1]** Having a clear **purpose** is very important, since it defines the project targets and goals. In addition, it guides how the outputs will be applied in order to ensure the expected outcomes. **2]** The **scope** specifies the restrictions and limits of the project. It is important to clarify them in early stages of a project, and additionally, recognizing changeable and not changeable factors, as well as possible risks. **3]** A comprehensible **context** is also very significant, because projects issues are enlarged at the time to communicate them to the stakeholders involved, informing for instance, about institutions, deadline issues, legal and policy constraints, stakeholders capacities and features, among others. **4]** A clear system at the time of **identifying stakeholders** is also essential, it is necessary to do it with a clear documentation of the entire process with reliable data.[168] **5]** Finally, an evaluation of the interaction **forms** must be settled. Included are communication as well as support and coordination between institution-institution and institution-population. In addition, information transparency and corruption rates also need to be assessed.

Another crucial factor within the interactive sustainable social housing governance are the **elements**, which refers to instruments, **tools** and **action** suitable for these kinds of projects. Taking into consideration the literature shown throughout the chapter, the

[166] RAPIDO, Rural Areas, People & Innovative Development, **Deliverable No.: 1.1 Best practice database on case studies for innovation development and transfer in rural areas Deliverable No.: 1.2 Evaluation matrix to assess future initiatives and projects in the area of innovation**, 2010. Available at: http://www.rapido-fp6.eu/download/44264_RAPIDO_D1-1_1-2.pdf (Access July 2012).

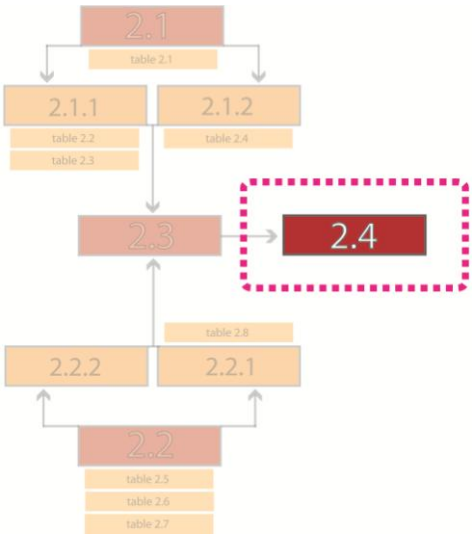
[167] Valentin A, and Spangenberg J H**, A guide to community sustainability indicators**, 2000. Available at: http://www.sciencedirect.com (Access July 2012).

[168] REVIT, **Working toward more effective and sustainable Brownfield revitalisation policies**. Stakeholders engagement - A toolkit. Available at: http://www.revit-nweurope.org/selfguidingtrail/27_Stakeholder_engagement_a_toolkit-2.pdf (Access July 2012).

author will select the most important elements that apply for the case studies in this investigation. Hence, assembling all tables and information aspects and considering SUSHI's requirements, the following are the **tools** to be taken into consideration for the design of the evaluation matrix: first, **1]** The regulatory and control mechanisms tools selected are appliance standards, procurement regulations, energy efficiency quotas. **2]** Financial-based instruments applicable are cooperative procurement and energy performance contracting. **3]** About fiscal instruments and incentives, the suitable choices are tax exemptions and reductions, public benefit charges, capital subsidies, grants, subsidized loans and rebates; and lastly, **4]** the information and voluntary instruments options for the sustainable social housing initiatives are public-leadership initiatives and awareness raising and education.
The **actions** possibilities are many, and, in order to cover the desired range of the project objective, both social housing and sustainable building/housing actions need to be combined.

All the above mentioned information will be evaluated in a qualitative approach, assigning scores between **1** for *nonexistent*, **2** for *poo*r, **3** for *regular*, **4** for *good* and **5** for *optimal* in the cases of **Interaction Structure** and **Elements A** & **B**; and for **Barriers**, **1** for *nonexistent*, **2** for *reduced*, **3** for *regular*, **4** for *much* and **5** *too much,* will apply. In this way, at the end of each case study evaluation, it will be possible to visualize the results graphically, providing this way the necessary information for further discussions about the SUSHI's demands and adaptability into the Uruguayan context. Finally, additional recommendations will follow.

## 2.4 Matrix for evaluating success criteria of policy framework in sustainable social housing.




As we recognize that local conditions change with each country, and therefore, each one requires a different approach, the aim of this evaluation success matrix is to assist decision-makers in the process of implementing sustainability in social housing programs, as well as to identify targets and design application local strategies.[169] In addition, the outcomes will bring a qualitative approach of the success probability of implementing sustainable social housing projects in developing countries, like in the case of Uruguay. The evaluation matrix is developed, in order to categorize and organize the results and outputs of the investigation of the case studies of this research. At the same time, the results of the matrix will be, like mentioned before, very useful at the time of making recommendations and propose implementation strategies.

| Interaction Structure | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1. Purpose | | | | | |
| 2. Scope | | | | | |
| 3. Stakeholder Identification | | | | | |
| 4. Expected Outcomes | | | | | |
| 5. Interaction Forms:<br>a] communication/coordination among institutions and citizens<br>b] information<br>c] transparency<br>d] corruption | | | | | |

**Evaluation Criteria: 1 (nonexistent), 2 (poor), 3 (regular), 4 (good), 5 (optimal).**

[169] RAPIDO, Rural Areas, People & Innovative Development, **Deliverable No.: 1.1 Best practice database on case studies for innovation development and transfer in rural areas Deliverable No.: 1.2 Evaluation matrix to assess future initiatives and projects in the area of innovation**, 2010. Available at: http://www.rapido-fp6.eu/download/44264_RAPIDO_D1-1_1-2.pdf (Access July 2012).

| Barriers | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 6. Knowledge Gaps | | | | | |
| 7. Technical Gaps | | | | | |
| 8. Competing Priorities | | | | | |
| 9. Regulatory Obstacles | | | | | |
| 10. Institutional Mismatch | | | | | |
| 11. Lack of Research and Program Activities | | | | | |

**Evaluation Criteria: 1 (nonexistent), 2 (reduced), 3 (regular), 4 (much), 5 (too much).**

| Elements A: Policy Tools | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 12. Regulatory & Control Mechanism<br>a] appliance standards<br>b] procurement regulations<br>c] energy efficiency quotas | | | | | |
| 13. Financial-based instruments<br>a] cooperative procurement<br>b] energy performance contracting | | | | | |
| 14. Fiscal instruments and incentives<br>a] tax exemptions and reductions<br>b] public benefit charges<br>c] capital subsidies, grants, subsidized loans and rebates | | | | | |
| 15. Information and voluntary instruments<br>a] public-leadership initiatives<br>b] awareness raising and education | | | | | |

**Evaluation Criteria: 1 (nonexistent), 2 (poor), 3 (regular), 4 (good), 5 (optimal).**

| Elements B: Actions | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 16. Effective implementation strategies | | | | | |
| 17. Promotion of security tenure | | | | | |
| 18. Adequate supply of affordable land | | | | | |
| 19. Improving infrastructure and services | | | | | |
| 20. Promotion of housing finance mechanism | | | | | |
| 21. Utilization of local building materials and technologies | | | | | |
| 22. Support to small-scale construction activities | | | | | |
| 23. Adjusting standards for building and land subdivision | | | | | |
| 24. Promotion of community participation and self help | | | | | |
| 25. Investing in pilot projects | | | | | |
| 26. Incentive mortgage finance | | | | | |
| 27. Appropriate subsidies | | | | | |
| 28. Ensure sustainable infrastructure for urban development | | | | | |
| 29. Regulate land and housing development | | | | | |
| 30. Organize the building industry | | | | | |
| 31. Set a Long-Term Plan | | | | | |
| 32. Measurement of water and sanitary services | | | | | |
| 33. Waste management in constructions | | | | | |
| 34. Adapting other case studies strategies to the local context | | | | | |
| 35. Local Policy Report and Local Plan | | | | | |
| 36. Land Use Plan | | | | | |
| 37. Subdivision Plan | | | | | |
| 38. Practice Codes and Standards | | | | | |
| 39. Building Codes Administration | | | | | |
| 40. Ruling | | | | | |
| 41. Fee reductions and incentives | | | | | |
| 42. Loans | | | | | |
| 43. Raising funds-targeted rates | | | | | |
| 44. Rates postponements and remissions | | | | | |

**Evaluation Criteria: 1 (nonexistent), 2 (poor), 3 (regular), 4 (good), 5 (optimal).**

# 3. Case Study: Sustainable and Social Housing in Uruguay

The approach to transform the current Uruguayan social housing construction paradigm towards a more sustainable one can only be achieved through a collective effort, involving the major stakeholders within sustainable and social housing construction, the decision and policy makers, financial institutions and end users. In this chapter, the author will carefully analyze four key points in order to understand the complex multilevel governance, where all these issues are engaged. First, a **Building Sector Analysis** will be explained, which includes the current **Housing Situation and Market Statistics** and **Stakeholders** involved. Second, the **Role and Strategies of the Government**, where the **Lesson Learned and Future Strategies** will be analyzed, followed by the new **Private-Public Agreement**. The third key point belongs to **Policy Framework in Uruguay**, which is divided by the **Social Housing Policy Framework** and the **Sustainable Housing Policy Framework**. And finally, there will be a debate about the **Results and Discussion** of the entire chapter research, which includes the **Evaluation of the Uruguayan Situation** after the Success Criteria Matrix developed in chapter number two, and then, another **Discussion of Success Factors, Sustainable Development Dimensions and Possible Barriers**.

Before starting considering the information about the current Uruguayan building sector analysis, it is essential to appreciate that according to the MVOTMA information, approximately 75% of the Uruguayan homes are housings protected by legislation, which grant them a residence. Hence, 56% are owners that had already paid or are still paying mortgage credits, while 18% are tenants and 1% BPS residencies users. A very high percentage is, however, for irregular and precarious shelters whose total add about 25% of housings with a very high legal uncertainty status. It is important to clarify that, over 10% of this last data, is the most vulnerable population, well below the poverty line. This represents about 24% of Montevideo's housing.[170]

[170] MVOTMA, for its Spanish name, ***Mi Lugar, entre todos,*** **Plan Nacional de Vivienda 2010-2014 (My place, among all others, National Housing Plan 2010-2014).** For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).

## 3.1 Building Sector Analysis.

### 3.1.1 Housing Situation and Market Statistics

Generally speaking, compared with other Latin-American countries, Uruguay is one of the countries with less housing issues, where there are not many housings below the standard. However, according to Gilbert, what the country does need instead is to tackle the gap between low-income families and proper housing.[171] In May 2010 the Uruguayan government declared a special "State of Housing Emergency", through the decree 171/2010. Thus, started the National Socio-Housing Integration Plan: "Juntos" -together- (Plan Nacional de Integración Socio-Habitacional: **"Juntos"**) after it became law 18.829 approved by the Parliament. Since then, this plan has been facing the challenge of tackling the extreme social-housing precariousness, which according to official data, lies between 15.000 and 20.000 housings.[172] It does so by targeting specifically those population sectors that eventually do not qualify, for different reasons, to join a cooperative[173] or cannot organize themselves in order to meet the requirements for another social housing program.[174]

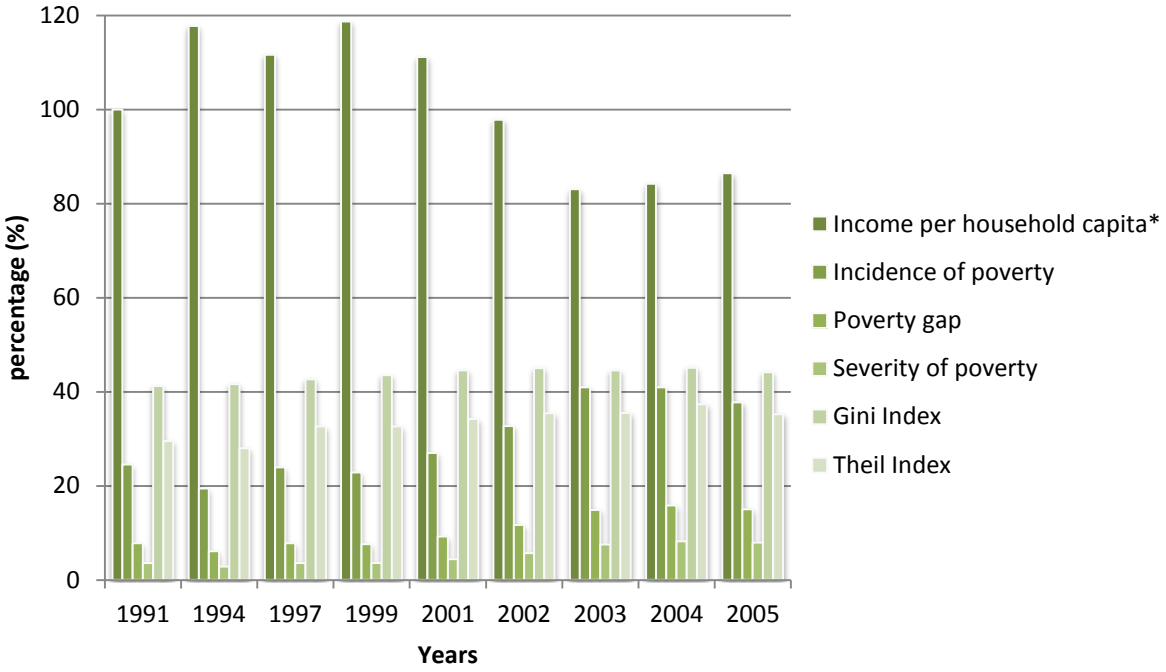
After analyzing plenty of information from different resources, and taking into consideration the diverse perceptions captured by onsite and Skype interviews with experts and stakeholders within the local social housing system, the author considered that it is relevant for this investigation to start describing the current situation with the latest possible data in a first horizontal **quantitative and qualitative approach.** Later on, a different kind of approach, about local **expert opinions and interpretations**, will follow. The reason for this, is to be able to compare both different approaches, because the "official" data not always match to the local stakeholder's perceptions.

#### a] Quantitative and Qualitative Approach

The following graphs and analysis were done after the National Institute of Statistics (Instituto Nacional de la Estadistica, **INE**), which provides on its web site the preliminary

[171] Gilbert A., **La vivienda en America Latina**, INDES, 2009. Available at: http://www.habitants.org/the_urban_way/popular_fund_for_land_and_housing/virtual_archive/la_vivienda_en_america_latina (Access June 2012).
[172] Available at: http://www.juntos.gub.uy/creacion.html (Access June 2012).
[173] The Cooperatives will be explained in *3.1.2 Stakeholders* in section *d] Non-public Stakeholders / Civil Society Stakeholders*.
[174] Personal Interview with **Juan Pedro Urruzola**, General Director of the Planning Department, Montevideo Intendance, Uruguay, April 2012.

results of the 2011 Census, and the National Household Extended Survey (Encuesta Nacional de Hogares Ampliada, **ENHA**) made, for the last time, in 2006.

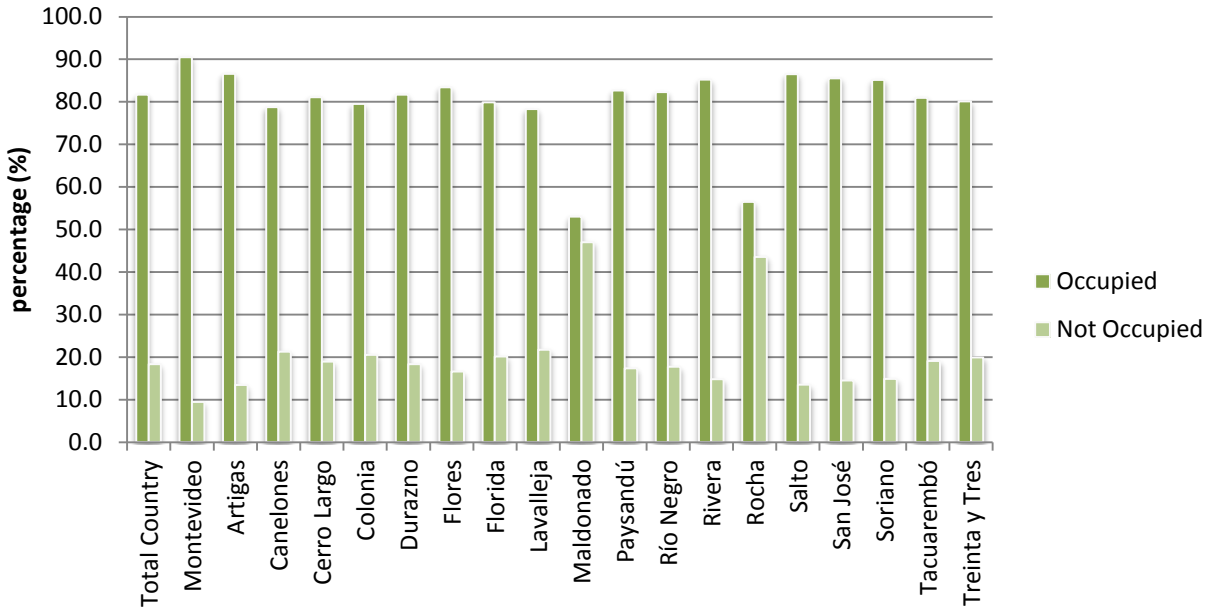



**Graph 3.1: Indicators of Household Welfare from 1991 to 2005.**[175]
***Note: the percentage of income per household capita will be 100% in 1991.**

The graph 3.1 evidences the drop in the real value of households income, especially after the 2002 financial crisis. The problem is that inequality and poverty have also increased, and have this growing trend since the crisis; unfortunately, they have not slowed down that much after the reactivation of the Uruguayan economy in 2003. [176]

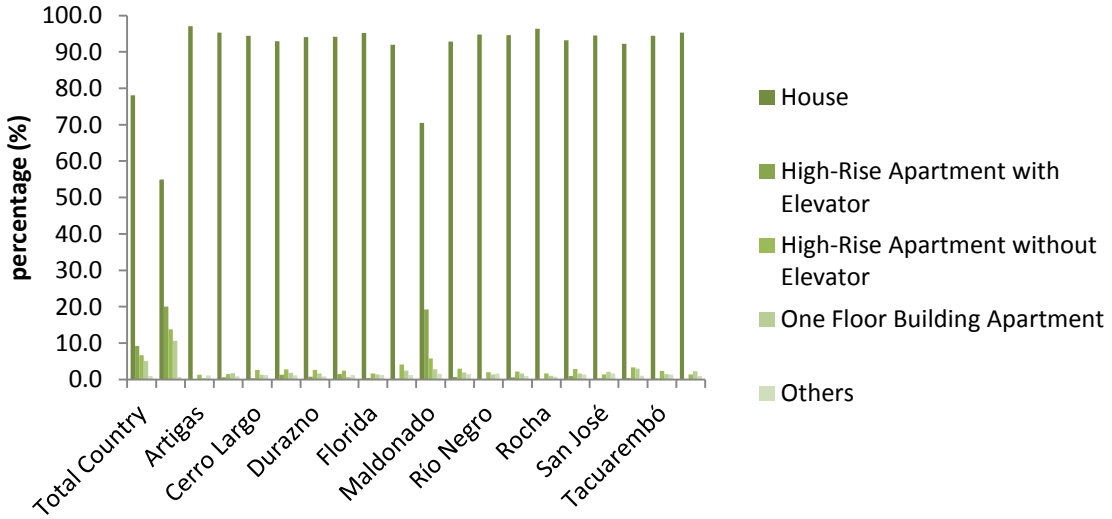
According to the preliminary results of the Census 2011 of the INE, in the specific case of Montevideo, there are 1.292.247 inhabitants, where 99,25% of the population lives in the urban area, with 519.433 housing units, from which 461.002 are occupied. Although, the following graph also shows there are currently housings not occupied (58.431 units), the perception approach of this investigation will show that housing deficits' "official numbers and percentages" not always reflect the reality and awareness of the people.

[175] Source**: Own creation** after Arim R., Vigorito A., **Un Analisis Multidimensional de la Pobreza en Uruguay. 1991-2005**, Instituto de Economia, Uruguay, page 4, 2007 Available at: http://observatoriosocial.mides.gub.uy/mides/portalMides/portalMides/Documentos/documento_mides_72.pdf (Access June 2012).
[176] Arim R., Vigorito A., **Un Analisis Multidimensional de la Pobreza en Uruguay. 1991-2005**, Instituto de Economia, Uruguay, 2007. Available at: http://observatoriosocial.mides.gub.uy/mides/portalMides/portalMides/Documentos/documento_mides_72.pdf (Access June 2012).




**Graph 3.2: Percentage Distribution of Housing for Private Occupancy Status by Uruguayan Department, 2011.** [177]

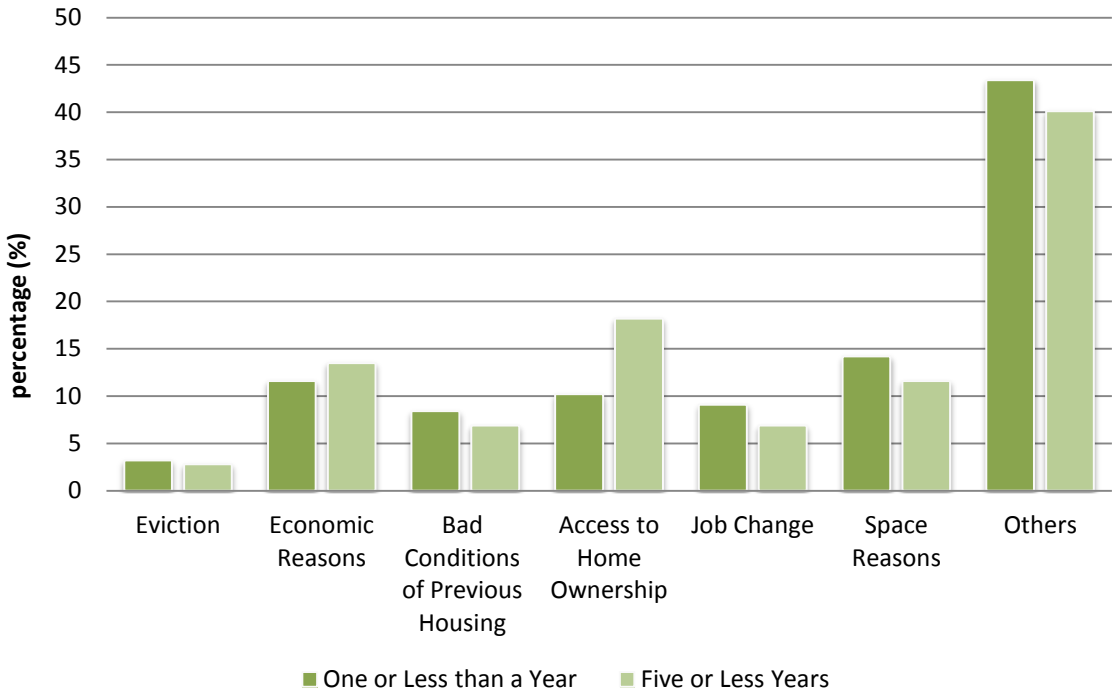
In the graph showed above becomes clear Montevideo is the department with the most occupied housing units, around 90,5%. There are other departments with a much lower percentage, like Maldonado with 47% of not occupied housing. The reason of this last low percentage is that this department belongs to one of the most popular seaside areas and, therefore, most of their housings are for temporary use, depending on the season.




**Graph 3.3: Percentage Distribution of Housing for Specific Housing's Type by Uruguayan Department, 2011.** [178]

[177] Source: **Own Creation** after INE (Instituto Nacional de la Estadistica), Available at: http://www.ine.gub.uy/censos2011/adelantos_breves.html (Access June 2012).
[178] Source: **Own Creation** after INE (Instituto Nacional de la Estadistica), Available at: http://www.ine.gub.uy/censos2011/adelantos_breves.html (Access June 2012).

The graph 3.3 takes into account the percentage distribution of the different Uruguayan housing types by department. Therein, it can be observed, 78,1% of the total housing in the country belongs to houses, while 9,2% are high-rise apartments with elevators and there are 6,7% of high-rise apartments without elevators. Finally, 5% goes to one floor building apartments and 1% corresponds to other type of housings.

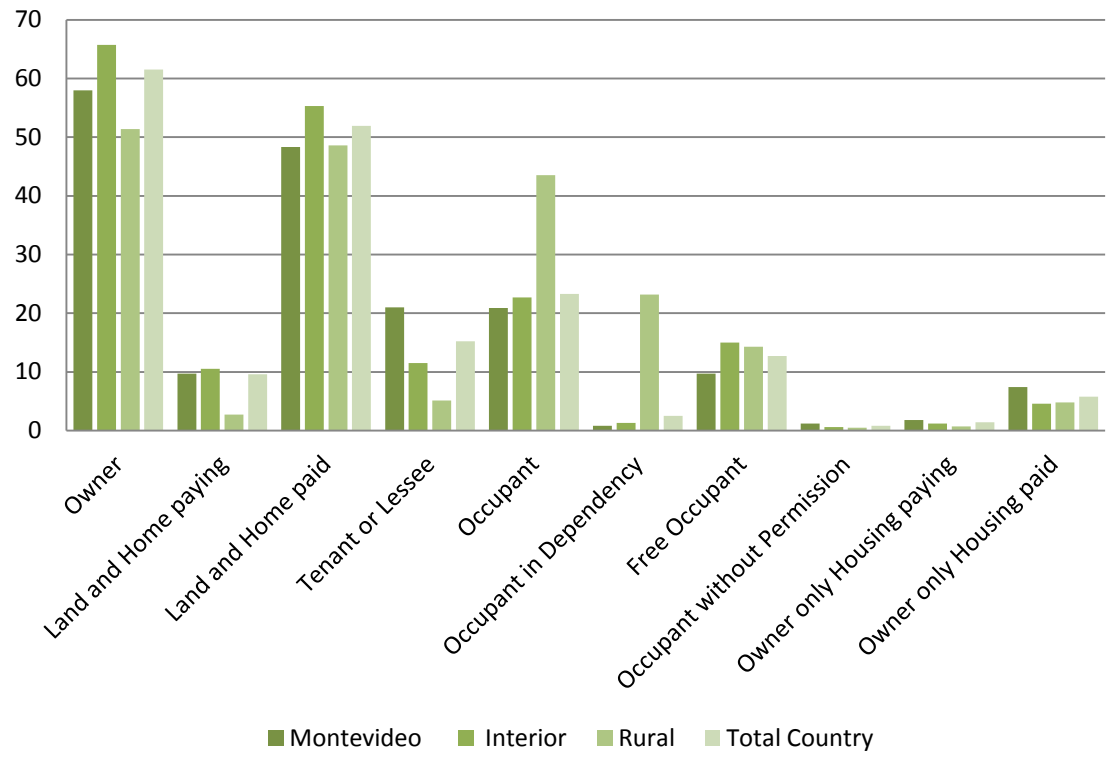



**Graph 3.4: Reasons Families changed their Homes in the past five years in %, 2006.**[179]

In order to identify the reasons why families change their homes, graph 3.4 is specific targeting the group of people that have moved during the last time and the reason why they did so. For this, ENHA did a poll to all families that lived less than five years in their current home. The graph illustrates the answer distribution among their motives. This survey shows that the reasons with highest percentages are "access to ownership", "economic reasons", and "other reasons". The fact that "other" means about 40% of unidentified reasons that are not further explained by ENHA, the author considered necessary to take more information into account for completing more the investigation.

Consequently, the following graph 3.5 will be more oriented toward households by type of housing occupancy:

[179] Source: **Own Creation** after ENHA (Encuesta Nacional de Hogares Ampliada). Available at: http://observatoriosocial.mides.gub.uy/mides/portalMides/portalMides/Documentos/documento_mides_171.pdf (Access June 2012).




**Graph 3.5: Households by type of housing tenure by geographical area in %, 2006.**[180]

Regarding the information of the graph shown above, it is important to notice the categories are divided by two: **Owners**, which includes land and home owners that are still paying for their property; and land and home owners that already finished paying ownerships and tenant/lessee. On the other hand; there is also the category **Occupants**, which embraces occupants in dependency, occupants with free costs and occupants without permission (irregular settlements). Finally, ENHA adds information about "owners only for their housing", but not the land, that already paid or are still paying for their homes. For this reason, ENHA considered these as "irregular settlements" as well, and therefore decided to locate them under "Occupants" and not "Owners".

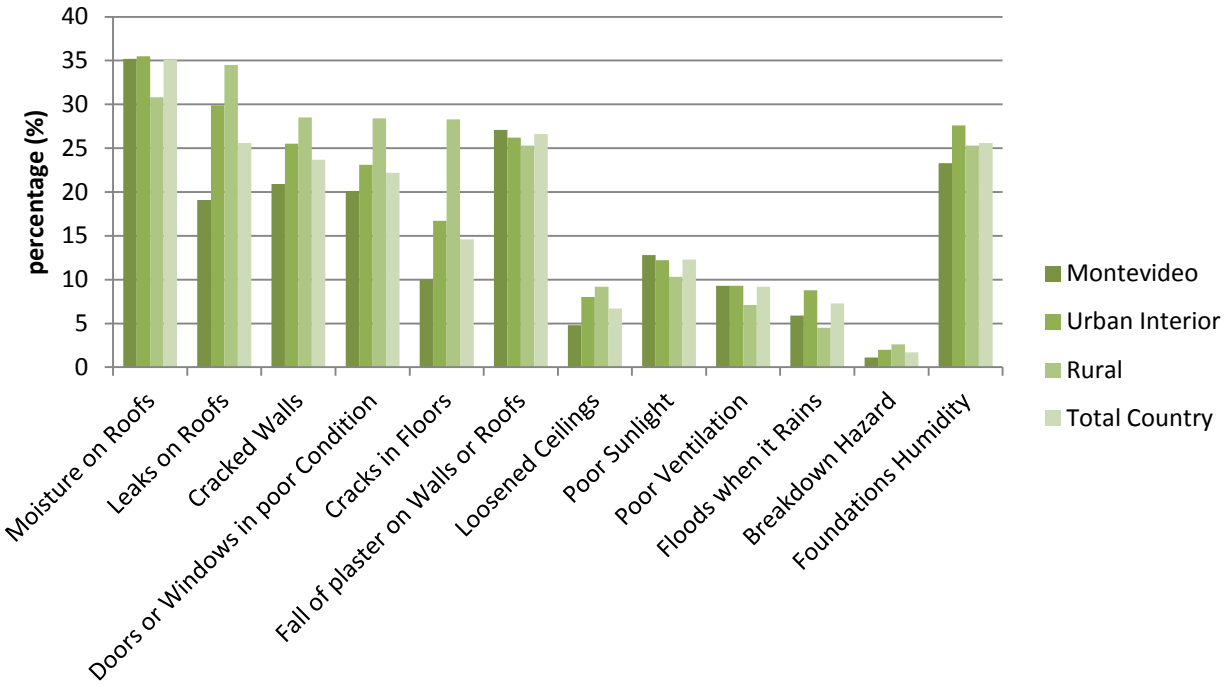
In this context, we understand the informal sector as Irregular Settlements. The informal sector is an irregular area of six or more dwellings, where eight or more families live, installed in others land and without any land tenure. In addition, the families living in those areas have no access to services, such as water, electricity and sanitation. The so called National Register of Irregular Settlements (Catastro Nacional de Asentamientos Irregulares), which is made by the ONG "A Roof for my Country" (Un techo para mi país UTPMP), revealed that between 2008 and 2010 the number of people living in irregular

[180] Source: **Own Creation** after ENHA (Encuesta Nacional de Hogares Ampliada). Available at: http://observatoriosocial.mides.gub.uy/mides/portalMides/portalMides/Documentos/documento_mides_171.pdf (Access June 2012).

settlements in Uruguay increased from 251,884 to 256,958. Although the number of irregular settlements was stable, the total number of housings within these settlements raised from 58,695 to 61,525. Yet, comparing these last data to the period of time from 1990 to 2000 - when the "irregular settlement" phenomena increased 32%- there was no relevant variants. Nevertheless, the UTPMP considered it is not acceptable for Uruguay to deal with this problem, when the country meets all the necessary conditions to eradicate it.[181]

In the graph 3.5 the owners sum up about 61,5% of the housing whole, which indicates the major percentage, but, in comparison with other Latin-American countries it is not much. In terms of housing ownership from families that already paid their mortgage loans, it is possible to observe the differences by locations. In the case of the country interior (all cities but Montevideo), it becomes clear this category is more dominant than Montevideo itself. The reason for that is that the small cities, being surrounded by rural areas, have as characteristic the importance of the "occupants". Particularly those with a labor dependency relationship with the owner of the property, and the occupants free of charge.[182] According to the Inter-American Development Bank, in countries where a great number of population is living in rural areas, usually means that low-income families have even more housing ownership than high-income families. It is a tendency in Latin American countries, that housing ownership is greater in rural regions than in big cities. However, in the case of the total percentage in Uruguay, high-income families have over 75% of housing ownership, while only 44% of low-income families enclose that privilege.[183]

[181] Available at: http://www.untechoparamipais.org.uy/actividades/ (Access June 2012).
[182] Casacuberta C., **Situacion de la Vivienda en Uruguay**, INE (Instituto Nacional de Estadistica).
[183] Lora E, Powell A., van Praag B, Sanguinetti P, The Quality of Life in Latin American Cities: Markets and Perceptions, The Inter-American Development Bank, 2010. Available at: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2010/05/11/000334955_20100511031143/Rendered/PDF/544310PUB0EPI01OX0349415B01Public10.pdf, (Access June 2012).




**Graph 3.6: Households by Construction and Maintenance Issues by Geographic Area in %, 2006.**[184]

Graph 3.6 illustrates the main issues of housing problems faced by the Uruguayan homes. In the case of Montevideo, clearly, the biggest issues are moisture on roofs, fall of plaster on walls and/or roofs and humidity in the building foundations. The fact becomes evident that conservation problems are more frequent than structural ones, which is usually directly linked to poor quality construction materials. [185]

Assembling all the quantitative visual information showed above, it reveals the conservation and quality of the housing status. Taking that into consideration, it was possible for ENHA to establish, in a **qualitative approach**, the categories to measure and describe the structural and economic situation of the existing Uruguayan housing stock:

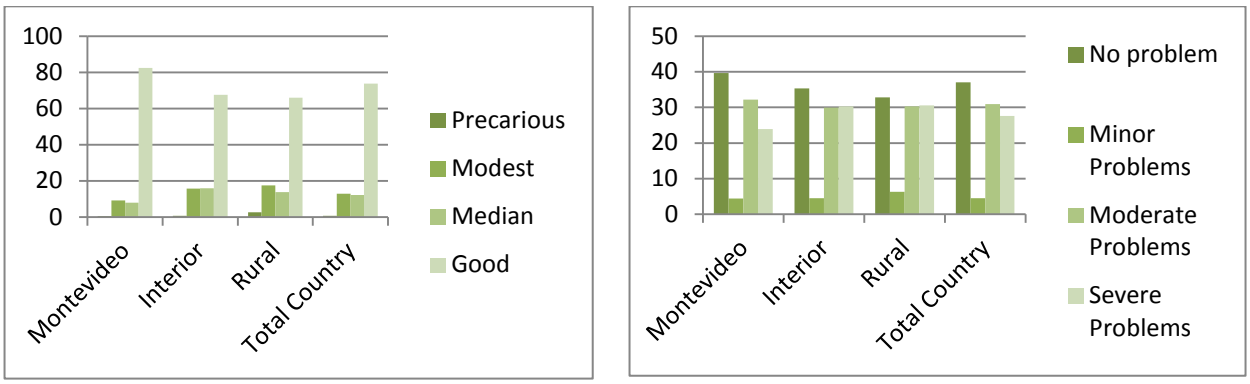
**(A)** for the structural situation: "**precarious**", "**modest**", "**medium/average**" and "**good**" (Graph 3.7);

**(B)** in the case of economic situation: "**no problem**"; "**minor problems**", "**moderate problems**" and "**severe problems**". With minor problems are meant housings with doors and windows in a bad situation or cracks in floors or poor leaks in roofs, falling plaster on walls or ceilings, or detached ceilings or moisture

[184] Source: **Own Creation** after ENHA (Encuesta Nacional de Hogares Ampliada). Available at: http://observatoriosocial.mides.gub.uy/mides/portalMides/portalMides/Documentos/documento_mides_171.pdf (Access June 2012).
[185] Casacuberta C., **Situacion de la Vivienda en Uruguay**, INE (Instituto Nacional de Estadistica).

in the foundations; and housing with "**severe problems**" are those where cracked walls can be found, or floods when it rains or is in danger of collapsing (Graph 3.8).[186]

**A) Structural Situation** **B) Economic Situation**



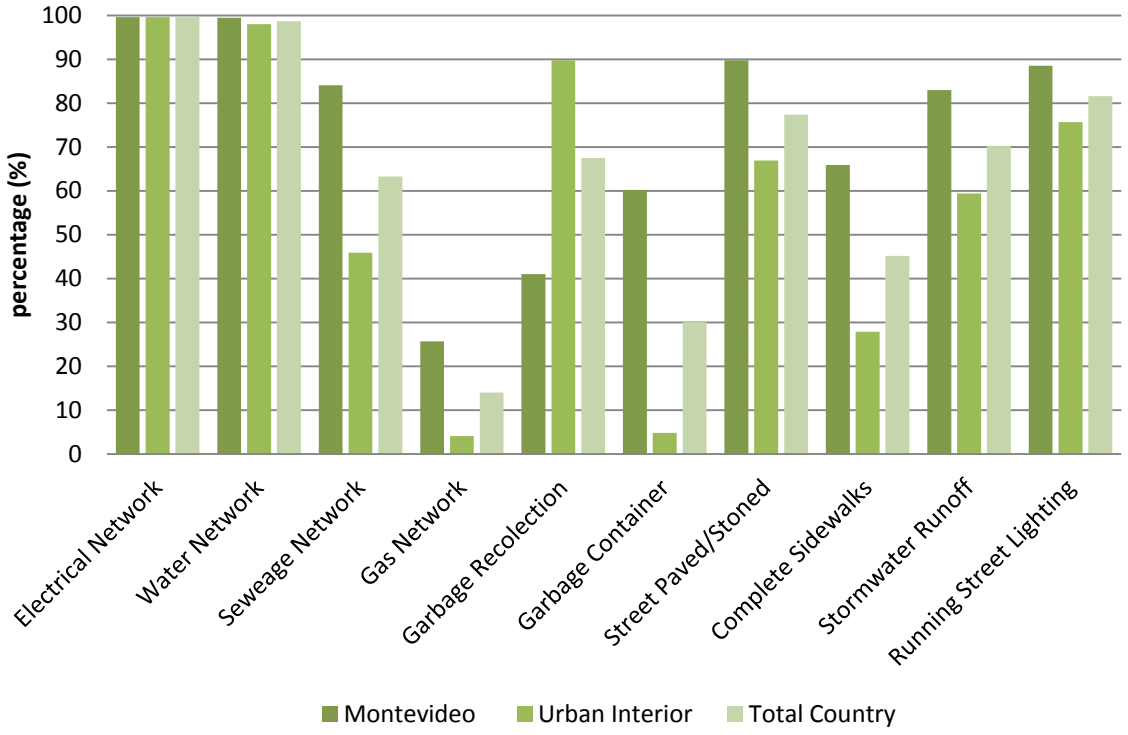

**Graph 3.7 and 3.8: Households by Housing Quality by geographic Area in %, 2006.**[187]

In the above mentioned graphs, the Uruguayan Housing Structural Situation is contrasted with the Economic Situation. The places where more precarious structural situation are found matches with the ones with more economic severe problems.

After this broad overview about the housing situation, a focus on the housing access for existing public services will follow (Graph 3.9). It becomes more than evident, Uruguay has practically no issues when it comes to electrical and water networks. Like the graph 3.9 shows, it is almost 100% covered. Nevertheless, apart from that fact, the Graph also shows more disturbing varying results for sewage and gas networks, as well as garbage recollection and container, street pavements, complete sidewalks, storm water runoff and running street lighting. Although a proper housing situation and access to fundamental services are indispensable for a population's good quality of life, there is still a great gap in a country like Uruguay, which is considered as one of the high-income Latin American countries.

[186] Casacuberta C., **Situacion de la Vivienda en Uruguay**, INE (Instituto Nacional de Estadistica).

[187] Source: **Own Creation** after ENHA (Encuesta Nacional de Hogares Ampliada). Available at: http://observatoriosocial.mides.gub.uy/mides/portalMides/portalMides/Documentos/documento_mides_171.pdf (Access June 2012).




**Graph 3.9: Households according to Services Availability in the Housing Environment, by geographic Area in %, 2006.**[188]

### b] Expert Opinions and Interpretations.

After the general overview in a quantitative and qualitative approach, the subsequent perception approach will provide important information about the housing and market situation from another point of view. The housing market in South America is very variable, depending on the geographical location and local land conditions. In the particular case of Uruguay, the housing market is separated into two different groups: the formal and informal housing market. Uruguayan experts and stakeholders collaborated with the author in order to be able to have a closer look from their local visions.

Social housing was always a segment traditionally in charge of the public sector in Uruguay, which was not able to attend it any longer after the 2002 financial crisis.

[188] Source: **Own Creation** after ENHA (Encuesta Nacional de Hogares Ampliada). Available at: http://observatoriosocial.mides.gub.uy/mides/portalMides/portalMides/Documentos/documento_mides_171.pdf (Access June 2012).

Another aspect that must also be considered concerns the fact that the public social housing production was clearly insufficient, especially since end of the 80's.[189] Between 1985 and 1996, Montevideo grew at a very small rate (2.3 per 1,000) compared with neighbor departments (Canelones 18.5 and San Jose 6.9 per 1,000). This tendency retrogressed from 1996 to 2004, where Montevideo had a negative rate of 1.5 per 1,000 while Canelones and San Jose increased their rates 11.5 and 8.0 per 1,000, in that order.

Contrary to these numbers, the population in the periphery of Montevideo increased from 10% to 20% in the last 40 years. This emigration of the population from the formal city into more rural areas of Montevideo with low population density, brought consequences such as the land being occupied in an illegal way.[190] If we add the fact that in 1985 a wrong parliamentary decision about rental market regulation was made, the result was reflected in a fast generation of irregular settlements, where until recently, 11% of Montevideo's population lived. This was a relatively quick growth process of urban informality, fact that was observed with concern both from the public and most parts of the private sectors.[191]

The architect Juan Pedro Urruzola, General Director of the Planning Department of the Montevideo Intendance, considers that 70% of Uruguay´s irregular settlements are in Montevideo, from which most of them are located in the city's periphery. He considers it is the government´s duty to create a dignified urban environment for this population sector, which was evicted from other territories. In addition, Montevideo has the trauma of being a consolidated city in the process of "emptying", a progression that, until now, the public policies weren't able to slow down. As a negative consequence, irregular settlements in the city's periphery grow, with no services and no infrastructure, brightening more the social-integration gap.[192] According to the INE, the high-income population is concentrated in particular neighborhoods of Montevideo, showing a clear tendency of this population layer to isolate themselves from others, and the fact that the costs of living are so high in these city areas does not help towards social integration.[193] In this case, one of the problems faced is the socio-spatial segregation, "rich people with rich people" and " poor people with poor people", although,

[189] Interview via Skype with Julio Villamide, Uruguayan real state expert and consultant. June 2012.
[190] Kaztman R., Retamoso A., Residential Segregation in Montevideo: Challenges to education equality, Universidad Catolica del Uruguay, 2006. Available at http://www.ucu.edu.uy/Portals/0/Publico/Facultades/Ciencias%20Humanas/IPES/Documentos/MS_Numero%2011.pdf (Access June 2012).
[191] Interview via Skype with Julio Villamide, Uruguayan real state expert and consultant. June 2012.
[192] Personal Interview with Juan Pedro Urruzola, General Director of the Planning Department, Montevideo Intendance, Uruguay, April 2012.
[193] Lora E., Powell A., van Praag B., Sanguinetti P., The quality of Life in Latin American Cities: Markets and Perception, The Inter-American Development Bank, 2010, Available at: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2010/05/11/000334955_20100511031143/Rendered/PDF/544310PUB0EPI01OX0349415B01Public10.pdf (Access June 2012).

traditionally, Montevideo had neighborhoods where rich and poor people used to live and coexist together. However, 30 years ago the situation began to change. And in these kind of issues is where specially targeted policies and deep interventions in the territory can potentially generate situations of change, what currently public policies are trying to attend.[194]

In 2006, the INE observed an important increase of irregular settlements which reached 6% of the total population, like mentioned before, growth that began after the 80's. In addition, there are also studies made by the intendances as well as the national government that showed housing complexes in risk situations with over-crowded and deteriorating buildings conditions.[195]

In the opinion of the architect Raul Valles[196], the housing precariousness is not only located in irregular settlements within the city periphery. Also, the urban poverty in Uruguay is "scattered" inside the formal city. In addition, for every poor person located in an irregular settlement, there are three more of them in Montevideo formal city.[197] At the same time, in the interior of the country, for each poor family living in an irregular settlement, there are nine poor housings located in the formal residential areas of the cities.[198] The city once was generated with normative and regulations, and suddenly started its densification into a "backward" direction. The result is that nowadays, Montevideo has popular neighborhoods with enormous levels of precariousness and a housing deficit that goes far beyond official statistics.[199]

What is certain is the fact that there is a large housing deficit in this country, not only for low-income families, but also for larger society sectors. It is true the current Uruguayan population is in an exceptional positive financial situation and, especially in this case, in the advantage of having a very willing government towards social housing policies.[200] It is important to clarify that for the amount of housing unit needed, in order to return to the levels of percentage of tenants that Montevideo had in 1985 when there were no irregular settlements, it is necessary to perform an investment of more than 2000.000.000 dollars. Clearly, the State does not have the resources to face that issue. However, according to the numbers of the Central Bank, during 2011 the construction

[194] Personal Interview with Juan Pedro Urruzola, General Director of the Planning Department, Montevideo Intendance, Uruguay, April 2012.
[195] INE, **Vivienda, Principales Resultados 2009**. Versión de circulación restringida preparada para el MVOTMA, 2010.
[196] Architect Raul Valles, Permanent Housing Unit, Architecture School of the Uruguayan Public University.
[197] Personal Interview with Raul Valles, Uruguay, April 2012.
[198] MVOTMA, ***Mi Lugar, entre todos*****, Plan Nacional de Vivienda 2010-2014**. For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).
[199] Personal Interview with Raul Valles, Uruguay, April 2012.
[200] Personal Interview with Juan Pedro Urruzola, General Director of the Planning Department, Intendance of Montevideo, Uruguay, April 2012.

investments were about 1010 million dollars in Uruguay: 10 millions corresponded to public investment and 1000 millions to private ones. In this case it becomes clear that the private sector has currently a major opportunity of investment, especially since there are clear rules, a genuine demand and the better pay ability from the population targeted. [201]

### 3.1.2 Stakeholders

Before starting explaining the stakeholders involved in this chapter, a Graph will illustrate them, and will guide the reader among the analysis that follows.

[201] Interview via Skype with Julio Villamide, Uruguayan real state expert and consultant. June 2012.

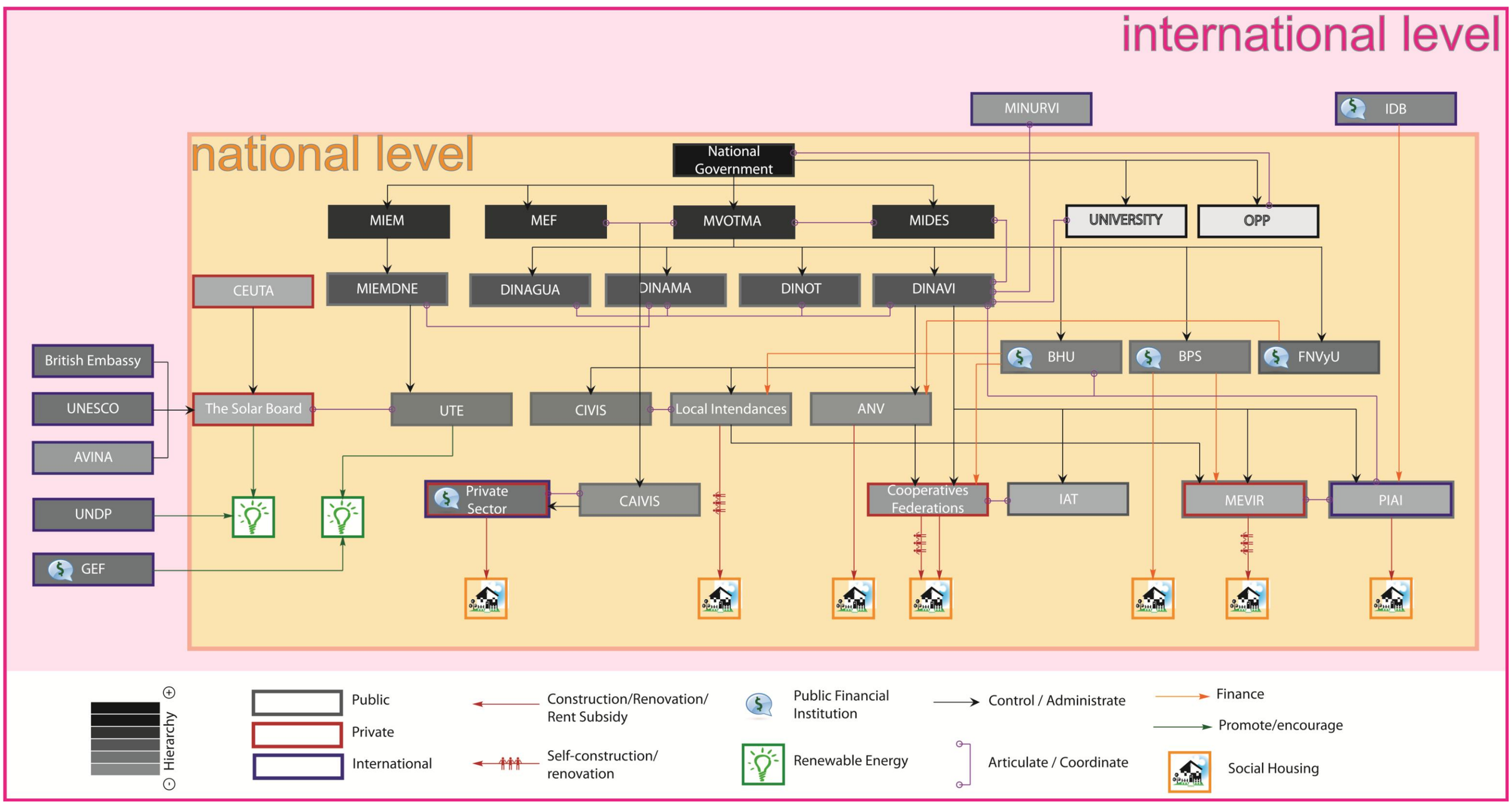



**Figure 3.1: Stakeholders Analysis.**[202]

[202] Source: **Own Creation**

The subsequent information describes some of the main actors involved in sustainable social housing aspects. Since they will be mentioned during this and other chapters, it is important to understand their importance and role within this research subjects. In order to categorize them in an understandable way, the author divided them into four groups: **international stakeholders**, **NGO's**, **national stakeholders**, and **non-public and civil society stakeholders**.

### a] International Stakeholders.

**The United Nation Environment Program** (**UNEP**) aims to make the necessary environmental friendly guidance and tools available in order to encourage nations to develop in a more sustainable manner.[203] In the specific case of Uruguay, the UNEP works through the local office of the United Nations Development Program (UNDP) located in Montevideo. Furthermore, the **United Nations Educational, Scientific and Cultural Organization** (**UNESCO**) office in Montevideo focuses on strengthening multilateral technical cooperation within Latin America and the Caribbean, having as target priority the environmental sciences.[204] The Foundation **AVINA** is also an institution that connects civil society leaders and business sector to join efforts towards sustainable development in Latin America.[205]

Following this line of mission, the **Inter-American Development Bank** (**IDB**), as an international institution focused in Latin-American and the Caribbean countries since 1959, also seeks to support sustainable development, providing loans, grants, technical assistance and knowledge based on its own researches.[206] In addition, another important international stakeholder involved in supporting sustainable development by addressing environmental issues is the World Bank through the **Global Environment Facility** (**GEF**), which is the major public founder of environmentally friendly projects.[207]

Another international actor, in this occasion directly linked to social housing issues, is the **Intergovernmental Entity from Latin-American and Caribbean Countries** (**MINURVI**). This institution was launched in 1992 as an intergovernmental body that coordinates and cooperates among the Ministers and public authorities developing regional action plans about housing and urban development topics.[208] Other international institutions that also collaborate with technical contribution in MINURVI's

[203] Available at: http://www.unep.org (Access June 2012).
[204] Available at: http://www.unesco.org.uy (Access June 2012).
[205] Available at: http://www.avina.net/eng/nota/cambio-climatico-2/ (Access June 2012).
[206] Available at: http://www.iadb.org (Access June 2012).
[207] Available at: http://www.thegef.org (Access June 2012).
[208] Available at: http://www.minurvi.org/ (Access June 2012).

work are The Economic Commission for Latin America and the Caribbean (ECLAC) and the Regional Office for Latin America and the Caribbean (ROLAC) of UN-Habitat.[209]

**b] NGO's.**

A multidisciplinary team of professionals from the government, the academia, civil society and private sector came along in August 2007 and assembled the so called **The Solar Board** during the IV Regional Forum of Renewable Energy in Montevideo city, which had the intention of developing solar energy technology and policy framework within Uruguay. In 2008, the **UNESCO** recognized the Uruguayan NGO **CEUTA, by its Spanish name,** (Centro de Tecnologías Apropiadas -Suitable Technologies Centre-) as a potential partner and joined in its mission since then, together with the **British Embassy** and the Foundation **AVINA**.[210]

The Solar Board is a NGO that works basically with solar energy applied to the housing context. It is integrated by many national institutions: the National Administration of Electric Power Generation and Transmission (Administración Nacional de Usinas y Transmisiones Eléctricas, **UTE**), Engineers Association of Uruguay (Asociación de Ingenieros del Uruguay, AIU), Chemical Engineers of Uruguay (Asociación de Ingenieros Químicos del Uruguay, AIQU), Technological Engineers Association of Uruguay (Asociación de Ingenieros Tecnológicos del Uruguay, AITU), Thermal Installers Association of Uruguay (Asociación de Instaladores Térmicos del Uruguay, AITU), Construction Private Promoters Association of Uruguay (Asociación de Promotores Privados de la Construcción del Uruguay, APPCU), National Association of Micro and Small Companies (Asociación Nacional de Micro y Pequeñas Empresas, ANMYPE), Uruguayan Association of Thermal Conditioning (Asociación Uruguaya de Acondicionamiento Térmico, AUAT), Cleaner Production Center from the Montevideo University (Centro de Producción Mas Limpia - Universidad de Montevideo, CPmL-UM), Industry, Energy and Mining Committee of the Senate of the Republic (Comisión de Industria, Energía y Minería del Senado de la Republica), Professional Technical Education Council (Consejo de Educación Técnico Profesional, UTU), Faculty of Architecture of the ORT University (Facultad de Arquitectura - Universidad ORT), Faculty of Architecture of the Republic University (Facultad de Arquitectura - Universidad de la Republica), Uruguayan Mutual Aid Cooperative Federation (Federación Uruguaya de Cooperativas de Vivienda por Ayuda Mutua, FUCVAM), Uruguayan Institute of Technical Standards (Instituto Uruguayo de Normas Técnicas, UNIT), Canelones Intendance,

[209] Available at: http://www.unhabitat.org/cdrom/networking/regional_Programme_Social_housing.html (Access June 2012).
[210] Available at: http://www.mesasolar.org.uy/documento/quienes_somos.html (Access June 2012).

Montevideo Intendance, Tacuarembó Intendance, Technological Laboratory of Uruguay (Laboratorio Tecnológico del Uruguay, LATU), Ministry of Industry, Energy and Mining - Energy and National Nuclear Technology - Energy Efficiency Project (Ministerio de Industria, Energía y Minería -Dirección Nacional de Energía y Tecnología Nuclear - Proyecto de Eficiencia Energética, MIEM-DNETN-PEE), Uruguayan Ministry of Housing, Regional Planning and Environment (Ministerio de Ordenamiento Territorial y Medio Ambiente - Unidad de Cambio Climático y Dirección Nacional de Vivienda, MVOTMA-UCC y DINAVI), State Sanitary Works (Obras Sanitarias del Estado, OSE), REDES Friends of the Earth (Amigos de la Tierra), Uruguayan Architects Association (Sociedad de Arquitectos del Uruguay, SAU), (Unión de Instaladores Sanitarios del Uruguay, UISU).[211]

### c] National Stakeholders.

During the 90's, The **National Government** created the **Uruguayan Ministry of Housing, Regional Planning and Environment** (Ministerio de Vivienda, Ordenamiento Territorial y Medio Ambiente, **MVOTMA**), in charge of designing and defining Uruguayan National Housing Plans, Policies and Programs. This entity is divided in four different departments taking into account each of its functions: **National Water Directorate** (Dirección Nacional De Aguas, **DINAGUA**), **National Environment Directorate** (Dirección Nacional de Medio Ambiente, **DINAMA**), **National Bureau of Land Directorate** (Dirección Nacional de Ordenamiento Territorial, **DINOT**) and the most important agency for social housing policies, **The National Housing Directorate** (Dirección Nacional de Vivienda, **DINAVI**).[212] The MVOTMA is the public organism in charge of monitoring and evaluating the implementation of social policies, as well as administrating the public funds institutions resources: the **Uruguayan Mortgage Bank** (Banco Hipotecario del Uruguay, **BHU**), the **Social Security Bank** (Banco de Previsión Social, **BPS**) and the **Housing and Construction Work National Funds** (Fondo Nacional de Vivienda y Obras, **FNVyU**). As a consequence, it is the most relevant participant: it has the faculty of authorizing subsidies and control all public and private actors involved in social housing.[213] The MVOTMA is always interacting with the **Ministry of Social Development** (Ministerio de Desarrollo Social,

[211] Mimbacas A., Honty G., **Instrumento de articulación público-privado para el fomento de la Energía Solar en el Uruguay**, Mesa Solar, Serie de Buenas Prácticas en Cambio Climático-Volumen 1, UNESCO, 2010. Available at: http://www.ceuta.org.uy/files/Experiencia_de_la_Mesa_Solar.pdf (Access June 2012).

[212] Available at: http://www.mvotma.gub.uy/ (Access November 2011).

[213] MVOTMA, ***Mi Lugar, entre todos*, Plan Nacional de Vivienda 2010-2014**. For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).

**MIDES**) and Interagency Tables (civil society representatives called by MIDES) when it comes to social housing policies.[214]

The **DINAVI** is part of the MVOTMA and responsible for generating housing policies in a way that they are aligned with other social policies. Besides, the directorate is obliged to articulate and coordinate all entities actions regarding housing in Uruguay. It also exchanges information and experiences with the international social housing agency, the **Intergovernmental Entity from Latin-American and Caribbean Countries** (Entidad de Coordinación Intergubernamental de los Países de Latinoamérica y del Caribe, **MINURVI**), with the object of developing sustainable solutions for human settlements and consolidating a valid methodology for social housing issues.[215]

The **Ministry of Economy and Finances** (Ministerio de Economía y Finanzas, **MEF**) became a very important active stakeholder within the social housing framework in Uruguay, after law 18.795 was enforced in 2011. Since then, they work closely with the MVOTMA when it comes to national and international private investments.[216]

The **Ministry of Industry, Energy and Mining** (Ministerio de Industria, Energía y Minería, MIEM) plays a key role within the sustainable development of the country. Its specific division **National Directorate of Energy** (Dirección Nacional de la Energía, **MIEMDNE**), responsible actor for advising the MIEM about energy issues, formulates energy policies and executes action plans.[217] Another related stakeholder, also very important regarding energy issues, is the **National Administration of Power and Electrical Transmission Plants** (Administracion Nacional de Usinas y Transmisiones Electricas, **UTE**). This is an Uruguayan state-owned company devoted to the generation, transmission, distribution and sale of electricity which is produced from its hydraulic, wind and thermal power plants. In addition, this company is in charge of the provision of other related services and consulting.[218]

The aim of the assessor of the Executive Power, one of the most important tasks of the **Planning and Budget Office** (Oficina de Planeamiento y Presupuesto, **OPP**) is to define the governmental economic and social strategies that will be applied as well as the

[214] Ministerio de Desarrollo Social Dirección de Coordinación Territorial, Mesas Interinstitucionales de Políticas Sociales, 2007. Available at: http://www.mides.gub.uy/innovaportal/file/4829/1/documentoMESASINST.pdf (Access November 2011).
[215] MVOTMA, ***Mi Lugar, entre todos*, Plan Nacional de Vivienda 2010-2014**. For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).
[216] Interview via Skype with Raquel Lejtreger, Deputy Minister, MVOTMA, Uruguay, May 2012.
[217] Available at: http://www.miem.gub.uy (Access June 2012).
[218] Available at: http://www.ute.com.uy (Access June 2012).

plans, programs and national policies. From the results of the interaction between the National Government and the OPP, housing policies, among others, are formulated.[219]

The **National Housing Agency** (Agencia Nacional de Vivienda, **ANV**) was founded in 2007 through law number 18.125 to implement plans of the responsible ministries. It is a decentralized governmental body in charge of managing the social portfolio of the BHU as well as executing all MVOTMA-DINAVI social programs and projects. In addition, the agency is also in charge of all financial aspects concerning housing actions in Uruguay. It creates financial instruments in order to develop sustainable public-private endeavours within the building market and makes mortgage credits more accessible for the low middle-class layer of the population. It also develops allocated social housing subsidy programs.[220]

Formerly, **BHU** used to be a monopolistic provider of housing programs mortgage loans and also supplier and constructor of social housing; this last function is, nowadays, one of the mentioned ANV duties. Some years after its bankruptcy and as a result of the financial crisis of 2002, during a complete reorganization of the public housing system the enormous social housing's debt portfolio was divided in two: a *commercial's debt portfolio* (meaning the debt that was somehow recoverable) and the *social's debt portfolio*. BHU retained the first one, and the ANV received the second one, this, within a new structure integrated in a different way to the MVOTMA, which became executor of both actors. Since then, BHU has been gaining importance and is now one of the most important State Property Financial Institution in charge of facilitating mortgage access for social housing.[221] Some of its main objectives are mortgage credits, loans for housing repairs, acquisition, enlargement and construction; with the condition of the MVOTMA full guarantee agreement. In addition, BHU is able to dispose its own real state patrimony at competitive conditions.[222]

A further public financial institution that focuses on the third age population is the **BPS**, which purpose is to design housing programs to supply pensioners and retirees with accessible solutions.[223] There is an additional public monetary institution, the **FNVyU**, in charge of the subsidy management for housings, following the 5-Years Housing Plan Lineaments. Its administrator, by law 17.930, is MVOTMA.[224]

[219] Available at: http://www2.opp.gub.uy/principal.php# (Access November 2011)
[220] MVOTMA, ***Mi Lugar, entre todos*, Plan Nacional de Vivienda 2010-2014**. For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).
[221] Skype Interview with Raquel Lejtreger, Deputy Minister of Housing, May 2012.
[222] Available at: http://www.bhu.net (Access November 2011).
[223] Available at: http://www.bps.gub.uy/ (Access November 2011).
[224] Available at: http://anterior.mvotma.gub.uy/dinavi/index.php?option=com_content&task=view&id=105&Itemid=105 (Access November 2011).

The **Movement for the Eradication of Unhealthy Rural Housing** (Movimiento de Erradicación de la Vivienda Rural Insalube, **MEVIR**), was founded in 1967 and supports programs that generate new housings as well as home renovation measures in rural areas. The special feature of those activities is that, even when they are not an organization like the cooperatives, the construction tasks are always performed with participation of the beneficiaries themselves.[225] The principal aim is to solve the housing and habitat issues of the rural population and small localities of less than 5,000 inhabitants.[226] MEVIR is a private and autonomous institution, although it manages public funding and performs as a public institution.[227] The funding of this institution comes, on one hand, from the MVOTMA (66%). On the other hand, the remaining 44% comes from the *"gauchocracia"*, meaning a percentage tax of agriculture transactions.[228] The MEVIR works in coordination with local rural intendancies and the **Program of Irregular Settlements Integration** (Programa de Integración de Asentamientos Irregulares, **PIAI**) that promotes socio-territorial integration of irregular settlements consolidated in public lands. The fact that is a project financed by the **Inter-American Development Bank** (Banco Interamericano de Desarrollo, **BID**) gives the PIAI certain economic independency. Nevertheless, it is also incorporated to the public housing system through its active participation in the Housing Cabinet ("Gabinete de Vivienda"), which is, at the same time, integrated by the Minister and Deputy Minister of MVOTMA, the president and the vice president of the BHU, ANV and the state-owned water utility OSE (Obras Sanitarias del Estado). Thus, PIAI works in close coordination with MVOTMA strategic guidelines. Nowadays, there is a very important coordination between the DINAVI and PIAI regarding every situation that has to do with "irregular settlements" issues.[229]

**Properties Portfolio for Social Interest** (Cartera de Inmuebles de Interés Social, **CIVIS**), is a public organism created by law number 18.362 in 2008, that affects the properties which are useful for Social Housing and Services construction, with the intent to execute projects and programs of the National Housing Plans.[230] To accomplish them, the executive, with the initiative of the MVOTMA, grants the lands. Thus, the CIVIS manages

[225] Personal interview with Jorge Bertullo, Unidad de Evaluación y Monitoreo y Acompañamiento de Investigaciones, MEVIR, Uruguay, April 2012.
[226] Available at: http://www.mevir.org.uy/ (Access June 2012).
[227] Personal interview with Jorge Bertullo, Unidad de Evaluación y Monitoreo y Acompañamiento de Investigaciones, MEVIR, Uruguay, April 2012.
[228] Personal Interview with Francisco Beltrame, Director of MEVIR, Uruguay, April 2012.
[229] Skype Interview with Raquel Lejtreger, Deputy Minister of Housing, May 2012.
[230] Available at: http://archivo.presidencia.gub.uy/sci/resoluciones/2012/02/mvotma_20.pdf (Access June 2012).

the real state for social housing, working closely with all public organisms (MVOTMA, ANV, BHU, Local Governments, etc) and the private sector (Cooperatives).[231]

The **Uruguayan Public University** is assisting the National Housing Agency by controlling and evaluating the correct execution of the housing policy, the sufficient provision of housing and the housing situation in general – officially called the "housing observatory". Since 2005, Architecture School has also a Permanent Housing Unit, which is an academic division focused on a horizontal work directly linked to social housing and its habitat. It is an investigation, work and learning area within the Uruguayan Public University.[232]

**Local Intendances** and the National Government have agreements regarding social housing issues, thus supporting a decentralized policy.[233] The intendances manage their own funding and by law, they also have the right to manage national housing funds in accordance with MVOTMA.[234] In this case, the diversity of social housing programs is directly linked to the local needs and its institutional capacities, always in coordination with MVOTMA. In this case, the social housing projects are implemented by the work method of "self-construction". This modality is synchronized by the Intendance itself, which is the one that provides the land and manage the project. Projects are usually small and focus on the most vulnerable layer of the population, in which the beneficiary retrieves with labor force and MVOTMA, the technical assistance and housing policies.[235]

### d] Non-public Stakeholders / Civil Society Stakeholders.

**The Cooperative Federations** in Uruguay have historically been linked to Social Housing Issues and have emerged with National Law 13.728 in 1968. It is a self-management proposal which seeks to find sustainable social housing projects for families with a maximum income of 60 UR[236] and, in its regimens, integrates a Housing Cooperative and construction systems. Cooperatives are also governed by the National Housing Plan Rules[237].

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[231] Available at: http://medios.presidencia.gub.uy/jm_portal/2012/mem_anual/mvotma/mvotma.pdf (Access June 2012).
[232] Personal Interview with Raul Valles, Permanent Housing Unit, Architecture School of the Uruguayan Public University, Uruguay, April 2012.
[233] MVOTMA, ***Mi Lugar, entre todos*, Plan Nacional de Vivienda 2010-2014**. For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).
[234] Personal Interview with Raul Valles, Permanent Housing Unit, Architecture School of the Uruguayan Public University, Uruguay, April 2012.
[235] Available at: http://www.imm.gub.uy/ (Access June 2012)
[236] The abbreviation "UR" means *Readjustable Units* which is a unit of account created by the Law 13.728 in 1968. The value is monthly corrected, taking the changes of the average wage index into account. In April 2012 the values were the following: 1 UR = $ 579,78 Uruguayan pesos, which is equivalent to a little more than 28 USD. Available at: http://www.impo.com.uy/bancodatos/ur.htm, (Access June 2012).
[237] More information about the National Housing Plan in *3.2.1 Lesson Learned and Future Strategies.*

The creation of Assistance Funds by law within the cooperatives help the associates in case of needs, for instance, debts generated by illness or any other adversity.[238] All Cooperatives Federations are controlled by MVOTMA, by means of the adjudication of a "regularity certificate" that target the legal person agent of the Cooperative. At the same time, ANV evaluates the cooperative projects by taking into account all social, legal, architectonic points of view. It also conducts the monitoring of the construction works.[239] The public fund financed 85% of the cost of the social housing and the beneficiary account the rest, 15%, through own savings or a specific amount of hours of self-construction work.[240]

The eldest and most important Cooperatives are **FUCVAM**, Housing Cooperative Federation and Mutual Aid (Federación de Cooperativas de Vivienda y de Ayuda Mutua) and **FECOVI**, Hosuing Cooperative Federation of User with Prior Savings (Federación de Cooperativas de Vivienda de Usuarios por Ahorro Previo), and there are some smaller ones, like COVIPROCH (Plenario de Cooperativas de Vivienda de Propietarios y Conjuntos Habitacionales). [241]

Cooperatives had a very important socio-economic percussion in the set of features of neighborhoods in Uruguayan cities. These mutual aid-cooperatives showed how to be an important asset for low- and middle- income population by smartly employing architectural and construction technology in combination with prefabricated elements (like floorings and roofing tiles), that inexperienced but motivated people were able to apply during the self-construction process. After 30 years, cooperative systems trained plenty of people in doing "field work", including women. This was possible since cooperatives associates received constant technical construction support from the **Institute of Technical Assistance** (Instituto de Asistencia Técnica, **IAT**).[242] This Type of organisms demonstrated, for an important layer of the population, how to be a feasible option of getting respectable housings. These kinds of Uruguayan cooperative systems are already expanding not only to neighbor countries like Brazil[243], but also to other European countries. FUCVAM created the Technical Support Department which also started working with a Swedish Cooperative Centre in order to broadcast the Uruguayan experiences. [244]

[238] UNDP, **Housing co-operatives in Uruguay**, page 76, Available at: http://ssc.undp.org/uploads/media/Housing.pdf (Access November 2011).
[239] MVOTMA, ***Mi Lugar, entre todos*, Plan Nacional de Vivienda 2010-2014**. For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).
[240] Personal Interview with Ricardo Pscicabatto, Member of the Director Committee of FECOVI, Uruguay, April 2012.
[241] Interview via Skype with Raquel Lejtreger, Deputy Minister of Housing, May 2012.
[242] Available at: http://anterior.mvotma.gub.uy/dinavi/index.php?option=com_content&view=article&id=281:instituto-de-asistencia-tica-iat&catid=90:instituto-de-asistencia-tica-iat&Itemid=124 (Access November 2011).
[243] Housing co-operatives in Uruguay, UNDP, Available at: http://ssc.undp.org/uploads/media/Housing.pdf (Access November 2011).
[244] Personal Interview with Benjamin Nahoum, Technical Office FUCVAM, Uruguay, April 2012.

After last year's law 18.795 (which, later, will be explained in more detailed), the **Private Sector Investors** morphed suddenly in one new key actor within social housing. This marked a turning point in the social housing policy framework, because it became not only a national public issue, but also an international-national private one. The so called More Opportunities program for the private sector will also be explained under *social policy framework* and *role and strategies of the government* sections.

## 3.2 Role and Strategies of the Government.

The approach of transforming the current social housing system towards a more sustainable grasp can only be achieved through a collective effort among all key stakeholders involved and taking into account the three dimensions of sustainable development. Therefore, in the following section, the author will analyze the existing social, economic and environmental dimensions within the Uruguayan policies system, these, in order to be able to discuss and evaluate them at the conclusion of this chapter.

### 3.2.1 Lesson Learned and Future Strategies.

Today, like rarely some decades ago, there is the Government willingness that the Projects of the National Housing Plan fulfill quality constructions and are up to the challenge to answer both the demand of the economic possibilities of the Uruguayan families as well as the expectative and wishes of the communities. This model opposes the ones implemented some years ago, when social programs were developed for the most vulnerable population but with an extremely low urban/architecture quality, in most cases created with the most minimal cost, which means that the poorest settlement were, and some of them still are, in periphery locations: "outside" the city.

As MVOTMA's paper informs, one of the principal goals of the new Plan is to find a strategy for reverting urban sprawl, generated from previous public achievements, through join actions of DINAVI, ANV, PIAI and Municipalities, INAU, ANEP and civil society organizations.[245] Therefore, one of the challenges, apart from filling the gap within social housing actual deficit, is to fix mistakes and learn the lesson from failing

[245] MVOTMA, ***Mi Lugar, entre todos*, Plan Nacional de Vivienda 2010-2014**. For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).

former social housing government programs. One example of failures was the already mentioned *Solution of the Integrated Housing Access to Housing*, SIAV. Which was one of the darkest operating methods made by public programs, resulted in lots of disqualified houses in a territory where there are no services, no infrastructure and no quality of life. In these cases, those who promoted this kind of projects are only interested in "cutting a ribbon" and say "today we inaugurate 1519 housing solutions", which is, in Urruzola's opinion, completely false. Furthermore, they are generating enormous future social problems. Unfortunately, Uruguay has many of these kinds of experiences. For that reason the perspective of the *right to the city* concept is very important in relation to sustainable social housing.[246] This concept became *a must* when planning the future program foundations. Thus, as it was said before, especially in the case of Montevideo, there is a very important problem regarding land use. The expansion of the city generates all kind of externalities which end up being important factors for unsustainability. Javier Tasks, research professor at the Republic University declared it does not bring anything "sustainable" to have the best energy efficient house, with the best technologies, if the house is located in the periphery, without infrastructure and services and one has to travel two hours by public transportation to work. In this case, the end user life quality does not improve.[247]

Today, the importance of strategically well-design social housing programs by using the proper tools is well known among the Uruguayan sustainable social housing stakeholders. It helps to avoid all problems shown by last experiences in this type of low cost project. Furthermore, the idea to achieve the necessary sensibility capacity, in order to adapt the projects to the different identities and cultures of the local societies. In the case of sustainable housing, a lot of sustainability theoretical knowledge has been developed, however very little has yet been implemented. According to Rea's opinion, the application of sustainability criteria is directly linked to change cultural patterns within the economic development, being a major barrier when the initial numbers do not fit the existing initial budget.[248]

Therefore, for the period of the 5-Year National Housing Plan (2005-2009), the government focused its resources on designing and initiating the implementation of a new housing and habitat policy. Today, for the new 5-Year National Housing Plan (2010-2014), the Uruguayan government took into consideration the lessons-learned from the past 5-Year Plan. One important factor that must also be well thought-out concerns the

[246] Personal Interview with **Juan Pedro Urruzola**, General Director of the Planning Department, Intendance of Montevideo, Uruguay, April 2012.
[247] Personal Interview with **Javier Taks**, Social Anthropologist, Research Professor at the Republic University, Professor of the Faculty of Social Sciences, Uruguay. April 2012.
[248] Personal Interview with **Hugo Rea**, Unidad de Gestión de Calidad, Intendance of Montevideo, Uruguay, April 2012.

fact that every 5-Year Plan has short-term goals, those that are achievable in the terms and time of performance, and also there are some long-term ambitions to be accomplished in future plans. "My Place, among all" ("Mi Lugar, entre todos"), MVOTMA's National Housing Plan 2010-2014 includes a section of "lessons-learned" from the last plan 5-Year Plan. The following are some lessons-learned from last 5-Year's Plan (2005-2009) about the programs that were not accurate achieve or had not been approached successfully enough. Some of the important issues that required immediate action, for instance, were the pressing need of concluding the adjustment of the actions plans, so as public and institutional compliance, in order to ensure the poor sectors participation within the Social Housing Programs. Also, there was the urgent need to develop a proposal for the part of the third age population unable to access housing credits and other people that for different reasons were not scheduled within the residential solutions of the Social Security Bank (BPS).[249]

Moreover, there is the obligation of rethinking the programs of "housing cooperative" to respond the demand of families whose incomes are above 60 UR, with no credits bank access, as providing access to sectors with lower revenue, for whom the management is too complex and costly. Even plan JUNTOS is targeting some of these vulnerable groups. MVOTMA's National Housing programs should enlarge its programs possibilities of access as well, in order to meet the existing demand.

Another important issue tackled for the improvement of the new 5-Year Plan, was the need of expanding and refining the participation of the BHU, BROU and private banking sector in the National Housing policy, hence, extension of the credit conditions that reaches the middle-income sectors.[250] In addition, there was a major development toward decentralization politics. It is also necessary to build a "decentralization framework" for future housing policy proposals: meaning objectives, criteria and strategies with formal procedures, as well as guidance and policy management organization in the Municipalities. Thus, implementing information, evaluation and monitoring system of the local Municipalities that is also well-matched to the one operated at the MVOTMA. The compatibility of data is a crucial necessity: concreting a housing information system for the new National Housing Plan will build an essential background for future MVOTMA's programs efficiency. Herewith, the need of collecting the Data of the studies and consultations conducted in the previous period, like, for instance, the housing needs, housing deficit conditions, data of extreme poverty, the

[249] MVOTMA, ***Mi Lugar, entre todos*, Plan Nacional de Vivienda 2010-2014**. For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).
[250] Interview via Skype with **Raquel Lejtreger**, Deputy Minister, MVOTMA, Uruguay, May 2012.

household characteristics and housing program's behavior evaluation from the economic, social and architectural point of view.[251]

### 3.2.2 The Private-Public Agreement: More Opportunities.

Initial efforts date back to 2004, when some private sector proposed the idea of associate private developers in order to meet the housing-demand needs of the middle-low income population. The results of this proposal are reflected in new law 18.795 of social housing promotion, which was recently approved unanimously by the Uruguayan parliament. This law, in combination with other extra legislations, aims to make the private participation within social housing projects more suitable, in order to bridge the gap between cost productions targeting, therefore, the housing sale prices or fees to the amortization and the pay ability for the sectors to which this production is oriented. This gap is still enormous and very difficult to mitigate. Nevertheless, just now started to close because of the application of this whole battery of instruments to subsidize the offer: this law, strengthened by total tax disclaimers for the social housing production with explicit, non-massive, transparent and specific grants, projected to support the demand side. [252]

Since the law was approved, the **Economy and Finance Ministry** (Ministerio de Economia y Finanzas, **MEF**) has a much more direct role within social housing issues. On one hand, there is the budget issue, where the state stops receiving specified taxes and which is directed linked to the budget projections of the Ministry of Economy and Finances. On the other hand, each of these promoted projects must meet a certain number of established conditions, the commission in charge of controlling this issues is the Advisory Committee for Investment in Affordable Housing (Comisión Asesora para la Inversión en Vivienda de Interés Social, **CAIVIS**), which is integrated by two experts of the MVOTMA and two experts of the MEF. This kind of direct integration within an inter-ministerial committee is a novelty in Uruguayan public institutions.[253]

According to the Minister of Economy Fernando Lorenzo, public policies have made the greatest effort in Uruguay's history in order to generate the most propitious scenario for the development of this activity. Thus came into effect based on the assumption that the

[251] MVOTMA, ***Mi Lugar, entre todos*, Plan Nacional de Vivienda 2010-2014**. For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).
[252] Interview via Skype with **Julio Villamide**, Uruguayan real state expert and consultant. June 2012.
[253] Interview via Skype with **Raquel Lejtreger**, Deputy Minister of Housing, June 2012.

public sector is putting tools targeting the social welfare, each one of this chain links - ranging from the investors who takes the risk to the financer, from the public policy operators to the final recipient of this policy- all have an important role in the contribution to a continuous develop of a successfully activity. In this regard, it is clear that Uruguay is starting to build a basis, putting a lot of diverse instruments in a market where there is a apparent insufficiency of investor interested in building this type of housing, where financiers are not particularly attracted to thin kind of business, and the potential customer belong to an low-income sector in need of a housing unit.[254]

At this moment, there are great expectations about what could happen with this law and the participation of private investors. Many foreign investors, mostly from Europe, are participating in the first social housing projects. As it always happens, the private sector targeted the more solvent demand range to be served, nevertheless, there are some specific cases of investors attracted in serving the lowest income sector. In the word of Villamide, "the interest is there, but we are just beginning, we will have to wait a couple of years to see how it impacts". Villamide has already begun to notice some changes, especially in the population income. He considers being a positive sign the fact that rent costs are increasing in the periphery more than in the coast, and that, in his opinion, is an indicator that low-income families, who has migrated to illegal settlements during the crisis, nowadays are returning to the formal city. This means that people have, at the present time, sufficient income to pay the rent of a housing with services and they are preferring to return to the city, even when the housing conditions have not yet fully improved, since it is assumed that this law may allow the private sector to build between 20000 and 30000 housing units for rental, which is what they believed the current demand in Montevideo.[255]

The investment projects for social housing will be linked to the promotion of the construction, renovation, and expansion or recycling of buildings, either for rent or sale purposes. Under current regulations, the private investor's proposal may involve at least two homes and no overcome the 100 housing units. According to ANV, up to the beginning of June 2012, there are already 28 private projects promoted, 19 are being at the moment studied, 2 observed, with a total of 49 projects entered.[256]

[254] Speech from Minister of MEF **Fernando Lorenzo**, Press Conference March 2012, Available at http://www.youtube.com/watch?v=MD4BN-1J5JA, , Uruguay (Access June 2012).
[255] Interview via Skype with **Julio Villamide**, Uruguayan real state expert and consultant. June 2012.
[256] Available at: http://www.anv.gub.uy/home/contenido.aspx?id_contenido=52 (Access June 2012).

## 3.3 Policy Framework in Uruguay.

The next information exposed by the author explains, firstly, the National Social Housing Policy Framework, which includes an overview of the most important current national housing programs and policies; secondly, the Sustainable Housing policy will be stated.

### 3.3.1 Social Housing Policy Framework.

From the moment the past Five-Year National Housing Plan (2005-2009) has begun, new rules came along with the new subsidy and/or loan policies. The whole strategy framework was designed in order to make housing more affordable and adequate to the socio-economic reality of Uruguayan disadvantages groups. This **National Housing Plan's rules** were divided in four parts[257]: first, the **Product**, meaning the conditions for the production and localization of adequate housing for the families needs; second, the **Loan**, that address the conditions and requisites for the credits access depending of the socio-economic situation of the families; which conduct to the third rule, the **Demand Subsidy**, which are the conditions and requisites needed for the families willing to acquire a subsidy[258]. Finally, the **Loan for Housing Cooperatives with Public Funding and Fee Subsidy** (prestamos para cooperativas de vivienda con financiamiento público y subsidio a la cuota), which incorporates the fee subsidy as a cooperative system's instrument with public loans.[259] In order to clarify the meaning of fee subsidy (subsidio a la cuota) in this context, the following words were extracted from the National Housing Plan paper:

> *" The fee subsidy, consist in a tool that allow a family or an addresser group a partial or total subsidy on a mortgage credit for housing. Thus, the addresser will pay back a fee according to its income.*
>
> *The total fee subsidy is based on a right acknowledgment. It does not confine its fulfillment to the economic, material or human possibilities of people or families. It does not condition itself to realization of counterparts, exception made from the compromise with the care and maintenance of the received good. It is consider that this instrument must be articulated with other programs of the Assistance Net of the Equity*

[257] http://www.mvotma.gub.uy/dinavi/index.php?option=com_content&view=article&id=44&Itemid=47 (Access November 2011).
[258] MVOTMA, ***Mi Lugar, entre todos*, Plan Nacional de Vivienda 2010-2014**. For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).
[259] Available at: www.mvotma.gub.uy/DI.NA.VI/Reglamentos. (Access November 2011).

*Plan (Red de Asistencia del Plan de Equidad) in order to make possible a social integration and inclusion process"* [260]

The beginning of the changing process done during the first Five-Year Plan (2005-2009) was called First Generation Changes. The existing Five-Year Plan (2010-2014) is looking forward to improve and amplify those changes: Second Generation Changes, which aims to increment the wealth and build up its distribution. In this sense, the new housing programs will improve the cover range in quantity and quality. The institutional transformation occurred during the last Five-Year Plan (2005-2009), with the creation of ANV and the recovery of the BHU, denoted to promote the social housing approach through state structures, consolidating the housing concept into social solutions.[261]

The new Five-Year Plan's structure is divided in six Strategic Lineaments expressed by Plans and Policies, taking into account two principal and specific axis: first, the articulations of all actors involved in public social housing system and, at the same time, the incorporation of private investments in social housing; second, the encouragement to families contribution in savings, work and management. The following table shows the Principal Objectives and actors involved in the Six Strategic Lineaments of the MVOTMA's National Housing Program 2010-2014[262]:

| | **Principal Objectives** | **Actors Involved** |
|---|---|---|
| **First Strategic Lineament** | Relocate the population living in flood or polluted areas, in order to reverse the social segregation and the territorial fragmentation process. The actors involved in this process are DINAVI in coordination with DINASA, DINOT, DINAMA, PIAI, Departmental Governments, Emergency National Systems, MIDES, Plan Juntos, Plan of Social Housing Integration, Organized Civil Society, users. The management is articulated. | DINAVI-MVOTMA in coordination with the PIAI as executers or co- executers (together with the Departmental Governments). Coordination with Plan Juntos and Social Housing Integration Plan. |
| **Second Strategy Lineament** | Contribute the families' access to housing solutions and improving the housing quality, developing strategies for the consolidation of diverse neighborhoods and rehabilitation of formal tissue areas located in critical peripheries of towns and cities from Uruguay. | MVOTMA DINAVI, DINASA, SINOT, DINAMA, MEVIR, PIAI, Plan Juntos, ANV, BHU, BPS, MIDES, MEF-CGN, BROU, Cooperative Federations, Worker Organizations (PIT-CNT-SUNCA-UNTMRA), Construction and Industrial Chambers, APPCU, Real State Agencies, Civil Society Organization, users. |

[260] MVOTMA, ***Mi Lugar, entre todos*, Plan Nacional de Vivienda 2010-2014**. For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).
[261] Interview via Skype with Raquel Lejtreger, Deputy Minister, MVOTMA, Uruguay, May 2012.
[262] MVOTMA, ***Mi Lugar, entre todos*, Plan Nacional de Vivienda 2010-2014**. For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).

| | | |
|---|---|---|
| **Third Strategy Lineament** | Develop strategies and actions for planned growth cities through interagency agreements, public and private developing land within the housing policies at national, departmental and municipal levels, and according to the Law on Land Management and Sustainable Development (Law No. 18,308 of June 18, 2008).<br>The management is articulated through public-public and/or public-private agreements. | MVOTMA SINAVI - DINOT - DINAMA - MEVIR - PIAI / MIDES / Local Governments, Cooperatives Federations, Construction and Industrial Chambers, APPCU, Real State Agencies, investors, contractors, Civil Society Organization, users. |
| **Fourth Strategy Lineament** | Is about the implementation of a Rent National Politic for Social Housing intended to give a housing solution to a great population sector. In this sense, users will have an easier access and perpetuity into housing through this tenancy modality. | The actors involve in this process through public-public and/or public-private agreements are MVOTMA DINAVI, MEF, CGN, FGA, MIDES, Local Governments, Real State Agencies (ADAPI, CIU, CUCACC), INAU, Republic University, Hotels, Guest-houses. |
| **Fifth Strategy Lineament** | intends to better the life quality of residents of the rural and small communities, focusing in the most vulnerable sectors through the promotion of social inclusion and generating sustainable habitat. | MEVIR, Republic University, University of Architecture, Law, Social and Economic Sciences, Social Security Bank (Banco de Previsión Social), Ministry of Interior, MIDES, MGAP, MEC ANEP, Institute of Colonization, Municipalities. |
| **Sixth Strategy Lineament** | propose to develop specific participation tools for the private capital in social housing, destined for housings for rent, as well as for sale through mortgage credits. | MVOTMA DINAVI, ANV, BHU, BROU, Private Banking, AFAPs, APPCU, Construction and Industrial Chambers, Savers. |

**Table 3.1: Strategic Lineaments of the MVOTMA's National Housing Program 2010-2014.**[263]

For the sake of clarity, we catalogued the different and most relevant housing programs into two major groups: **Housing Access and Refurbishment** and **Housing Rent Subsidies**.

### a] Housing Access and Refurbishment.

**I]** The MVOTMA-DINAVI and the BHU has specific targeted funds to supply the existing housing deficit through loans for low-income families to access to an ownership for new or used housing units. In order for these families to have access to loans, they needed to apply in the National Register of Applicants (Registro Nacional de Postulantes)[264] [265]. The subsidies are divided in two different levels described as I and II.

[263] Source: Own Creation after MVOTMA, ***Mi Lugar, entre todos*, Plan Nacional de Vivienda 2010-2014**. For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).

[264] Available at: http://www.sociedaduruguaya.org/2007/08/una-nueva-forma-de-llegar-a-la-casa-propia.html (Access June 2012).

Subsidy level I is oriented to families with a monthly income between 31 and 44 UR; subsidy level II is for families with a monthly income between 45 and 54 UR for.

**II]** Another interesting approach is offered by **MEVIR**, which, as mentioned above, it is rural areas oriented, and is in charge of providing new housing units and renovation works for existing households through self-construction methods, supported by a team of technical experts. This institution's features combination, together with its autonomous financial status and the close collaboration with the PIAI program, generate great impact in rural areas.[266,267] The targeted population for these MEVIR programs is families located in rural areas or localities with maximum 5000 inhabitants and whose monthly income does not overcome 60 UR. MEVIR offers four different programs; first, the so cold Nucleated Housing Programs (Programas de Viviendas Nucleadas) which intends to reach families with no housing solutions; second, the Urban Housing on Land Owned (Viviendas Urbanas en Terreno Propio) that target those families that own a land property but do not have a proper housing unit; third, Dispersed Housings (Viviendas Dispersas) with the aim of bringing solutions to families with housing, electricity and water difficulties; and finally, the Program Production Units (Programa de Unidades Productivas) to facilitate families who live of their own land production and need construction supports for its production and/or services improvements like access to drinkable water, electricity, etc.[268]

**III]** Created in 1996, **CrediMat** is a loan for construction material, intended to finance loans for low-income families living in the periphery of Montevideo and interior of Uruguay, to improve their housings under the "self-construction" system.[269] This program emerges from an agreement between the MVOTMA-DINAVI and the German government through the Kreditanstalt fuer Wiederaufbau (KFW).[270] The lower-cost credits are for families with an income lower than 100 UR.[271] At the same time this mentioned program was launched, the Solution of the Integrated Housing Access to Housing (Solucion Habitacional del Sistema Integrado de Acceso a la Vivienda, **SIAV**) was also one of the main government programs designed to tackle the demand of the

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[265] Available at: http://www.google.de/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&sqi=2&ved=0CEsQFjAA&url=http%3A%2F%2Fanterior.mvotma.gub.uy%2Fdinavi%2Findex.php%3Foption%3Dcom_docman%26task%3Ddoc_download%26gid%3D74%26Itemid%3D133&ei=Bx7PT4KzAsTEsgaolNnjCg&usg=AFQjCNH8AGci3qaODgJd_qyJaNyyu2VUSw (Access June 2012).

[266] Available at: http://www.mevir.org.uy/. (Access June 2012).

[267] Moreno-Dodson B., Wodon Q. Editors, **Public Finance for Poverty Reduction: Concepts and Case Studies from Africa and Latin America**, The World Bank, Washington DC, 2008.

[268] Available at: http://www.mvotma.gub.uy (Access June 2012).

[269] Available at: http://www.kfw-entwicklungsbank.de/ebank/EN_Home/Evaluation/Ex-post_evaluation_reports/PDF-Dokumente_R-Z/kurz_uruguay_credimat.pdf (Access June 2012).

[270] Available at: http://anterior.mvotma.gub.uy/dinavi/index.php?option=com_content&task=view&id=60&Itemid=60 (Access June 2012).

[271] Available at: http://www.anv.gub.uy/home/contenido.aspx?id_contenido=53 (Access June 2012).

population in very poor urban situations. However, according to Moreno-Dodson and Wodon, both programs failed in its purposes. The program CrediMat needed to enlarge its earnings in order to be able to maintain its credit support, while SIAV was pointed as being difficult for the low-income families at the time to access its benefits and information, and instead of helping the poor, it end up helping mostly only middle-income families.[272] Nevertheless, CrediMat is still ongoing promoted by the ANV program, while SIAV was terminated at the end of the previous five year's National Housing Program.

**IV]** There are also explicit programs targeting the pensioner and retiree population. These programs are being carried out by the **BPS** and MVOTMA, and aimed to reach third age people with an income of less than 24 UR and be in proper health conditions (to be able to care for themselves) to have access to a proper housing.[273] There are further programs from the BPS for housing rent subsidies explained in the corresponding category 2.

**V]** The different **cooperatives** are the oldest and strongest social housing programs in Uruguay. Information about the cooperatives' different systems and characteristics were already provided.

There is a new regulation for the subsidy grant, where an amortization fee depends on each family income. The loan amount is established depending on the amount of the housing rooms (2, 3 and 4 rooms), the land location (with services), the number of the Cooperative integrants (maximum 50 integrants) and the procedures for the loan grant.[274]

In 2007, an agreement between the Economy and Finance Ministry, the MVOTMA and the BHU was signed for the purpose of finding a way to treat the debt of the Cooperative system. The main objective was to guarantee their members the permanency in the

[272] Moreno-Dodson B., Wodon Q. Editors, **Public Finance for Poverty Reduction: Concepts and Case Studies from Africa and Latin America**, The World Bank, Washington DC, 2008.
[273]MVOTMA, ***Mi Lugar, entre todos*, Plan Nacional de Vivienda 2010-2014**. For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).
[274] MVOTMA, ***Mi Lugar, entre todos*, Plan Nacional de Vivienda 2010-2014**. For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).

social housing. This was possible through Permanency and *"Colgamentos"*[275] Subsidies. [276]

Cooperatives own the houses, however, the associates to the respectively cooperative system are also owners in a jointly manner. In this case, the rules are clearly stipulated: users can not sublet or give up actions of the housing, exceptions like marital divorces or death of the title holders applies. [277] Another relevant piece of information regarding cooperatives is that there are different types of them: on one side, they can be of *users* and on the other side of *owners*. Owners' cooperative grants the individual housing property, meaning that the people come together to build the housing and it becomes an horizontal property; while in users' cooperative, the housing belongs to the cooperative and not the beneficiary and consequently, the cooperative itself is in charge of paying the mortgage debt and also responsible for the maintenance. In addition, this last type of cooperative is divided in 2; the cooperatives of *mutual aid* and the ones of *prior savings*. [278]

**VI]** Through a joined work between the **local intendances** and the MVOTMA, many self-construction housing programs for vulnerable population were implemented. The MVOTMA provide technical assistance, while the intendances are in charge of providing the land and manage the projects, the applicants contribute with self-work.[279] The Social Housing Programs within the agreements between the MVOTMA and the local Intendances are divided in five lines of action explained in the following table[280]:

[275] *"Colgamentos"* subsidy emerges together with the housing law 13.728. Usually, mortgage debts with the BHU are calculated with UR, but, after the economical crisis of 1984, the inflation was so great, that half of the construction industry in Uruguay went to bankrupt. Many unfinished constructions were left. Since then, many measures were made in order to hinder this tendency; one of them was the so called *"colgamentos"* subsidy. The mortgage debt was not longer adjusted to the UR, but in a smaller measure, which made a big difference in the amount of the fee: with the *"colgamentos"* subsidy, people paid back less amount in fee but in more years.

[276] MVOTMA, ***Mi Lugar, entre todos*, Plan Nacional de Vivienda 2010-2014**. For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).

[277] Housing co-operatives in Uruguay, UNDP, page 76, Available at: http://ssc.undp.org/uploads/media/Housing.pdf (Access November 2011).

[278] Personal Interview with Benjamin Nahoum, Tecnical Office FUCVAM, Uruguay, April 2012.

[279] MVOTMA, ***Mi Lugar, entre todos*, Plan Nacional de Vivienda 2010-2014**. For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).

[280] MVOTMA, ***Mi Lugar, entre todos*, Plan Nacional de Vivienda 2010-2014**. For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).

| | Objective | Addresser | Product | Funding | Requirement |
|---|---|---|---|---|---|
| **1) Recovery of the Urbanized Land** | Equip the land for residential purposes with infrastructure and/or services. | Population already settled in the land and its surroundings. | Sanitation works, drinking water, electricity, streets and roads, open public spaces. | MVOTMA | |
| **2) New Housing** | **a-** Better the life quality of the families living in settlements<br><br>**b-** Recovery of urban space for other uses than residential. | Families settled in public land, not appropriate for residential uses. | Housing solutions for each family (new housing) and open public spaces (parks, etc). | MVOTMA with Municipalities contributions and sometimes other Organisms. | Do not own housing, live in the chosen settlement and accept all defined conditions of relocation. |
| **3) Lots with Services I** | Housing construction in State properties through the self-management of the beneficiary and with technical assistance. | Families settled in the targeted zones, with incomes between 15 and 60 UR, with children. | New Housing, self-managed. | Loans to the families form the MVOTMA | Live or work in the targeted zone, do not own housing, incomes between 15-60 UR with children. |
| **4) Urban Rehabilitation** | Recover and prolong the useful life of the housing stock in a selected area depending on the urban objectives of each Municipality. | Families settled in the selected areas with incomes up to 75 UR. | Rehabilitation works that not exceed the defined loan (usually US$ 3000). | MVOTMA | Live in the selected area. Present an application with a rehabilitation project to be revised and adjust from a technical representative. |
| **5) Renovation and Improvement** | Housing renovation and improvement, responding to individual needs from families in precarious housings. | Families settled in the selected areas, below the poverty line. | Renovation and enlargement works for social housing. | MVOTMA | |

**Table 3.2: Intendances Lines of Action.**[281]

[281] Source: Self creation after MVOTMA, ***Mi Lugar, entre todos*, Plan Nacional de Vivienda 2010-2014**. For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).

**VII]** For the low-income families, with dependent children or people with disabilities, to have access to a **new housing** unit of 2,3 and 4 bedrooms in different areas of the country. It is required in the case of the cities of Montevideo, Canelones and Maldonado to have a monthly income between 25 and 60 UR, while in the rest of Uruguay the income minimum requisite is a little lower, 15 UR. The applicants' age should range between 18 and 55 years old and, in the specific case of Montevideo, the candidate needs to own in savings the 10% of the housing unit price, while in the rest of Uruguayan cities this percentage is reduce to 8%.[282]

**VIII]** The MVOTMA also offers a **Prior Savings Subsidy** (Subsidio al Ahorro Previo). This program aims to support families to reach the prior saving amount demanded from the BROU (Banco de la Republica Oriental del Uruguay) and BHU banks, or private financial institution with agreements with the MVOTMA, in order to receive a loan to purchase a housing unit with a maximum price of U$S 69.295.[283]

**IV]** With the new law 18.795, a program called **More Opportunities** was created, aiming to incentive and foment the private sector to invest into the social housing market. To do so, the government facilitate private investors attractive financial advantages like the exemption from all national (related-to-the-construction) taxes; the creation of guarantee fund that facilitate the small and medium investor to have access to bank loans; and some facilities tools for the new housing sales and leasing. One of the instruments the government also provide to small and medium private investors is the so called **EL FOGADI**[284], which is a guarantee instrument that ensures up to 50% of the credit granted from a enabled bank.[285]

**b] Housing Rent Subsidies.**

**I]** In order to reach the middle-low income population, the MVOTMA has created the **Rental Guarantee Fund** (Fondo de Garantia de Alquileres, FGA). This fund is targeting families with incomes between 15 UR and 100 UR, which do have the ability to pay rent but are not accepted as tenants due to their lack of rental guarantees. It is important that this fund applies only for homes lease, whose rent are not superior to 21 UR, in addition, the user may not sublet the housing to others.[286]

**II]** There is also a **Rental Guarantee Fund for Youth** between 18 and 29 years old without housing ownership, this way, young students/workers can access a "state-

[282] Available at: http://www.mvotma.gub.uy (Access June 2012).
[283] Available at: http://www.mvotma.gub.uy (Access June 2012).
[284] Available at: http://www.anv.gub.uy/archivos/Octubre/FOGADI.pdf (Access June 2012).
[285] Available at: http://www.mvotma.gub.uy/tu-vivienda/construir/inversion-privada-mas-oportunidades (Access June 2012).
[286] Available at: http://guiaderecursos.mides.gub.uy/mides/text.jsp?contentid=5752&site=1&channel=mides (Access June 2012).

backed" guarantee that allowed them to rent a housing unit. One of the advantages of this program is that the guarantee can be individual or for groups (max 5 persons), meaning there is the possibility for young people to come together and add efforts and incomes in order to meet the requisites, which are an maximum revenue of 100 UR and a minimum of 30 UR, and the rent amount must not overcome the 22,5 UR or 40% of the incomes.[287]

**III]** As mentioned in the past category, the **BPS** has also subsidies programs for the third-age population, in this case that is not able to care for themselves, which involve a special nursing home program for people with special needs that use to be in the before mentioned BPS housing program. In addition, the BPS offers subsidy support for paying part of the rent for those pensioners with low income.[288]

## 3.3.2 Sustainable Housing Policy Framework

The Uruguayan formulation, monitoring and evaluation of environmental protection national plans are responsibility of the MVOTMA through the DINAMA. However, in this section of the chapter, the author will analyze the Uruguayan sustainable development policy framework in its different dimensions, starting with the legal framework, which includes the most relevant laws needed in order for the reader to be able to follow and understand the sustainable projects launched by national and international stakeholders within Uruguay.

The **General Law for Environment 17.283** of November 2000 declares the environment, water air, quality soil and landscape protection. Among other statements, it also pronounces international environmental cooperation and active participation in solving environmental problems, as well as the formulation, implementation and enforcement of national environmental policy and sustainable development.[289]

In the 30's, a notable group gave the municipal intendance a master plan as a present. In order to do so, they hired the best available team of technicians, who made a very modern study, plenty of logic, with a more environmental vision that begins to establish the foundations of an integrated and comprehensive look of the territory. Ever since then, all in the city is scheduled from a very urban point of view; Uruguay has, since

[287] Available at: http://www.mvotma.gub.uy (Access June 2012).
[288] MVOTMA, ***Mi Lugar, entre todos*, Plan Nacional de Vivienda 2010-2014**. For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).
[289] Available at: http://www.iau.gub.uy/marcolegal/Ley17283-proteccionMedioambiente.htm (Access June 2012).

2008, a nationwide Territory Planning law **18.308** for the general provisions of **Land Management and Sustainable Development**.[290] Consequently, this law establishes the general regulatory framework for land use planning and sustainable development, which defines the competencies and tools for planning, participation and action; and also targets the regional planning process towards achieving the national aims. In addition, it designs the instruments for implementing action and territorial plans. The intention is to maintain and improve the quality of life of the population, social integration in the territory and the environmentally sustainable and democratic use of natural and cultural resources.[291] This has two very important antecedents, on one hand the Land Use Plan (Plan de Ordenamiento Territorial) and, on the other hand, the law of Population Centers (ley de Centros Poblados), both embraced policies for urban and rural areas, considering the territory as a whole.[292]

The **Thermal Solar Energy Law 18.585** declares thermal solar energy investigation, development and handling training being of national interest, which allows the government to award with tax exceptions, like in the case of the Value Added Tax (VAT), Specific Internal (IMESI) and customs taxes, to national small endeavors and the domestic industry that need to import necessary merchandise in order to fabricate solar energy equipment.[293]

**Energy Efficiency Law 18.597,** enforced in September 2009, declares energy efficiency of national interest in order to contribute to the competitiveness of the economy nationwide, the sustainable development and the reduction of greenhouse gases emission, under the terms established by the United Nations Framework on Climate Change, approved by law 16.517 in 1994. The law also includes the inclusion of energy efficiency concepts in the design of national policies, especially in the case of housing policies. In addition, local governments are in charge of establishing a minimum standard for energy efficiency for new building constructions, in coordination with the MIEM.[294]

**Law 18.610** for the **National Water Policy** announces that all residents are allowed to access safe water and sanitation and situate the State as responsible of putting into effectiveness such rights. It also includes the management of water resources and

[290] Personal Interview with Juan Pedro Urruzola, General Director of the Planning Department, Intendance of Montevideo, Uruguay, April 2012.
[291] Available at: http://www.mvotma.gub.uy/component/k2/item/10002485-ley-18308 (Access June 2012).
[292] Personal Interview with Juan Pedro Urruzola, General Director of the Planning Department, Intendance of Montevideo, Uruguay, April 2012.
[293] Available at: http://www.mesasolar.org.uy/archivos/ppturuguay.pdf (Access June 2012).
[294] Available at: http://www.mvotma.gub.uy/component/k2/item/10002489-ley-18597 (Access June 2012).

services and all water-related uses and is the MVOTMA obligation to propose the executive the national water policy, which assures its sustainable management in order to preserve water resources and hydrological cycles for the future generations.[295]

The above exposed laws impulse very relevant projects and programs related to sustainable housing, like mentioned before, the author will show some of the most important programs within sustainable development linked to sustainable housing in Uruguay.

**I] Energy Efficiency Program** (Programa de Eficiencia Energetica, **PEE**)

This project intends to develop the use of national energy by improving the effectiveness. [296] Within this general framework, PEE promotes energy efficiency and environmental protection, correcting market failures and reducing the energy intensity[297]. It also produces different actions to raise awareness within the population about the energy efficiency benefits, increases the local institutional capacity, as well as encourages the entry of energy efficient technology products into the market[298], supporting the private sector energy service companies ESCOS[299], while at the same time promoting the generation of institutional framework appropriate for the development of energy efficiency in the country[300]. In order to fulfill this project, funding came up from an international-national agreement between the GEF through the World Bank, the MIEM and UTE.[301]

The ESCOS (Empresas de Servicios Energeticos) is a private sector companies that provides services for the development of energy saving projects and renewable energy use. [302] One of the most important features of ESCOS is the fact that projects can be done with limited or without investment from the energy user side. This is possible, due it combines the features of a consultancy firm, the necessary investment capital through financing instruments and the suitable legal support. Finally, once the project is done, savings are shared between the energy user and the ESCOS, building a win-win partnership. [303]

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[295] Available at: http://www.mvotma.gub.uy/component/k2/item/10002490 (Access June 2012).
[296] Available at: http://www.eficienciaenergetica.gub.uy/proyecto.htm (Access June 2012).
[297] PoliCS, ICLEI, **Diagnostico y Análisis de la Situación Actual de Montevideo en su Relación con la Construcción Sustentable,** Available at: http://www.iclei.org/fileadmin/user_upload/documents/LACS/Espanol/Diagnostico_Montevideo.pdf (Access June 2012)
[298] Available at: http://www.eficienciaenergetica.gub.uy/proyecto.htm (Access June 2012).
[299] Available at: http://www.eficienciaenergetica.gub.uy/escos.htm (Access June 2012).
[300] Available at: http://www.eclac.cl/drni/noticias/noticias/8/37118/Alfonso_Blanco.pdf (Access June 2012).
[301] Available at: http://www.eficienciaenergetica.gub.uy/proyecto.htm (Access June 2012).
[302] Available at: http://www.eficienciaenergetica.gub.uy/escos.htm (Access June 2012).
[303] PoliCS, ICLEI, **Diagnostico y Análisis de la Situación Actual de Montevideo en su Relación con la Construcción Sustentable,** Available at: http://www.iclei.org/fileadmin/user_upload/documents/LACS/Espanol/Diagnostico_Montevideo.pdf (Access June 2012).

### II] Unit of Energy Efficiency services

UTE also encourages a culture of efficient use of the energy by increasing the consumer demand and energy efficiency services and its supply in a competitive way, facilitating the availability and acquisition of these goods and the services, making it more accessible for the low income population[304].

### III] Standards and Labeling Program

There is an internal discussion in the academic sector which generates an unjustified polarization; on one hand, there are those who consider the need of a certain certificate for sustainable buildings, while, on the other hand, others opinion is more related to the awareness and education of the civil population. The most radical ones, judge certifications and labeling to be "contaminated" with commercial aspects and is no longer "operative". Others believe in the fact that education brings longer-term results and the need to make changes now is more required. Diulio Amandora, President of the Architects Society, considers both possibilities are rather complementary than the opposition and these types of confrontations are not bringing any fertile results.[305]

Despite national labeling did not reach entirely the building sector yet, Uruguay has incorporated, since 2006, a Standard and Labeling Program in order to classify energy products and equipments. In this matter, consumers are provided with all necessary information at the time to make a decision for purchase. This way, manufacturers and importers tend to provide more energy efficient products into the market.[306]

### IV] Incorporation of Renewable Energy

The other extreme belongs to the energy management system, which in the case of Uruguay is very much advance. Public Institutions, NGOs and, especially the UTE are doing a very good work by increasing the population awareness toward renewables and applying these clean energy systems in a very effective way within a large population sector. The architect Rodríguez Bonnecarrère believes they are among the public agencies leading the sustainability impulse within all areas in the country.[307]

There have been many actions already, which aimed to promote study and disseminate the use of alternative energy sources. Additionally, the UTE focuses on the efficient use

[304] Available at: http://www.eficienciaenergetica.gub.uy/ (Access June 2012).
[305] Personal Interview with Diulio Amandora, President of the Architects Society of Montevideo, Uruguay, April 2012.
[306] PoliCS, ICLEI, **Diagnostico y Análisis de la Situación Actual de Montevideo en su Relación con la Construcción Sustentable,** Available at: http://www.iclei.org/fileadmin/user_upload/documents/LACS/Espanol/Diagnostico_Montevideo.pdf (Access June 2012).
[307] Personal Interview with the Architect Miguel Rodríguez Bonnecarrère, UNEP and MVOTMA Sustainability Consultant, Uruguay. April 2012.

of the energy but also of the diversification of the energy matrix through the gradual incorporation of renewable energy resources[308]. A perfect example of these is the Wind Energy Program in Uruguay (Programa de Energia Eolica en Uruguay, PEEU), a program launched by the joint initiative between the National Government and the UNDP, implemented by the MIEM through the DNE; these funded by the GEF[309]. The principal objective is to create favorable conditions in order to encourage the inclusion of wind power as a renewable energy source in the country.[310] It also takes care about regulatory aspects and procedures, as well as information and wind resources assessments, environmental, technological and financial aspects. Furthermore, it also seeks to build technical capacity for both public and private developers, who are potential suppliers for the wind industry.[311]

In addition, some of the most important recent achievements of NGO The Solar Board was the formulation of the new Thermal Solar Energy law number 18.585, mentioned above, where, for instance, in the particular case of new hospitality buildings, clubs and health facilities that need more than 20% of the total energy consumption for heating water, it becomes compulsory to incorporate the use of at least 50% of solar water heating systems, it also applies for new public buildings and they have a period of five years for its implementation counting right after the new law was enforced. For new and refurbish Swimming pools utilizing hot water, in the case of not being using already clean energy resources for heating the water, must provide 100% of solar energy equipment for that task. Furthermore, the MIEM has the authority to require any new industrial and agro-industrial facility a technical evaluation to estimate the possibilities of implementing solar collectors. Among others, one of the most important duties of the MIEM and MVOTMA is to coordinate programs that encourage the application and exercise of solar thermal energy.[312] Besides, The Solar Board has created new technical standards; trained 227 technical professionals through the Faculty of Architecture from the ORT University and Republic University and the creation of the Solar Chamber of Uruguay. [313] Furthermore, The Solar Board has managed to promote an environmental friendly resolution in agreement with the UTE that finances the installation of solar collectors for water heat and power generation, these with funding from the BHU.[314] In that regard, important improvements has been made by the placement of solar

[308] PNUMA, ORPALC, MVOTMA, **Plan de Acción Nacional en Producción y Consumo Ambientalmente Sostenible 2010-2015**, 2010.
[309] Available at: http://www.energiaeolica.gub.uy/ (Access June 2012).
[310] PNUMA, ORPALC, MVOTMA, **Plan de Acción Nacional en Producción y Consumo Ambientalmente Sostenible 2010-2015**, 2010.
[311] Available at: http://www.energiaeolica.gub.uy/ (Access June 2012).
[312] Available at: http://www.eficienciaenergetica.gub.uy/novedades.asp?id=157 (Access June 2012).
[313] Mimbacas A., Honty G., **Instrumento de articulación público-privado para el fomento de la Energía Solar en el Uruguay**, Mesa Solar, Serie de Buenas Prácticas en Cambio Climático-Volumen 1, UNESCO, 2010. Available at: http://www.ceuta.org.uy/files/Experiencia_de_la_Mesa_Solar.pdf (Access June 2012).
[314] Personal Interview with Diulio Amandora, Architect, President of the Architects Society of Montevideo, Uruguay, April 2012.

collectors in social housing, there are some pilot projects constructed which include, like mentioned before, solar water heating. In addition, other positive experiences have been made in very poor irregular settlements, where homemade solar water heater has been installed, of those worked very well, especially for the people awareness.[315]

In social housing, solar thermal energy will probably be one of the most important steps toward sustainability. Apart from the fact that the government is giving very accessible credits for solar water heaters, the final costs will also be almost insignificant due people will be able to amortize the initial fee with their own electrical bill. On one hand, those social housing with this technologies are going to be a good example to be followed. But in other aspects, the thermal comfort and the technology transfer are still a weak link. However, in that case, that issue could mean a business opportunity for the private sector.[316]

**V] Sustainable Building Policies** (Políticas de Construcciones Sustentables, **PoliCS**)

PoliCS is an ICLEI's (International Council for Local Environmental Initiatives) created program that aims to establish the commitment of local governments in South America for the development and implementation of sustainable buildings policies, focusing on energy efficiency and the promotion of low carbon technologies[317]. PoliCS consists of five main aspects, first, strengthening the institutional framework; second, training; then, policies and action; followed by communication net and strengthening partnerships; and finally, the methodologies and tools[318].

**VI] Strategic Use and Protection of water resources**

According to the UNESCO, Uruguay shapes one fifth of the river's capacity in South America[319], and even there was a plebiscite in the year 1994, where the water became a human right in the Uruguayan constitution, nevertheless, it is also truth that water management has become a very important issue in Uruguay, waste water is still great. Apart from that, there is also much housing in flooding risk areas. Uruguayan population is quite unaware of the importance of correct water management, it is a natural resource that is fully naturalized due Uruguay has many rivers and streams. On the other hand the contamination degree is enormous and there are no large studies but very little analysis regarding such an important matter. Therefore, tackling this problem of efficient

[315] Personal Interview with Miguel Rodríguez Bonnecarrère, Architect, UNEP and MVOTMA Sustainability Consultant, Uruguay. April 2012.
[316] Personal Interview with Javier Taks, Social Anthropologist, Research Professor at the Republic University, Professor of the Faculty of Social Sciences, Uruguay. April 2012.
[317] Available at: http://www.iclei.org/index.php?id=10904 (Access June 2012).
[318] Available at: http://www.iclei.org/fileadmin/user_upload/documents/LACS/Espanol/Diagnostico_Montevideo.pdf (Access June 2012).
[319] Available at: http://unesdoc.unesco.org/images/0021/002160/216077e.pdf (Access June 2012).

water use management within social housing would be a very innovative way in moving toward sustainability.[320]

This line of action was developed in order to follow the already mentioned law 18.610, and it aims to reduce water consumption through the development of instruments and tools that promote the rational use of this natural resource. In addition, it also intends to reduce discharge loads pollutants, through the application of clean technologies.[321] The MVOTMA through DINAGUA is in charge of the updates of the National Water Directorate, which includes instructions for good practices within water management.[322]

**VII] Sustainable Construction Promotion**

The Permanent Mission of Uruguay to the United Nations takes into account that in order to have a green economy, the promotion of sustainable construction becomes, among others, a key factor for a successfully sustainable development.[323] Therefore, following the international and regional progresses and initiatives, the Uruguayan government prioritizes to bring its own construction building sector toward a more sustainable development. These include measures to strength the capacity of the different Intendances in order to implement specific sustainable programs. In addition, it is currently trying to integrate aspects related to construction waste management and the possibility of increase the know-how to reuse these construction waste materials.[324]

The Intendance of Montevideo has, since 2001, a Quality Management Unit (Unidad de Gestion de Calidad), developed for the improvements of process steps, primarily with ISO 9000 and ISO 14000, in the sense to incorporate sustainability criteria in architectural projects, primarily with models of prevention and minimization, meaning cleaning production concepts. Which, some of them, also have been introduced within social housing.[325] The Intendance of Montevideo has already a team working on sustainable constructions that also has been associated with the Architects Society. The ones that are doing very little for sustainability are, in Amandora's opinion, the MVOTMA, which has been given too little attention for those particular matters in buildings, and there is no enough incentive. [326]

[320] Personal Interview with Javier Taks, Social Anthropologist, Research Professor at the Republic University, Professor of the Faculty of Social Sciences, Uruguay. April 2012.
[321] PNUMA, ORPALC, MVOTMA, **Plan de Acción Nacional en Producción y Consumo Ambientalmente Sostenible 2010-2015**, 2010.
[322] Available at: http://unesdoc.unesco.org/images/0021/002160/216077e.pdf (Access June 2012).
[323] Available at: http://www.uncsd2012.org/content/documents/434uruguaryenglish.pdf (Access June 2012).
[324]PNUMA, ORPALC, MVOTMA, **Plan de Acción Nacional en Producción y Consumo Ambientalmente Sostenible 2010-2015**, 2010.
[325] Personal Interview with Hugo Rea, Unidad de Gestion de Calidad, Intendance of Montevideo, Uruguay, April 2012.
[326] Personal Interview with Diulio Amandora, President of the Architects Society of Montevideo, Uruguay, April 2012.

The recent changes made in Uruguay regarding its improvements towards a more renewable energy matrix shows the country willingness and intention toward a more sustainable development. One example of sustainable social housing came up with some MEVIR experiences, that in its social housing number 25000 they achieved an agreement with the Ministry of Industry in which all the set of new social housing were supplied with solar water heating, which are going to reduce 35% of the consumption costs of the housing unit. They also have been investigating new constructive alternatives. There is an expectation that, with the example of the 36 families living in new efficient housings with solar water heaters, the willingness for the replication of this pilot project also will come. [327] This is a very important turning point for sustainability within social housing because until very recently, the MVOTMA only promoted social housing that were built within a "conventional" or "traditional" system, meaning they do not accept to work with any other materials than concrete, ceramics and bricks. Other more sustainable alternative solutions did not fit in the social housing universe of the MVOTMA, and therefore projects with those characteristics weren't accepted nor funded.[328]

Due to cultural reasons, Uruguayans only consider a "real" house, the ones constructed in a traditional way with bricks and cement. There was also a pilot project in MEVIR, where a wood house was built and right now it is devaluating its original cost. According to this experience results, a more sustainable wood house has a higher price compared to one with traditional construction materials, and, like already mentioned, the fact that devaluates made that pilot project and the idea of applying this kind of sustainable concepts for MEVIR housing projects in standby status.[329]

So far there were not national-wide sustainable criteria toward the Uruguayan building industry. The little measures are not further valid within the department of Montevideo, yet, even there are poor, they are currently in force. Nevertheless the MVOTMA is currently working with sustainability experts in order to include large and much more detailed components of sustainability criteria within the specification of the new tender call for next social housing projects. The intention is to observe how the private sector responds to this new perspective, which never applied before. For this, the SUSHI pilot project from Brazil is being currently used as a pattern to be followed.[330]

[327] Personal Interview with Francisco Beltrame, President of MEVIR, Uruguay, April 2012.
[328] Personal Interview with Diulio Amandora, President of the Architects Society of Montevideo, Uruguay, April 2012.
[329] Personal Interview with Jorge Bertullo, Unidad de Evaluación y Monitoreo y Acompañamiento de Investigaciones, MEVIR, Uruguay, April 2012.
[330] Personal Interview with the Architect Miguel Rodríguez Bonnecarrère, UNEP and MVOTMA Sustainability Consultant, Uruguay. April 2012.

There are some other specific actions in the building sector apart from social housing like, for instance, the architectural call for competition for the Republic Bank (BROU) headquarters that included an entire chapter of environmental requirements that had to do with water and energy efficiency, light administration, types of materials and many other sustainable criteria. This was an important achievement that marked a turning point within the Uruguayan construction industry. [331]

Speaking with the architect Miguel Rodríguez Bonnecarrère, UNEP and MVOTMA Sustainability Consultant and who is currently involved in the design of the specification for the new tender call for future public projects from the MVOTMA, explains that the requirements for the new MVOTMA project competitions include an important section for sustainability, ranging from very general things about the architectural design itself, like for instance, lighting and ventilation, to more demanding issues, like the case of a much higher thermal transmittance, which is much superior than the standard of the Montevideo Intendance, which is already quite demanding in that specific issue.[332]

In August 2011, the Republic University and MVOTMA made an agreement whereby they attach a technical report ITE (Informe Tecnico de Evaluacion) evaluating the new no-traditional construction system, which also handle some sustainability parameters. These represented another small but very important step into sustainability, due this was an opportunity for the academia to evaluate all construction system that does not fit under the "traditional" standards, of course, in accordance with a number of requirements previous negotiated with them. Ever since then, the university is in charge to make a technical report and provide guidance to companies and experts working with new materials, in the sense of running test that are missing and working within a more serious technological framework.[333]

This is being implemented at this time  and the MVOTMA does not approve any project that does not bring an ITE that have 100% of acceptance, meaning those who does not qualified with all requirements are immediately rejected by the government, due the ITE is the previous obligatory document needed at the time of the Technical Aptitude Document (Documento de Aptitud Tecnica, DAT) application in the MVOTMA, that enables the aspirant to offer their building system to the population and use them by building projects through public funding programs.[334]

[331] Personal Interview with Diulio Amandora, President of the Architects Society of Montevideo, Uruguay, April 2012.
[332] Personal Interview with the Architect Miguel Rodríguez Bonnecarrère, UNEP and MVOTMA Sustainability Consultant, Uruguay. April 2012.
[333] Personal Interview with Diulio Amandora, President of the Architects Society of Montevideo, Uruguay, April 2012.
[334] Available at: http://www.mvotma.gub.uy/construir/sistemas-constructivos-no-tradicionales (Access June 2012).

The ITE includes an evaluation divided in three sections: first, the buildings components; second, the building systems; and last, the typological units. Amandora considers, the results of the ITE have led to the improvement of the domestic production and to impose some control over imported merchandise. Thus, the imported production, as there is also a team with quality management experts can be homologate and assessed the accuracy of their equivalence according to the national Uruguayan standards. [335]

### VIII] Sustainable Construction Research and Education.

Generaly speaking, many experts consider that a major barrier, when it comes to make changes, is the necessity of starting "swimming against the stream", which is very costly, especially in a conservative society like Uruguay, where changes are slow and time-consuming. One clear example is the fact that the construction methods are the same as the 40's and 50's, prefabricated construction system were still not able to enter the market at competitive prices, and still, economically speaking, traditional structures are less expensive. Therefore, the application of sustainability criteria is so difficult to enforce, especially when it comes to projects with a very tight budget, like in the case of social housings.[336] But that could also mean there is a deep lack of awareness and research toward new constructive technology systems, due there are already many countries having remarkable results in this matter.

Within the university, in very few lectures, they incorporate sustainability contents about 4-5 years ago in a strong approach. This resulted been successful due other disciplines are adapting that content into theirs. Right now, sustainability is being addressed from others areas, for instance, from the project itself, which until now, was unthinkable. The architect Amandora still remembers, some years ago, when they started working with this subject, it was a kind of delirium, just a “bunch of environmental fundamentalists”. But with time, they managed to generate awareness, and through the students, they also generated concern among teachers and others.[337]

Even inside the academia, social housing issues has been given an important level of priority - like in the case of the academic division Permanent Housing Unit, which is, like already mentioned before, a work and learning area within the Uruguayan Public University-, [338] sustainability subjects are not been addressed within this division. Thus,

[335] Personal Interview with Diulio Amandora, President of the Architects Society of Montevideo, Uruguay, April 2012.
[336] Personal Interview with the Architect Miguel Rodríguez Bonnecarrère, UNEP and MVOTMA Sustainability Consultant, Uruguay. April 2012.
[337] Personal Interview with Diulio Amandora, President of the Architects Society of Montevideo, Uruguay, April 2012.
[338] Personal Interview with Raul Valles, Permanent Housing Unit, Architecture School of the Uruguayan Public University, Uruguay, April 2012.

inside the Faculty of Architecture and especially within the Technological Area nothing or very little has been done, in reality there are not much more than superficial comments. Nevertheless, there are many experts that want to bridge that communication gap between disciplines within the university, still -except some specific exceptions-, these sustainability contents among most of the study programs are missing.[339]

From inside of the academy system to the rest of the society, they have tried to generate new links. This was the case with the Ministry of Industry and Energy, which even finance a master, by funding those professors who take options toward environmental sustainability. In addition, they got some financial support and did some workshops with the Municipality of Montevideo. The University is also preparing, in agreement with the MVOTMA, a number of requirements for the evaluation of new technologies within housings by incorporating some sustainable concepts, yet, not without difficulties.[340]

Some local experts consider, as a key factor, changes toward a more sustainable vision within social housing should start by targeting the IAT. These technical institutes advice, for instance a cooperative, in an economically, socially architecturally and notary way, therefore they could also change cultural pattern by incorporating sustainable criteria to its guidance within the entire building life-cycle. Because it is useless to build sustainable social housings if later on the end-user does not know how to correctly utilize it. The point is how to reach the people and change its behavior patterns.

Other important change promoters toward sustainability are the MVOTMA and Intendances, due these stakeholders manage the legislations, and that is where change should start. In addition, when it comes to alternative energies resources, the MIEM is taking the lead in these matters.[341] The architect Beltrame assures that MEVIR is still investigating, but everything is in an experimental stage and hope to have something more defined by the end of 2012. Meanwhile, when it comes to quality of sustainable social housing, things have changed a lot since 2005, factors like thermal comfort are now more taken into account than some years ago. Nevertheless, the initial investment is strong compared to traditional constructions, and sometimes there are others priorities at the time to invest in inputs for the social housing production. He declares, that MEVIR is always trying to work as sustainable as possible, but the barrier of costs

[339] Personal Interview with Diulio Amandora, President of the Architects Society of Montevideo, Uruguay, April 2012.
[340] Personal Interview with **Diulio Amandora**, President of the Architects Society of Montevideo, Uruguay, April 2012.
[341] Personal Interview with **Hugo Rea**, Unidad de Gestion de Calidad, Intendance of Montevideo, Uruguay, April 2012.

are always present: *"what I put here I took it from there, this solution involve less other solutions"*, being this is a permanent drama for the professionals involved.[342]

According to Amandora's opinion, there is a great opportunity of action by introducing sustainability targeting very explicit areas: there are a number of workshops that are knowledge transfer and enriching opportunities for experts, they even have created job opportunities; in addition, to work with cooperative federations like FUCVAM and FECOVI is essential, because there is a possibility to accomplish two key issues: first, the possibility to work with sustainability criteria through the already mentioned IAT; and second, the chance to create awareness and educate the end user. He also considers people working in cooperatives are very open minded, making more suitable to start implementing new sustainable criteria.[343]

[342] Personal Interview with **Francisco Beltrame**, President of MEVIR, Uruguay, April 2012.
[343] Personal Interview with **Diulio Amandora**, President of the Architects Society of Montevideo, Uruguay, April 2012.

# 4. Sustainable Social Housing Initiative (SUSHI).

In 2006, The United Nations Environment Program (UNEP) launched the Sustainable Buildings and Construction Initiative (SBCI) in a joint venture with many other stakeholders involved within sustainable construction issues. Hence, the main objective is to encourage sustainable construction criteria, through the design of tools, information, studies and policies. For instance, to help developing countries to adopt the Kyoto Protocol resolutions, heartening the energy efficiency in buildings and reduction of greenhouse gas emissions.[344]

There are so many key issues to be considered at the time of designing a sustainable building, not only in its functions, but also in the material selection due it can have a very important impact to the local environment. Thanks to lesson-learned from previous projects, it is widely known that sustainability within building construction depends on sustainable reliable local material supply and technologies, and yet, there is little or no consideration at all among these important issues when it comes to social housing projects.[345]

The Sustainable Social Housing Project (SUSHI) intends to incorporate sustainable criteria within social housing projects. In addition, SUSHI aims to transform the as-usual construction market supply and demand into a more sustainable practice. Consequently, this initiative recognizes the nowadays aspects within traditional social housing that can be replace for more sustainable solutions, meaning available local-level sustainable materials and technologies. [346] Through the successfully completion of these pilot projects, the feedback and lesson learned should demonstrate the feasibility of sustainable criteria within social housing programs.[347]

Figure 4.1 illustrates an analysis about SUSHI's objectives. It is divided in three categories: **stakeholders**, **awareness** and **know-how**. Initially, the **public authorities** must understand the benefits, and importance of sustainable housing in order to be able to link the subject to their national context and priorities and, as a result, know how to design suitable policies and implementation strategies. In addition, as regards to awareness creation in the subject matter fields, the project developers, material producers, construction companies and financial institutions are the principal actors to be targeted, after the public authorities. The **project developers** need to gain knowledge

[344] Available at: http://www.unep.org/sustainablesocialhousing/About_Sushi/AboutSushi.asp (Access July 2012).
[345] UNEP, Sustainable Social Housing Initiative (SUSHI), **SUSHI Project Description**.
[346] Available at: http://www.unep.org/SustainableSocialHousing/About_Sushi/activities.asp (Access July 2012).
[347] UNEP, Sustainable Social Housing Initiative (SUSHI), **SUSHI Project Description**.

about the costs and benefits of sustainable construction among its life-cycle, in order to be able to add sustainable criteria into social housing programs and to recognize opportunities for sustainable implementation. The **material producers** require to gain the technical experience needed, so they become experts in sustainable product developers and producers. The implementation of alternative solutions call for **construction companies** and **end users** to increase capacity by trainings in alternative technologies, to meet the know-how required to install and maintain them. **Financial institutions** need to gain awareness about the sustainable construction industry in order to create economic mechanisms and tools that assist facing the initial-costs demand.[348]

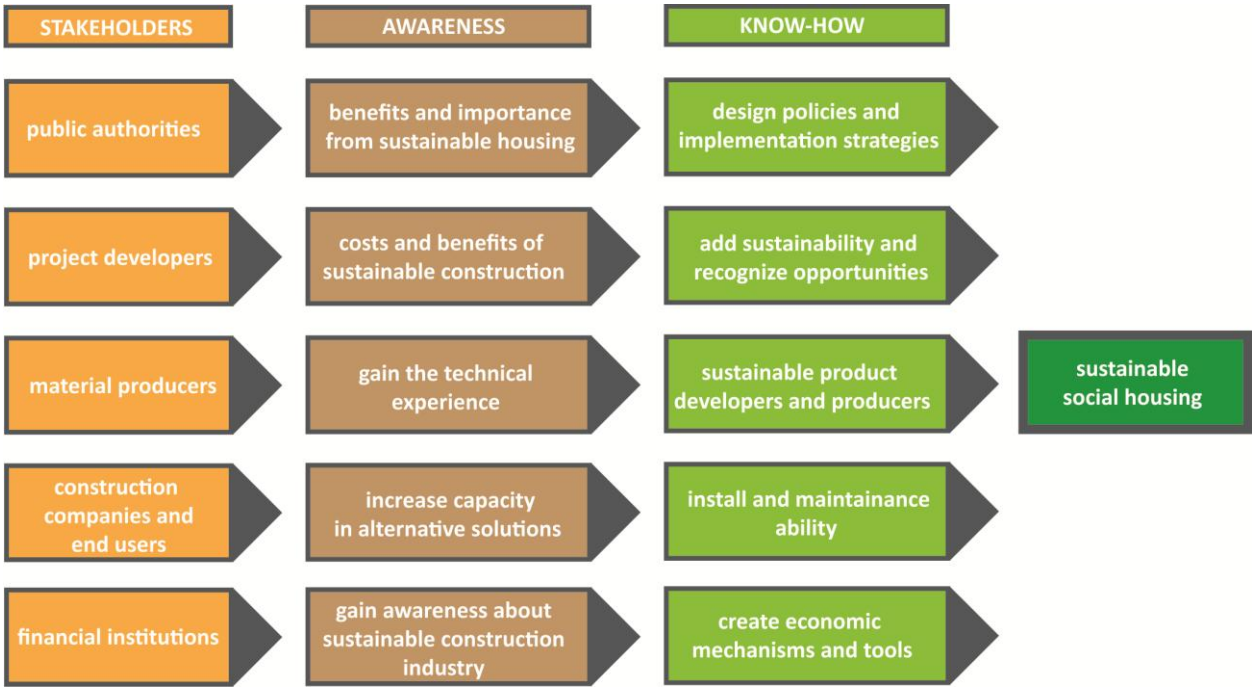


**Figure 4.1: SUSHI's Objectives Analysis.**[349]

## 4.1 Implementation Framework.

SUSHI is coordinated by the United Nations Environment Program Division of Technology, Industry and Economics (DTIE) in Paris, while the local implementation is being carried out by the UNEP Regional Office for Latin America and the Caribbean (ROLAC), UNEP Brazil and the UNEP Regional Office for Asia-Pacific (ROAP). [350]

[348] UNEP, **Sustainable Social Housing Initiative (SUSHI) Phase II: Latin America and the Caribbean**, Draft Project Document, United Nations Environment Program (UNEP).
[349] Source: **Own Creation** after UNEP, **Sustainable Social Housing Initiative (SUSHI) Phase II: Latin America and the Caribbean**, Draft Project Document, United Nations Environment Program (UNEP).
[350] UNEP, **Sustainable Social Housing Initiative (SUSHI), Progress and Results Report September 2010**.

The cities of Bangkok and Sao Paulo were selected as pilot projects to implement SUSHI Project, targeting the energy consumption and efficient water use. Accordingly, preliminary mapping reports and workshops were made, in order to identify the local stakeholders and incorporate them as partners. Thus, the results of SUSHI pilot projects should bring environmental friendly improvements in social housing, reducing water and energy life-cycle costs, as well as improving the quality of life of the end users by creating homes with thermal comfort through natural ventilation and lighting. [351]

The following Figure 4.2 shows how and in which order the main activities of SUSHI work:


**Figure 4.2: Main activities of SUSHI.**[352]

**1] Project set-up.**

The first step previous mapping is the administrative set-up, where agreements with local partners and recognition of suitable social housing projects are made. In addition, an initial research is made, so as to identify stakeholders and possible sustainable criteria targets.[353]

**2] Mapping.**

The first mapping identifies the local context in both pilot locations: Bangkok and Sao Paulo. This initial research aimed to recognize the climate, population, sustainable development national and regional main concerns, energy matrix and consumption, water use management, waste management, among others.[354] This mapping is also very important, due the outcome is a report, where the local social housing governance in each of the pilot project locations is explained. Hence, it is a mandatory step previous to implementation, because it also illustrates the sustainable alternative availability at a local level, as well as knowledge and skills among stakeholders, which allow SUSHI decision-makers to prepare implementation strategies, partnerships and agreements with relevant actors in order to incorporate them into the action plan. [355]

[351] UNEP, Sustainable Social Housing Initiative (SUSHI), **SUSHI Project Description**.
[352] Source: Own Creation after UNEP, **Sustainable Social Housing Initiative (SUSHI), Progress and Results Report September 2010** and UNEP, Sustainable Social Housing Initiative (SUSHI), **SUSHI Project Description**.
[353] UNEP, Sustainable Social Housing Initiative (SUSHI), **SUSHI Project Description**.
[354] UNEP, **Sustainable Social Housing Initiative (SUSHI), Progress and Results Report September 2010**.
[355] UNEP, Sustainable Social Housing Initiative (SUSHI), **SUSHI Project Description**.

After the local social housing projects were selected, SUSHI makes sure they were well associated to the most important stakeholders in order to accomplish the objectives of SUSHI Action Plan, taking into consideration, as a key factor, the proper communication and release of information to the actors involved, which need to be adapted in order to be compatible to each local conditions. In addition, another priority for the SUSHI team was to make sure to deliver the necessary advice and support to guarantee the enclosure of sustainable solutions in the targeted pilot projects.[356] The initial mapping reports in each pilot location had clear targets, like already mentioned, starting with the identification of stakeholders that are relevant to the project subjects. In addition, another key issue was the recognition of processes affecting the selection of materials and technologies within these social housing programs. The report outcomes delivered necessary input about barriers and opportunities of implementing alternative sustainable solutions in the pilot projects location, hence, in order to enrich the foundations for SUSHI decision-makers and partners at the time of developing an implementation strategy.[357]

**3] Implementation.**

Following the mapping outcomes done in Thailand and Brazil, the first steps of the SUSHI implementation started by bringing specialists into a workshop in order to analyze the mapping results, with the objective of identify the expectation from the SUSHI project among local stakeholders, as well as to recognize the most important challenges and to work on an action plan with the purpose of tackle them. In addition, another goal of this workshop was to come up with the necessary methodology and tools that leads into the SUSHI implementation, starting with the comprehension of the local conditions for both countries, which included the national conditions, awareness, policies and practices within sustainable social housing context and the actors involved and how to approach them.[358]

Once the action plan was set up, the SUSHI implementation phase started. Tools, information and training gatherings were prepared and delivered. The following table gives a general overview about the sections included in the SUSHI action plan, which are divided in 3 categories: Market Demand, Market Supply and Public Support.

[356] UNEP, **Sustainable Social Housing Initiative (SUSHI), Progress and Results Report September 2010**.
[357] UNEP, Sustainable Social Housing Initiative (SUSHI), **SUSHI Project Description**.
[358] UNEP, **Sustainable Social Initiative (SUSHI), Project Workshop Outcomes**, CTCC, Universidade de São Paulo (USP), São Paulo, Brazil, 5 March 2010.

| Market Demand | Market Support | Public Support |
|---|---|---|
| **1]** Ideas exchange and training with suppliers and solution providers (sustainable and business-as-usual solutions).<br><br>**2]** Develop of information material for the public.<br><br>**3]** Develop of tools information. | **1]** Increase consciousness and knowledge among the private sector, policy decision-makers about building and building capacity.<br><br>**2]** Provide with good practices guidance and information material for all construction professionals. As additionally input to this activity, the UNEP's Sustainable UN (SUN) project and International Council for Research and Innovation in Building and Construction (CIB) 's new guideline for procurement of sustainable buildings | **1]** Evaluation of the possible impact of adding alternative solutions into existing social housing policies.<br><br>**2]** Realistic proposal, in time and limitations of the project, in how to enforce public policies supporting sustainability among social housing projects.<br><br>**3]** Incentive the dialogue between the community and policy makers .<br><br>**4]** revision of policies and procedures for social housing programs, financial incentives, minimum quality standards, among others |

**Table 4.1: Main targeted factors of the SUSHI Project Initial Action Plan.**[359]

**4] Field Test.**

It is imperative for SUSHI to have well trained local partners to ensure that the alternative solutions are included in a proper way within the social housing projects. For this, a good communication level between SUSHI and stakeholders (including end users) is a must. Therefore, a successful process depends upon the right knowledge of the local access to the sustainable solutions, in terms of technologies and materials.[360] Additionally, in order for SUSHI to be adjusted to local conditions in different settings, another key issue is to address the regional cultural acceptance and knowledge of the end users that implicates these sustainable solutions. Sustainable criteria awareness among professionals involved during the entire social housing projects is also crucial. Due the importance for these kinds of social projects, in terms of costs, it is a key issue to recognize all possible costs, financial and public incentives linked to these kinds of technology and materials.[361]

The findings and outcome from the two different pilot project experiences should be able to create an implementation methodology applicable at a global scale in many other developing countries with the objective of spreading the use sustainable solutions in social housing programs. In both of these cases, the targeted implementation were

[359] Source: Own creation after UNEP, **Sustainable Social Housing Initiative (SUSHI), Progress and Results Report September 2010;** and UNEP, Sustainable Social Housing Initiative (SUSHI), **SUSHI Project Description**.
[360] Available at: http://www.unep.org/sustainablesocialhousing/ (Access July 2012).
[361] UNEP, Sustainable Social Housing Initiative (SUSHI), **SUSHI Project Description**.

the improvement of the energy efficiency, counting thermal comfort as key issue for life quality improvement among the end users, and proficient usage of water. [362]

**5] Dissemination and Project Closure.**

All Projects information, materials and lesson-learned were collected and analyzed in order to be able to disseminate the project among other developing countries to raise awareness about sustainable criteria within social housing, encouraging, in this way, its replications. [363]

Given the scale of the challenge, the SUSHI result expectations are to create a methodology with its respectively tool package that assist governments at national and local levels to embrace more sustainable criteria among social housing programs, mainstreaming sustainable construction and helping to reduce the carbon footprints from future building generations.

The SUSHI methodology also includes a Stakeholder Analysis (SA), where main stakeholders within sustainable and social housing were identified. The stakeholders were divided into five different categories, first, **policy-makers**, which included the different governments at all levels (national and local) as well as government agencies; second, **project decision-makers**, enclosing all public housing agencies and financial institutions coming from the public and private sector; third, **executing parties**, meaning private developers, construction companies, architects, designers and engineers; fourth, **supply chain actors**, which refers to construction material producers ; and finally, the **users**, that include homeowners and housing associations. At the same time, from each of these stakeholder category, the capacity assets and improved capacity assets are identified.[364]

Bringing sustainable solutions into social housing programs should be understandably and transparently made. Information such as the many benefits for implementing alternative options, real expected costs and execution requisites is a must. Therefore, pilot projects are so important, in order to learn, research and get the necessary outcome to assess these data knowledge, due they make available examples to be followed when it comes to the development of policies, financing tools and reach of the available alternative solutions.[365]

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[362] UNEP, **Sustainable Social Housing Initiative (SUSHI), Progress and Results Report September 2010**.
[363] UNEP, Sustainable Social Housing Initiative (SUSHI), **SUSHI Project Description**.
[364] UNEP, **Sustainable Social Housing Initiative (SUSHI) PHASE II: Latin America and the Caribbean**. Draft Project Document, United Nations Environment Program (UNEP).
[365] Gupta R., Svenningsen N., de Feraudy T**., Sustainable Solutions for Social Housing: Guidelines for project developers**, Draft Version 1, United Nations Environment Program, May 2011.

According to the UNEP-SUSHI's document, it is imperative to ensure a long-term vision and to answer to stakeholders expectations in terms of social, environmental and economic advantages, and therefore, the message and the communication process must be targeted and cleared. In addition, it is expected as a result of the project implementation, that the end users would distinguish the progress within its quality of life, integration to the city, and financial savings benefits.[366]

## 4.2 Program Conditions, Implementation and Success Factor.

There are kits of key conditions for SUSHI at the time of considering a country for its implementation. Even some of them were already mentioned or will be stated later, the following table will name and shortly describe them in order to underline its importance for the SUSHI project:

| Key condition | Description |
|---|---|
| **1] Cooperation, information and transparency among stakeholders** | Within the construction industry, there are plenty of multidisciplinary stakeholders. During the different phases of the building life-cycle, a lot of decisions will be taken from diverse stakeholders, therefore, cooperation, information and transparency among them is essential for successfully results. |
| **2] Cultural factor consideration** | Awareness about the habits, lifestyles and cultural behavior and responses to the new alternative solutions is also crucial, in order to plan which implementation strategy is the most suitable. Thus, clear information about sustainability benefits must be in the same language and encouraging participation at the time of the selection of alternative solutions. |
| **3] Awareness improvement** | Filling knowledge gaps about real benefits, impacts, costs and opportunities about sustainable buildings is very important, in order to get the society's support for the policies. |
| **4] Technical training** | Training for improving technical capacity play a key role, when it comes, for instance, for designing and constructing sustainable housing units. |

[366] UNEP, **Sustainable Social Housing Initiative (SUSHI) PHASE II: Latin America and the Caribbean**. Draft Project Document, United Nations Environment Program (UNEP).

| | |
|---|---|
| **5] Policy framework and financial support** | Both policy as financial support for such projects are very well needed and is one of the main barriers if decision-maker public authorities do not create a suitable policy environment. |
| **6] Existing information of previous successfully experiences** | Even there is very rare occasions when there are local pilot projects, where sustainable alternative has been tested into social housing, nevertheless, there are very important to set examples among the population, they provide lesson-learned and support policy foundations. |
| **7] Sustainable in time and replication possibilities** | Sustainability should be a long-term goal, bringing sustainable criteria into the building construction industry call for a continuous growing development in order to be able to appreciate their many benefits during the life-cycle of the building. |
| **8] Building life-cycle cooperation** | The life-cycle cooperation of sustainable social housing stakeholders its vital in order to ensure the SUSHI goal achievements. |
| **9] Project developers' role** | Key stakeholders for promoting sustainability are the project developers. They are in charge for the decision-making process during the project design and development, and therefore, they play a very important role for sustainability, because they decide in how far sustainable improvements are going to be added into social housing projects. |

**Table 4.2: SUSHI principal conditions.**[367]

### 4.2.1 SUSHI Implementation Model and Methodology.

Soon enough, SUSHI experts recognized the need for the methodology to be "nonspecific", stressing the necessity of addressing suitable solutions depending on the local context, rather than pressing on for explicit pre-defined solutions, since they are very dependable on local materials availability and users cultural acceptance.[368]

The SUSHI team started developing the project methodology after analyzing the outcomes from preliminary mapping reports and workshops. Furthermore, from the very beginning it was well known, the methodology would take account of the accomplishment of a local social housing framework evaluation, relating all

[367] Source: **Own creation** after Gupta R., Svenningsen N., de Feraudy T**., Sustainable Solutions for Social Housing: Guidelines for project developers**, Draft Version 1, United Nations Environment Program, May 2011.
[368] UNEP, MINUTES SUSHI Conference Call - BRAZIL TEAM, August 31, 2010. Participants: de Feraudy T., Svenningsen N., Gupta R., Takaoka M., John V., Csillag D., Carla, Andrea.

stakeholders, recognizing local social housing projects and its potential for sustainability improvements, evaluating and measuring up the sustainable options with business-as-usual systems.[369] In addition, as key factor for the methodology, one of the most important points was the development and implementation action plan, as well as targeted stakeholder's guidance and training.[370]

To put into effect in a successfully manner a methodology for such a project, it is also essential to have a tool and model combo for the project needs, adaptable to the local context. Hence, the SUSHI team started to recognize relevant tools such as instruments for market supply analysis, market demand and policies impact towards the incorporation of sustainable criteria; instruments for cost-benefit analysis, formalized surveys for each one of the social housing stakeholders, in order to assess relevant awareness required for the project, as well as to acquire feedback about the new sustainable alternatives acceptability and performance. Templates and models are also very important, especially when it comes to project-site-specific guidelines and training contents.[371]

Regarding methodology, the first step was to **recognize the business-as-usual** within the production chain of social housing in each of the targeted country. Before start thinking of how to introduce sustainable criteria within social housing, it is imperative to know how the local construction companies typically works. In order to identify these necessary information, interviews were done, targeting technical professionals working within the construction industry, which facilitate SUSHI the right knowledge about other initiatives already implemented and the lesson learned.[372]

After mapping the local situation of the selected country for implementing the SUSHI project, the next step is to develop a **local agenda**.[373] In order to do so, many factors need to be clearly understood before thinking on establishing the pilot project functions, first the country energy matrix, then the project-site local environmental issues, afterwards, the end user income, needs and cultural background and finally, the already mentioned business-as-usual local system.[374]

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[369] UNEP, **Sustainable Social Housing Initiative (SUSHI), Progress and Results Report September 2010**.
[370] Available at http://www.unep.org/sustainablesocialhousing/ (Access July 2012).
[371] UNEP, **Sustainable Social Housing Initiative (SUSHI), Progress and Results Report September 2010**.
[372] UNEP, **Mapping Report-Final Version**, Mapping of the main stakeholders and processes affecting the selection of solutions (technologies and materials) for social housing projects- Sao Paulo, Sustainable Social Housing Initiative, Brazilian Team – Version 4.1, 2010.
[373] UNEP, **Mapping Report-Final Version**, Mapping of the main stakeholders and processes affecting the selection of solutions (technologies and materials) for social housing projects- Sao Paulo, Sustainable Social Housing Initiative, Brazilian Team – Version 4.1, 2010.
[374] Available at: http://www.unep.org/sustainablesocialhousing/ (Access July 2012).

Following the local agenda characteristics, the **pilot project functions** are defined, these are improvements of sustainable criteria for the social housing. That aim to set an example that sustainability concepts can be incorporated into social housing projects. Pilot functions are those possible sustainable upgrading that are accessible for this type of project, for instance the construction materials, thermal and water performance, lighting and ventilation and energy efficiency technologies. [375]

After identifying possible sustainable pilot functions for the social housing programs, all local **sustainable solutions** (for water and energy) **and public policies** are identified. The goal is to adapt and optimize the pilot functions selected as good as possible within the selected country's governance. [376] The UNEP methodology for this task is an Excel spreadsheet with the following information of the solutions recognition: solution reliability; inputs required for implementation; accessibility of product supply and barriers/difficulties (during the design, installation and maintenance phases); risk assessments (in the implementation of the solution, origin and mitigation capacity), total costs (of the solution, its implementation, use and maintenance), measurement and verification possibility ( of sustainable solution benefits in the implementation and use phase). Once this information is put together, the possible implementation of sustainable solutions is argued, and the results will be further discussed, once again, with the main local partners. [377]

[375] UNEP, **Mapping Report-Final Version**, Mapping of the main stakeholders and processes affecting the selection of solutions (technologies and materials) for social housing projects- Sao Paulo, Sustainable Social Housing Initiative, Brazilian Team – Version 4.1, 2010.

[376] Available at: http://www.unep.org/sustainablesocialhousing/ (Access July 2012).

[377] UNEP, **Mapping Report-Final Version**, Mapping of the main stakeholders and processes affecting the selection of solutions (technologies and materials) for social housing projects- Sao Paulo, Sustainable Social Housing Initiative, Brazilian Team – Version 4.1, 2010.

The conclusions from the entire process described before, will allow the **selection of the relevant technologies** for the SUSHI implementation. The working tools for this decision-making process are the careful analyses of the local agenda and the data, discussions, conclusions and recommendations from the sustainable solutions and public policies of the selected country.[378] Finally, once the local expert's interviews and the feasible solutions mapping are analyzed, the **definition of the action** plan is settled, in a way that can be use as an example for other governments and construction companies to replicate them. [379]


**Figure 4.3: SUSHI's Methodology Workflow**[380]

[378] Available at: http://www.unep.org/sustainablesocialhousing/ (Access July 2012).
[379] UNEP, **Mapping Report-Final Version**, Mapping of the main stakeholders and processes affecting the selection of solutions (technologies and materials) for social housing projects- Sao Paulo, Sustainable Social Housing Initiative, Brazilian Team – Version 4.1, 2010.
[380] Source: **Own Creation** after UNEP, **Mapping Report-Final Version**, Mapping of the main stakeholders and processes affecting the selection of solutions (technologies and materials) for social housing projects- Sao Paulo, Sustainable Social Housing Initiative, Brazilian Team – Version 4.1, 2010.

### 4.2.2 Demands of SUSHI project in social, economic and environmental dimensions

Apart from the fact that there is plenty of literature about the sustainability concept, there is also the necessity of finding innovation in order to tackle environment, social and economic challenges in a specific location. Key fact is to know that global environment friendly criteria for buildings need to adapt into local conditions and resources. Each country has its own "game rules" and solutions with a very high performance implemented in a country or specific location, does not necessary means it success in a different one, therefore, the SUSHI project needs to set its priorities according to the local agenda, in order to develop viable solutions. This, apply for all solutions within sustainable development dimensions. [381]

In addition, due SUSHI is a United Nations Environment Program project; its foundations are very strong oriented in accomplishing very high standards within sustainable development dimensions. The following information is going to illustrate the SUSHI demands within its social, economic and environmental dimensions.

**a] Environmental Dimension**

Based on the idea that each project should have as minimal environmental impact as possible, SUSHI has established strong environmental priorities, and the fact that one of its aims is to bring environmental friendly criteria into social housing, by encouraging energy efficiency and efficient usage of water, clearly demonstrate its intentions towards pro- environment targets.

Therefore, reducing natural resource consumption and waste generation is one of SUSHI principal goals: "it is always possible to something for sustainability" [382]

According to SUSHI-Brazil, there are many potential of improvements for social housing that has not a considerable impact on the final expenditure. For instance, cross-ventilation in combination of shading for the windows already brings much progress towards thermal comfort. In addition, in the case of water management, pressure

[381] UNEP, **Mapping Report-Final Version**, Mapping of the main stakeholders and processes affecting the selection of solutions (technologies and materials) for social housing projects- Sao Paulo, Sustainable Social Housing Initiative, Brazilian Team – Version 4.1, 2010.

[382] UNEP, **Mapping Report-Final Version**, Mapping of the main stakeholders and processes affecting the selection of solutions (technologies and materials) for social housing projects- Sao Paulo, Sustainable Social Housing Initiative, Brazilian Team – Version 4.1, 2010

reducers and tap aerators are low-budget systems that bring environmental friendly solutions too.

**b] Social Dimension**

Another important issue to be tackled is to improve life quality and comfort of the users, with all the benefits that may bring, thus, reaching thermal comfort is already a great improvement.[383]

One important social and economic issue for the family is to face daily housing costs once they receive their housing unit benefit. Lots people who apply for these type of social housing programs come from *favelas* and for them it is completely unknown the fact that, from the moment they use their new home, they also have to pay bills for the services, like in the case of electricity, water, gas, among others, which until then was "for free", due to illegal connections. For that reason, subsidies are not enough when, at the end, users are unable to pay, first the debt with the CDHU, next the condominium und after that, all service bills. Therefore, in many cases, social housing units are suspended with basic services like water, gas and electricity, because they cannot afford it; this generates conflicts when, for example, people bring gas cylinders into their homes in an illegal way, endangering the neighbors and themselves. In addition, there are more extreme cases when the users are obligated to leave their homes and return to the favela because they cannot afford to stay.[384] Facing this challenge, SUSHI consider that "sustainability" also enhances to find solutions that low down the amount of users returning into favelas. [385]

In addition, the enforcement of a sustainable development model within a society also entail profound changes, not only in the end user acceptance and behavior, but also the entire construction industry chain and policies that are accountable for very important impacts affecting the environment. Social housing program governance is a very complex set of connections, and therefore, introducing sustainable criteria within a construction industry that operates with public funds and have to deal with the daily governmental bureaucracies, in a system were innovation is an unknown word, results in

[383] UNEP, **Mapping Report-Final Version**, Mapping of the main stakeholders and processes affecting the selection of solutions (technologies and materials) for social housing projects- Sao Paulo, Sustainable Social Housing Initiative, Brazilian Team – Version 4.1, 2010.

[384] ANDRADE S., PILEGGI R., **Programa de Redução de Pós-ocupação em Conjuntos Habitacionais de Interesse Social** (*Program to Reduce Post-Occupation in Social Housing Developments*). In: FÓRUM NACIONAL DE HABITAÇÃO DE INTERESSE SOCIAL, 52. Anais do Concurso Prêmio Selo de Mérito 2005. João Pessoa, 2006. in UNEP, **Mapping Report-Final Version**, Mapping of the main stakeholders and processes affecting the selection of solutions (technologies and materials) for social housing projects- Sao Paulo, Sustainable Social Housing Initiative, Brazilian Team – Version 4.1, 2010

[385] UNEP, **Mapping Report-Final Version**, Mapping of the main stakeholders and processes affecting the selection of solutions (technologies and materials) for social housing projects- Sao Paulo, Sustainable Social Housing Initiative, Brazilian Team – Version 4.1, 2010.

being a very difficult challenge. A lot multilevel changes are required in order to transform society and policies into more sustainable development.[386]

Local, cultural and environmental issues are also crucial factors to take into consideration for the SUSHI project decision-makers, due standardized housing projects may not apply, as an example, for determinate local climate conditions or may not have end users acceptance. Therefore, it is a must to develop the final phase of the action plan at a local level, following the "Undertaking Agenda", which is a manuscript that identify of the selected area sustainable development dimensions, and act as guidance for implementation strategies to be followed in its local environment, social and economical context and stakeholders involved. The success of the SUSHI implementation in a determinate city is directly linked to the quality and amount of "Undertaking Agenda" content .[387]

Another issue that the author decided to put it into the *social dimension* category (even when it belongs to environment and economic dimension as well), is that, at the time of the site selection, such projects depend mostly from land cost. Usually, small cities are more affordable, and there are cases in which the municipalities or local governments donate a land for these purposes, which help for lowering social housing final costs. Yet, in most cases, especially in big cities where there is more need of housing units because of the size of the population, prices are very high and the appreciation of the building rise significantly, making it unaffordable for the poor. [388]

In addition, another issue is there are still many social housing projects built in unsuitable locations, away from the city, mostly in the periphery, were there is no right public transportation, neither infrastructure, nor services. However, in few developing countries things started to change recently, and these kinds of social housing are getting "right to the city" and users lifestyles and habits, distances issues are also more taken into account. Therefore, the site selection criteria are evolving into a more complex system, rather than only a fact of land's price and availability. Nevertheless, the cost remains being a key point. [389]

[386] Available at: http://www.unep.org/sustainablesocialhousing/CaseStudies_Brazil/Br_localassesment.asp (Access July 2012).
[387] UNEP, **Mapping Report-Final Version**, Mapping of the main stakeholders and processes affecting the selection of solutions (technologies and materials) for social housing projects- Sao Paulo, Sustainable Social Housing Initiative, Brazilian Team – Version 4.1, 2010.
[388] Available at: http://www.unep.org/SustainableSocialHousing/About_Sushi/sushi_II.asp (Access July 2012).
[389] UNEP, **Mapping Report-Final Version**, Mapping of the main stakeholders and processes affecting the selection of solutions (technologies and materials) for social housing projects- Sao Paulo, Sustainable Social Housing Initiative, Brazilian Team – Version 4.1, 2010

### e] Economic Dimension

The economical side of a project is the key of its viability and sustainability, especially when it comes to social housing projects, were the budget is so limited.

In many cases, like it was showed in the social dimension, public social housing program networks are complicated, mostly, the government lease the project and construction phase through open competitive bidding, which usually leads that the costs become the key issue at the time for the government to choose a construction company, and sometimes, different companies divide the different project phases among them, which makes it difficult to coordinate in order to reduce costs. [390]

True is, to include sustainable technology among social housing, like in the case of solar water heating system, increase, usually, the initial costs. Furthermore, like already mentioned in the case of Uruguay, to invest more funds into a more sustainable solution may bring a lesser amount of other kind of solutions. Generally speaking, even sustainable social housing means mid and long-term lower cost within the life cycle of the building for end users and the government (like in the case of subsidies for water and/or electricity), all social housing programs in all developing countries face this "first costs" issue. However, there are other sustainable criteria that can reduce initial costs, for example, managing in an efficient way the materials during the construction phase is also sustainable, an save up an important percentage of money comparing with business-as-usual methods. For a project to be successfully sustainable it's all about seeing these kinds of challenges as opportunities rather than barriers, thus, in the words of the Brazilian architect and urban planner Jaime Lerner[391], *"creativity begins when you cut a zero from your budget"*.

In the case of developing countries, managing construction materials and waste during construction phase may reduce 5-10 % of the housing unit total cost. Another example is using cement with lower clinker content, or in the case of concretes, made with lower cement consumption also collaborates to reduce expenditures. In addition, reducing services bills and life cycle costs of the building, also brings important benefits to end users, due they need to return mortgage payments to the construction companies, in order for them to invest in further social housing projects. [392]

[390] Available at: http://www.unep.org/sustainablesocialhousing/CaseStudies_Brazil/Br_localassesment.asp (Access July 2012).

[391] Jaime Lerner is an architect and urban planner specialized in sustainable cities. He performed for three terms as mayor of Curitiba and two times as governor of Parana State in Brazil. Curitiba is one of the most sustainable cities worldwide.

[392] UNEP, **Mapping Report-Final Version**, Mapping of the main stakeholders and processes affecting the selection of solutions (technologies and materials) for social housing projects- Sao Paulo, Sustainable Social Housing Initiative, Brazilian Team – Version 4.1, 2010

Like already mentioned, savings in water and energy also drop bill costs during the use phase of the housing, which means another benefit for the end users. Nevertheless, in some developing countries, these services are subsidizing by the government, what makes energy and water prizes with artificial lower prices. This is the case of Brazil, situation that makes more complex the ability to measure real savings during the building usage and also reduce the financial benefits for end users, due the monetary differences are not strong noticeable. Taking this into account, it becomes clear the necessity to appropriate models to measure sustainable success criteria in order to be able to develop an effective implementation strategy.[393]

### 4.2.3 Case Study: Overview of SUSHI Brazil

A successful project implementation therefore depends upon a flexible methodology that can be adjusted to local conditions taking into account the different backgrounds. In the specific case of SUSHI Brazil, there were many previous stages in order to be able to develop a SUSHI pilot project. The following will offer an overview about the SUSHI Brazil as a case study for this research.

The first SUSHI Brazil's meeting date back to January 2009, where the initial action steps were discussed. The priority was to recognize an accessible project inside the metropolitan area of Sao Paulo. Apart from *availability*, other criteria were also taken into account at the time to choose a social housing project:

**a] times issues**: a project facing the urgent necessity of building construction in order to tackle the deficit;

**b] end-users salary levels:** amount of units designated to a certain level of minimum wages;

**c] Budget limits:** only two pilot projects were addressed.

In addition, another issue discussed was the selected sustainable priority reach, which were determined by **Energy Saving and Comfort**, included were solar heating, thermal comfort (roof and windows) and natural lighting (windows); secondly, **Water Savings**, meaning individual savings; lastly, **Resource Savings**, embracing shafts of installations (less losses, easier maintenance), efficient use of cement and waste levering/use.[394]

[393] Available at: http://www.unep.org/sustainablesocialhousing/CaseStudies_Brazil/Br_localassesment.asp (Access July 2012).

[394] **Meeting-Sushi Project**, Ata Meeting 20 January 2009. Participants: Cristina Montenegro (PNUMA- Coordinator), Mara Luisa Alvim Motta (Caixa Economica Federal), Flávio Lantelme (Cohab), Francisco Vasconcellos (Sinduscon - SP), André Aranaha Campos (Sinduscon - SP), Marcelo Takaoka (CBCS), Vanderley John (CBCS), Orestes Marracine (CBCS), Lilian Sarrouf (CBCS), Diana Csillag (CBCS), Fernanda Kemeid (CBCS).

Analyzing the findings from the initial mapping reports in the case of Brazil, the SUSHI team decided to use as two pilot functions the **energy efficiency**, that included solar water heating systems, using energy friendly equipments (as in the case of energy-efficient refrigerators) and reducing the need of air conditioned by increasing thermal comfort through passive systems such as natural ventilation, lighting, shading, among others; and the **efficient use of water** through individual water-meters, high efficiency water-saving technical tools, grey water recycling and rain water harvesting. In addition, it was also stressed out in the report, the need to quantify the "sustainability" upgrade within a new social housing, in order to determine, in a more reliable approach ,these energy and water efficiency improvements installed. [395]

After the Mapping Report for SUSHI Sao Paulo was made, the public state housing institution CDHU was selected as local partner, and the next step followed was to verify the first findings with the CDHU experts, in order to confirm the available information and knowledge. The pilot project site selection was a social housing project to be built in Cubatão, south of Sao Paulo, next to the sea, where important environment problems were identified, like for example landslides and natural forest deforestation.[396]

Generally speaking, a "sustainable" implementation of improvements within social housing can only be achieved with the awareness, collaboration and acceptance of the actors involved, including the end users. The case of Brazil is no exception to that rule, local cultural patterns as well as stakeholders are key factors, and therefore, they must be analyzed carefully at the time of implementing such a project, like in this case, the SUSHI.

The identification of stakeholders within the Brazilian Social Housing governance was a priority within SUSHI project action plan. Due, one reason for the project successfully implementation was to become partners with these stakeholders, however, some of them reject the partnerships because there was no monetary support whether from the UNEP as from the national government. Recognized stakeholders were, first, all level public financial institutions; then, the housing organization; building and construction associations, including building contractors associations, material suppliers and construction in general professionals; subsequently NGOs related to sustainable construction and sustainability issues; policy and decision makers; and finally, the

[395] UNEP, **Sustainable Social Housing Initiative (SUSHI), Progress and Results Report September 2010**.
[396] UNEP, SUSHI Conference Call, January 28, 2010. Participants: Csillag D., Tonda E., Kurian J., Spangenberg J., Prof. Vanderley John, Laurindo R., de Feraudy T.

academia. [397] The following information will show the main stakeholders the UNEP decided to involve into the SUSHI process, in the specific case of Brazil.

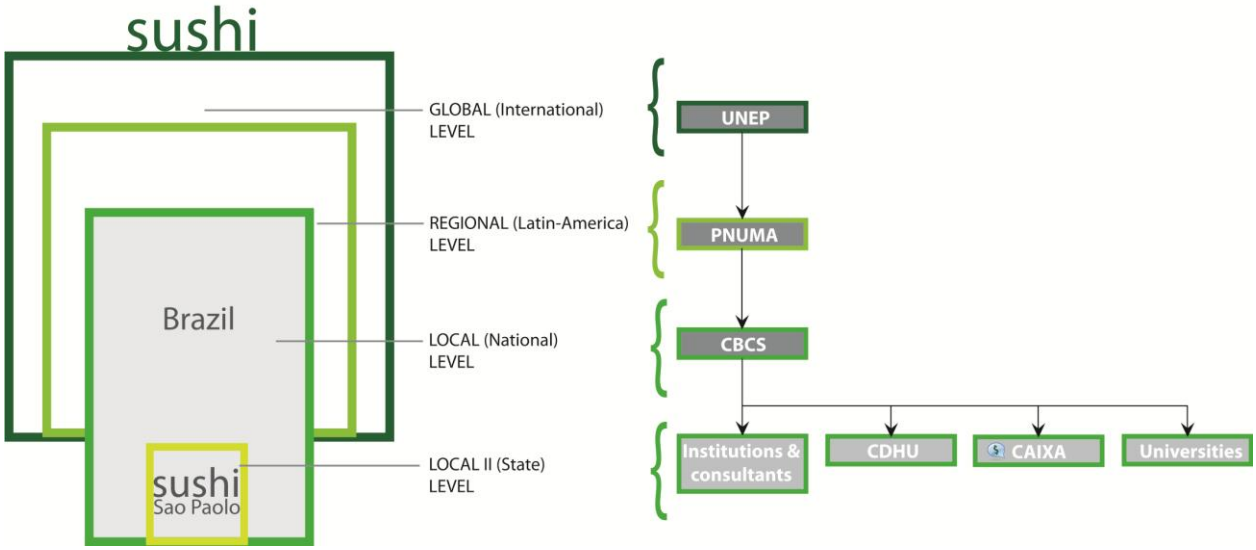



**Figure 4.4: SUSHI's main Stakeholders**[398]

### a] Global and Regional Stakeholders Level

As it was mentioned in the previous chapter, the United Nations Environment Program (**UNEP**) is the main international stakeholder, which mission consists on *"provindin leadership and encouraging partnership in caring for the environment by inspiring, informing, and enabling nations and people to improve their life quality without compromising that for the future generations"*[399]. At a more Latin-America level, they work through its regional office called Programa de las Naciones Unidas para el Medio Ambiente (**PNUMA**), since SUSHI project pilot project is located in South America.[400]

### b] Local and Local II Stakeholders Level

The Brazilian Sustainable Construction Council (Conselho Brasileiro de Construção Sustentável, **CBCS**) is the most important partner at local level, and is a result of the relationship and cooperation between the private sector leaders, researchers and consultants, among others. It was established in 2007, and since then, it became a strong local actor and propeller drive in introducing sustainability within constructions industry, thus, in order to better the end users life quality, construction workers

[397] UNEP, **Sustainable Social Initiative (SUSHI), Project Workshop Outcomes**, CTCC, Universidade de São Paulo (USP), São Paulo, Brazil, 5 March 2010.
[398] Source: **Own creation** after UNEP, **Mapping Report-Final Version**, Mapping of the main stakeholders and processes affecting the selection of solutions (technologies and materials) for social housing projects- Sao Paulo, Sustainable Social Housing Initiative, 2010
[399] Available at: http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=43 (Access July 2012).
[400] Available at: http://www.pnuma.org/ (Access July 2012).

conditions and the environment. Furthermore, it is focused on the construction sector and its interrelations within the construction materials industry, the financial sector, the government, academia and civil society. [401]

The Brazilian Federal Savings Bank (Caixa Econômica Federal, the **Caixa**) is a public financial institution that dates back to 1861.[402] It is the most important financial institution due it finances about 70% of all social housing programs of Brazil[403]. In addition, they provide assistance for all formal workers in Brazil, due they are in charge of the Guarantee Fund for Unemployment (Fundo de Garantia do Tempo de Serviço, FGTS) and The Social Integration Fund (Programa de Integração Social, PIS) and unemployment insurances, and, at the same time, also manages social programs such as "Bolsa Familia" and lottery units. Besides, the Caixa plays a key role in promoting urban development and social justice in Brazil, due it prioritizes sectors such as housing, sanitation, infrastructure and services, contributing this way to improve citizens' life quality, especially for the poor. [404]

The Urban Housing Development Company (Companhia de Desenvolvimento Habitacional Urbano, **CDHU**) is the major promoter of affordable housing in Brazil, and operates in the state of Sao Paulo. Thus, CDHU is direct linked to the Department of Housing, and aims to enforce social housing programs throughout the state, targeting entirely the low income families in the range of 1 to 10 minimum wages. Additionally, CDHU also contributes in the urban development of cities, according to the guidelines of the Department of Housing.[405]

SUSHI implementation strategy also included the knowledge support from the academia sector. Therefore, very prestigious Brazilian **Universities**, like in the case of the **USP** (University of São Paulo's Poly-Technical School), the **UNICAMP** (State University of Campinas) and **UFSC** (Federal University of Santa Catarina), were included into the project. For setting the stage for sustainable consumption of water and energy

[401] Available at: http://www.cbcs.org.br/sobreocbcs/index.php? (Access July 2012).

[402] Available at: http://www12.caixa.gov.br/portal/public/acaixa/home/a_vida_pede_mais_que_um_banco/ (Access July 2012).

[403] UNEP, **Mapping Report-Final Version**, Mapping of the main stakeholders and processes affecting the selection of solutions (technologies and materials) for social housing projects- Sao Paulo, Sustainable Social Housing Initiative, Brazilian Team – Version 4.1, 2010

[404] Available at: http://www12.caixa.gov.br/portal/public/acaixa/home/a_vida_pede_mais_que_um_banco/ (Access July 2012).

[405] Available at: http://www.cdhu.sp.gov.br/a_empresa/apresentacao-cdhu.asp (Access July 2012).

efficiency, SUSHI built a cooperation partnership with UFSC, for energy, and with POLI-USP and UNICAMP for water issues. [406]

Another key local stakeholder, this time from the private sector, is Fabio Feldmann Consultores, which is a strategic consulting firm dedicated to promote the sustainable development concept among different economy sectors, including participating in the formulation of the environmental legislation in Brazil. It also promotes the adoption of processes management of economic, social and environmental organization within the idea of the triple bottom line from the sustainable development concept.[407]

In 2009, CBCS and the UNEP signed a partnership contract. [408] The exchanges with its local partner CDHU, provided the SUSHI team with very valuable information in terms of social and cultural issues, architecture, landscape, water, energy, among others. These were compiled within "lesson-learned" about antecedents of solutions in previous social housing projects, which was later on analyzed from the SUSHI team in order to develop recommendation that could be used in future projects.[409]

Following the SUSHI implementation methodology, in the case of Brazil, it was necessary to make a certain specifications at the moment of developing a project about the technical maintenance costs, in order to aloud end users to manage to pay for them. In addition, the regional context of the social housing site was also taken into account, meaning the infrastructure in general as well as cultural and social integration.[410]

In order to be able to qualify the decision process, several categories were described. For this, SUSHI project local partners such as CDHU and COHAB collaborate with necessary inputs with the purpose of elevate the result trustworthiness. Hence, the pilot functions were concentrated in **water** or **energy**, and each one of them had an exclusive and non exclusive approach. The **exclusive strategy** contemplated the supply and demand management; while the **non exclusive** one considered the product, the project, the user and the public policies. At the same time, it was predefined that these strategies take action whether at a demand or supply level. In this case, the **demand** means the "optimization of the use of energy in a general way" and the **supply** involves

[406] UNEP, **Mapping Report-Final Version**, Mapping of the main stakeholders and processes affecting the selection of solutions (technologies and materials) for social housing projects- Sao Paulo, Sustainable Social Housing Initiative, Brazilian Team – Version 4.1, 2010

[407] Available at: http://www.ffconsultores.com.br/consult_empresa.html (Access July 2012).

[408] Sustainable Social Housing Initiative (SUSHI), Teleconference October 14, 2009. Participants: John V., Takaoka M., McIntire D., Svenningsen N., Csillag D., de Feraudy T.

[409] UNEP, MINUTES **SUSHI Conference Call, June 15, 2010.** Participants: de Feraudy T., Kurian J., Takaoka M., Csillag D., Taborianski V., Gupta R.

[410] UNEP, MINUTES SUSHI Conference Call, September 21, 2010. Participants: de Feraudy T., Gupta R., Kurian J., Takaoka M., Bessa V., Csillag D.

"furnish different levels of water quality according to the use and renewable energies", and each one of them can envelop one or more features linked to the project, products, users and/or public policies. All these **decision process** is also divided in different stages, which are during the **conception**, the **executive project**, **construction** and **use**.[411]

The following table gives the reader an idea about how alternative solutions for the SUSHI project are categorized and evaluated:

| | | | | |
|---|---|---|---|---|
| **1] Name of the Alternative** | | | | |
| **2] Description** | | | | |
| **3] Acceptance of the solution** | | **Desirable** | **Indifferent** | **Undesirable** |
| **4] Trustworthiness of the solution** | | **High** | **Acceptable** | **Low** |
| **5] Inputs** | | | | |
| **6] Availability of suppliers** | | **Non existent** | **Insufficient** | **Consolidated** |
| | **Product supply** | | | |
| | **Project** | | | |
| | **Installation** | | | |
| | **Maintenance** | | | |
| **7] Difficulty of the solution** | | **High** | **Regular** | **Low** |
| | **Project** | | | |
| | **Installation** | | | |
| | **Operation** | | | |
| | **Maintenance** | | | |
| **8] Risks of failure of the solution** | | **High** | **Acceptable** | **Low** |
| **9] Origin of risks** | | | | |
| **10] Risk mitigation** | | | | |
| **11] Cost** | | **High** | **Acceptable** | **Low** |
| | **Initial** | | | |
| | **Use** | | | |
| **12] Measurement and verification of benefits** | | **Possible** | **Credible** | **Hard** |
| | **Measurement** | | | |
| | **Verification** | | | |

**Table 4.3: Categories for the Mapping of new Alternative Solutions for the SUSHI Project[412]**

The following paragraphs will explain the table above about the categories for the mapping of new alternative solutions for the SUSHI project. First appears the **1] Name of the Alternative**, which is the name of the alternative solution or product to be mapped; then **2] Description**, that includes all project's relevant additional information on the solution; after that the **3] Acceptance of the solution**, that in this case defines the acceptance degree of the end user and it is evaluated in a qualitative way: desirable,

[411] SUSHI PROJECT: Categories for the mapping of alternatives, Vanderley John- Coordinator, Diana Csillag, Rafael Laurindo, Joerg Spangenberg.
[412] Source: Own Creation after SUSHI PROJECT: Categories for the mapping of alternatives, Vanderley John- Coordinator, Diana Csillag, Rafael Laurindo, Joerg Spangenberg.

indifferent and undesirable. Next, appears **4] Trustworthiness of the solution**, which addresses an evaluation about the system risk of failure where the solution is integrated during its life-cycle, thus, considering the construction and maintenance "usual-practices" and evaluating them among high, acceptable and low; subsequently follows the **5] Inputs**, which involves a groundwork mapping of the most important requirements involved within the solution; The subsequently point is **6] Availability of suppliers**, which is essential due it identifies the existence of targeted stakeholders able to face specific demands of each solution, in this case, it is also divided by product supply, project, installation and maintenance, evaluating each of them depending on non-existent, insufficient or consolidated. **7] Difficulty of the solution** denotes the possible physical difficulties (not costs) of the solution execution through the project, installation, operation and maintenance phases, which are going to be described as high, regular or low. Then, **8] Risk of failure of the solution**, here comes to the identification of the assessment of possible failure risks of the solution during its life cycle, which includes technical, cultural, regional and economic causes. All this factors will be evaluated also in a quantitative approach and later on classified among high, acceptable or low. **9] Origin of risks** embraces the recognition of the presented risk possible causes; while **10] Risk mitigation** includes first-steps strategies in order to thwart the already mentioned risks. In the case of **11] Cost**, the intention is to calculate approximately the impact of the initial and use cost of the solution. In this context, initial cost submits the project and installation expenditures, while use cost includes the charges at medium and long term of use, operation and maintenance; these is also evaluated among high, acceptable and low. Finally, **12] Measurement and verification of benefits**, means the estimation of the environmental benefits sub-dividing them by measurement and verification and, at the same time, evaluating them in possible, credible or hard. [413]

In order to provide local experts with training regarding sustainable solutions, many workshops were organized, the first date back to 2009, were over 300 participants came together to tackle energy efficiency and solar heating issues. This was a public event conducted and coordinated by CBCS, formalizing this way the cooperation agreement between SUSHI, CBCS and CDHU through an MOU.[414] About the subject related to the rational use of water in social housing was lighted after the first stakeholder meeting, due it was concluded the water cost was relevant for the end-users and community.[415] Therefore, in 2010, another additional workshop was made, but this time, about

[413] **SUSHI PROJECT: Categories for the mapping of alternatives**, Vanderley John- Coordinator, Diana Csillag, Rafael Laurindo, Joerg Spangenberg.
[414] UNEP, MINUTES **SUSHI Conference Call, April 7, 2010.** Participants: de Feraudy T., Kurian J., Svenningsen N., Csillag D., Takaoka M., Gupta R., Taborianski V.
[415] Sustainable Social Housing Initiative (SUSHI), Teleconference October 14, 2009. Participants: John V., Takaoka M., McIntire D., Svenningsen N., Csillag D., de Feraudy T.

subjects directly linked to efficient water use in social housing. [416] Also consultation meetings with experts and students were organized at CBCS in order to address earlier cases of sustainable social housing developed in Brazil.[417]

First steps workshop in Brazil concluded there was some antecedents about sustainable social housing, which included pilot actions like the application of solar heaters and some equipment replacements, like refrigerators and incandescent bulbs, the prevention of illegal wood, but none of them had a methodical approach, and higher costs ended up always being one of the main barrier.[418]

After the workshop, the SUSHI team concluded the level of knowledge was large, but there was a poor engagement with the cause. In addition, one of the biggest concerns resulted in being the costs and social repercussion; while the barriers were identified as lack of technical products in the market and lack of assessment for results. The expectation from the stakeholders were for the SUSHI team to provide with an implementation methodology in a more systematic approach, integrate lesson- learned from previous experiences, advise about applicable possible sustainable improvements and amplify the quality construction within an affordable budget.[419]
The next step to follow was to analyze the methodology used for the mapping realized among the stakeholders, in order to pay attention to their worries and expectations by identifying the proper tools, activities and performances, able to tackle the main identified challenges. As last step, general recommendations for methodology were made, including affordable sustainable criteria within social housing projects, and making official the results and conclusions and connect stakeholders within social housing projects.[420]

Even the government provides social housing project for a wider range of population rather that only for the poor, like in the case of middle-income families with up to 10 minimum wages, SUSHI contemplated, for the pilot project, public social housing programs that prioritized the most lowest income families receiving between 1 and 3 minimum wages. Rules are clear when it comes to register for the CDHU social housing program, the people of Brazilian citizenship may apply only when they do not own

[416] UNEP, MINUTES **SUSHI Conference Call, June 15, 2010**. Participants: de Feraudy T., Kurian J., Takaoka M., Csillag D., Taborianski V., Gupta R.
[417] UNEP, MINUTES **SUSHI Conference Call, April 7, 2010.** Participants: de Feraudy T., Kurian J., Svenningsen N., Csillag D., Takaoka M., Gupta R., Taborianski V.
[418] UNEP, **Sustainable Social Initiative (SUSHI), Project Workshop Outcomes**, CTCC, Universidade de São Paulo (USP), São Paulo, Brazil, 5 March 2010.
[419] UNEP, **Sustainable Social Initiative (SUSHI), Project Workshop Outcomes**, CTCC, Universidade de São Paulo (USP), São Paulo, Brazil, 5 March 2010.
[420] UNEP, **Sustainable Social Initiative (SUSHI), Project Workshop Outcomes**, CTCC, Universidade de São Paulo (USP), São Paulo, Brazil, 5 March 2010.

already a property; has an income between 1 and 5 minimum wages with some exceptions until up to 10 wages for middle-income classes; additionally, enclose an employment contract and have no debts; and finally, have lived for the last 2 years in that municipality.[421] Table 4.4 shows the Integration of sustainability criteria within the CDHU administration:

| Criteria | Characteristics | Actions |
|---|---|---|
| **Socio-Environmental Passive** | Reversion of the socio-environmental problems caused by previous non-sustainable social housing programs by improving urban planning and land selection criteria. | **1]** improving construction quality with appropriate public infrastructure and services,<br>**2]** reduce public investment during implementation of the infrastructure works,<br>**3]** stay away from putting supplementary force into existing infrastructure,<br>**4]** proper and sustainable land use management.<br>**5]** support projects with trustworthy technical, urban, physiographic, environmental, legal and tenure data, in order to reduce the project approval timings. |
| **Product Sustainability** | Incorporation of sustainable products into social housing programs through public policy. | **1]** product quality upgrading,<br>**2]** implementing new sustainable housing standards for energy efficiency and eco-efficiency solutions,<br>**3]** embracing the Universal Design guidelines. |
| **Socio-Economic Sustainability** | Being sustainable socio-economic development a key objective of CDHU, there are many actions made in order to ensure the social-economic aspects of its social housing programs. | **1]** generate maintenance competences and proper housing services usage,<br>**2]** stimulate socio-organizational work encouraging income-generating action and deliver subsidies,<br>**3]** invest into social features, managing during pre-occupation as well as post-construction phases,<br>**4]** involvement in recuperating insecure settlements. |

**Table 4.4: Integration of Sustainable Criteria in CDHU Administration[422]**

[421] UNEP, **Mapping Report-Final Version**, Mapping of the main stakeholders and processes affecting the selection of solutions (technologies and materials) for social housing projects- Sao Paulo, Sustainable Social Housing Initiative, Brazilian Team – Version 4.1, 2010

[422] Source: **Own Creation** after UNEP, SUSHI, **Lesson Learned: Sustainable Solutions in Social Housing from the experience of the Housing and Urban Development Company of the State of Sao Paulo**, 2010. Available at: http://www.cbcs.org.br/sushi/images/relatorios/Final_Brazil_reports_160511/2_Lessons_Learned_100511.pdf (Access July 2012).

As part of the research methodology, the author visited Cubatao, location where one of the SUSHI pilot projects is located, in Sao Paulo, Brazil. The objective was to have a closer look from the project, and be able to build up a perception approach about the onsite project itself and the impressions of the occupants about their own sustainable social housings.

The following table 4.5 is about interviews made to the Householders in the SUSHI pilot project in the city of Cubatão, in Sao Paulo state. The table is divided in 6 categories, first, householder number, due this way (not with names) there are going to be identified in order to preserve the interviewer's identity; second the gender of the persons followed by the age. After that, the amount of time since their families moved into their new sustainable social housing unit. Then, the total family members living at that time in the units; and finally, the date and place the interview was made.

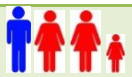
| Householder | Gender | Age | Residence Time | Family Members | Date and Place of Interview |
|---|---|---|---|---|---|
| **1** |  | 49 | 4 months |  | Cubatão, Sao Paulo, 06/04/12. |
| **2** |  | 23 | 1 month |  | Cubatão, Sao Paulo, 06/04/12. |
| **3** |  | 41 | 3 months |  | Cubatão, Sao Paulo, 06/04/12. |
| **4** |  | 46 | 6 months |  | Cubatão, Sao Paulo, 07/04/12. |
| **5** |  | 37 | 4 months |  | Cubatão, Sao Paulo, 07/04/12. |

**Table 4.5: Householders Interviewed in Cubatão, Sao Paulo, Brazil.**[423]

Before starting with the descriptions of the perception outcome from the interviews, it is important to take into consideration, all of the householders interviewed are home owners, they all pay a fee that does not exceed 15 % of their income, which is a symbolic price comparing with the real cost of the housing unit.

Householder (Hh) **1** and his family moved 4 months ago, he, 49 years old man lives with his wife, daughter and little granddaughter in one of the new sustainable social housing unit. Since the same amount of time lives the Hh **5**, 37 years old single mother with 3 children. The 23 years old Hh **2** is the one that less time lived in the new home unit, she and her husband have 3 little children, who at the time of the interview were playing in the kid-games located in the sandbox. Hh **3** (41 years old woman) arrived 3 months ago

[423] Source: **Own Creation** after personal interviews with UNEP-SUSHI end users.

with her 3 daughters and husband (53 years old) direct from a *favela*. Hh **4** is one of the interviewed that has inhabited the housing for the longer time, 6 months. He is also living with his wife, daughter and granddaughter.

All of them used to live in *favelas* or irregular settlements located in risks areas and had access to the new social housing unit by filling a government form of families "living in risk areas". There are also a lot of similarities among the answers, they all think electricity and water expenses are low and find thermal comfort, ventilation, lighting and the general environment quality optimal, far better than their previous homes. In addition, they did not need to make any modification to their housings since they moved, and opine that the site-location of the neighborhood is very convenient, due they are provided with public transportation or are among walk/bike ride distance from work. Hh **1** assures he mostly only uses his bike for transportation, while Hh **2**, **3** and **5** walk to the market or work, like in the case of Hh 5, and use the bus when needed; Hh **4** drives a motorbike. Besides, all of them recognize a very important improvement in their overall quality of life.


**Figure 4.5: One of the entrance to the city of Cubatão, Sao Paulo, Brazil.**[424]

[424] Source: **Own Picture**


**Figure 4.6 and 4.7: Private area with entertainment options.** [425]

Each building has a perimeter fence of a greater area than the size of the building, allowing a section of tables and chair, a small squatter with games for children and the parking of vehicles under the building structure.

**Figure 4.8: Private area with entertainment options.** [426]

**Figure 4.9: Fence and Security Checkpoint.** [427]

Each fence has a security checkpoint. In this case, designating a guard for that checkpoint is a decision of the building inhabitants. The fence serves both as protection for the building and also contains the small children playing in the game areas.

[425] Source: **Own Picture**
[426] Source: **Own Picture**
[427] Source: **Own Picture**

**Figure 4.10: Solar Water Heaters.** [428]

The water is charged per liter consumed and divided in equal parts among the inhabitants of each building, in the specific case of the multi-family buildings, while the light is charged on an individual basis.


**Figure 4.11: Bus Transportation Option.** [429]

The bus service to travel to the city center are from a very good quality and travel regularly.

[428] Source: **Own Picture**
[429] Source: **Own Picture**

# 5. Implementation adaptability of the SUSHI Project within the Uruguayan Governance Context.

In the following chapter, the author will, first, evaluate the Uruguayan sustainable and social housing framework with the Evaluation Matrix developed at the end of the chapter **2. Supportive Factors and barriers for Sustainable Social Housing Implementation**, in *2.4 Matrix for evaluating success criteria of policy framework in sustainable social housing*. Later, the results of the Evaluation Matrix will be discussed. And finally, recommendations regarding the content, matrix continued development and further research needs will be formulated.

## 5.1 Uruguayan framework vs. SUSHI implementation demands assessment: Evaluation Matrix

| Interaction Structure | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| **1. Purpose** | | | | | **X** |
| **2. Scope** | | | | | **X** |
| **3. Stakeholder Identification** | | | | **X** | |
| **4. Expected Outcomes** | | | | **X** | |
| **5. Interaction Forms:** | | | | | |
| **a] communication/coordination among institutions and citizens** | | | **X** | | |
| **b] information** | | | | **X** | |
| **c] transparency** | | | | **X** | |
| **d] corruption** | | | | **X** | |

**Evaluation criteria: 1 (nonexistent), 2 (poor), 3 (regular), 4 (good), 5 (optimal)**

**1. Purpose:** The purpose of implementing SUSHI project is very clear; it was already mentioned many times (during chapter *4. Sustainable Social Housing Initiative*) and is comprehensively explained. In addition, during this research paper, it also became clear that the willingness from the Uruguayan government towards sustainability is strong (please read chapter *1. Introduction,* and chapter *3. Case Study: Sustainable and Social Housing in Uruguay*) and follow the line of thinking for SUSHI project objectives. The evaluation score for this point in the evaluation matrix is, for those reasons, 5 (optimal).

**2. Scope:** In the case of the scope of SUSHI, analyzing chapter 4, it has very specific targeted objectives that are limited and achievable, and fit into the Uruguayan

government line of sustainability achievements. The specifications, flexibility and the restrictions of the project are, therefore, clearly expressed. Therefore, the score is 5 (optimal).

**3. Stakeholders identification**: in the case of Uruguay, to identify stakeholders involved within sustainable housing and social housing is categorized as 4 (good). As Uruguay being a small country, the group of actors is rather small and close and thus easily identified. The fact that "everybody knows everybody" helps to know who of the actors is in charge. This is very helpful at the time of mapping possible implementation potentials, like in the case of this thesis. In addition, information transparency is also one of the strongest features of the Uruguayan governance system (Please see the below point *5 b]* for more details about the information transparency law).

**4. Expected Outcomes:** The expected outcomes are also clearly described in *4.1 Implementation Framework* located in chapter *4*. And, for that reason, the score is also 4 (good).

**5. The Interaction Forms**:

**a] communication/coordination between institutions and citizens:** the communication and coordination between institutions and towards citizens is very criticized by many experts for being not efficient enough and slow, they consider bureaucracy is too intricate and time-consuming for a country of Uruguay's size. In addition, some institutions have more difficulties than others when it comes to be open to knowledge and information exchanges.[430,431] Nevertheless, there are many action programs where many different public and private institutions successfully coordinate for the same goal. The score for this summit point is, hence, 3 (regular).

**b] information:** law 18.381, Right of Access to Information, aims to promote transparency of administrative functions of any public body and guarantees a fundamental right of people for access to public information. It also declares access to public information being a right for everyone without discrimination based on nationality or status of the applicant, and additionally, this right can be exercised without having to justify the reasons for requesting the information.[432] For this reason, the score is 4 (good).

[430] Personal Interview with **Jorge Bertullo**, Monitoring and Evaluation Research Unit, MEVIR, Montevideo, Uruguay, April 2012.
[431] Personal Interview with **Francisco Beltrame**, Director of MEVIR, Montevideo, Uruguay, April 2012.

[432] Available at: http://200.40.229.134/leyes/AccesoTextoLey.asp?Ley=18381&Anchor (Access July 2012).

**c] transparency:** The already mentioned law 18.381 (please see *5 b]* of the current chapter) also applies to justify these summit point of the evaluation matrix. The evaluation is also 4 (good).

**d] corruption:** Transparency International ranked Uruguay as one of the countries with the lowest corruption rate from Latin America (right after Chile). The evaluation score for this kind of interaction form is, therefore, 4 (good).

| Barriers | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| **6. Knowledge Gaps** | | | X | | |
| **7. Technical Gaps** | | X | | | |
| **8. Competing Priorities** | | X | | | |
| **9. Regulatory Obstacles** | X | | | | |
| **10. Institutional Mismatch** | | X | | | |
| **11. Lack of Research and Program Activities** | | X | | | |

**Evaluation criteria: 1 (nonexistent), 2 (reduced), 3 (regular), 4 (much) and 5 (too much).**

**6. Knowledge Gaps:** the PEE (Energy Efficiency Program), among other programs that encourage sustainability, generates information to raise awareness within the citizens about energy efficiency and its benefits as well as increasing local institutions capacity (For more information please see *3.3.2 Sustainable Housing Policy Framework*). UTE also encourages to change behavior toward an efficient use of energy and promotes the benefits of renewables. Nevertheless, there is no much reaction toward these matters coming from many sectors of the academia. Furthermore, a territorial structure related to this arena within the academia is missing.[433]

**7. Technical Gaps:** It is well known, sustainable criteria is facing many challenges. Some experts consider that the current resistance from the academy, specially from the architecture side, is one of them.[434] Many factors depend on the technical experts, and therefore, its formation and "willingness" towards apply sustainable technologies are very important. They are the ones that are able to advice and recommend sustainable alternatives for the building constructions[435], and sometimes, the biggest "enemy" is in their own head.[436] There is the need to reformulate and design new special training for all technical experts, specially architects and urban planners, because most of them are

[433] Personal Interview with **Diulio Amandora**, President of the Architects Society of Montevideo, Montevideo, Uruguay, April 2012.
[434] Personal Interview with **Jorge Bertullo**, Monitoring and Evaluation Research Unit, MEVIR, Montevideo, Uruguay, April 2012.
[435] Personal Interview with **Hugo Rea**, Quality Management Unit, Intendance of Montevideo, Montevideo, Uruguay, April 2012.
[436] Personal Interview with **Diulio Amandora**, President of the Architects Society of Montevideo, Montevideo, Uruguay, April 2012.

special sensitive to "business-as-usual" system alterations.[437] There have been many improvements recently, e.g. the law 18.585 of Thermal Solar Energy states, being of national interest to investigate, to develop and to provide training on solar energy matters. There are many programs launched currently by the Uruguayan government, some of them, in cooperation with international entities, like in the case of UNESCO, UNDP and GEF, among others. The most important programs are described in *3.3.2 Sustainable Housing Policy Framework.* Therefore, the evaluation gained for technical gap is 2 (reduced).

**8. Competing Priorities:** By analyzing the information about the Uruguayan case study, it becomes clear that both sustainability and social housing are nationwide priorities. Therefore, these are included in many programs backed by a suitable policy framework (please refer to *3.3.2 Sustainable Housing Policy Framework* and *3.3.1 Social Housing Policy Framework* for more information about the most important laws as well as the current programs). That is the reason why the score for competing priorities is 2 (reduced).

**9: Regulatory Obstacles:** In this case, the author was not able to find any regulatory obstacles for developing sustainable social housing in Uruguay, which can only mean very good news, since the existence of this kind of barrier could lead to the abortion of projects like SUSHI before start thinking about an implementation action plan. The score is 1 (nonexistent).

**10. Institutional Mismatch:** according to local experts, there are some institutional mismatch within the Uruguayan governance system. Some institutions fulfill other's roles, ending up with unproductive results.[438] Nevertheless, even when there is always much room for improvement, in terms of coordination efficiency among Uruguayan institutions[439,440,441], these Uruguayan institutions are strong establishments and work in a favorable governance framework suitable to implement sustainable social housing projects. Therefore, it is evaluated with 2 (reduced).

**11. Lack of Research and Program Activities:** some experts consider the research about sustainable social housing to be, if not a barrier, a strong limitation. They consider

[437] Personal Interview with **Javier Taks**, Social Anthropologist, Research Professor at the Republic University, Professor of the Faculty of Social Sciences, Montevideo, Uruguay, April 2012.
[438] Personal Interview with **Diulio Amandora**, President of the Architects Society of Montevideo, Montevideo, Uruguay, April 2012.
[439] Personal Interview with **Francisco Beltrame**, Director of MEVIR, Montevideo, Uruguay, April 2012.
[440] Personal Interview with **Diulio Amandora**, President of the Architects Society of Montevideo, Montevideo, Uruguay, April 2012.
[441] Personal Interview with **Danilo Gutierrez**, Executive Director, INACOOP, Montevideo, Uruguay, April 2012.

investigations in this arena are rare and very disperse.[442] However, the information showed in chapter *3* mentioned the most important programs and the support of public authorities towards more research about renewals. Hence, the score is evaluated with 2 (reduced).

| Elements A: Policy Tools | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| **12. Regulatory & Control Mechanism** | | | | | |
| **a] appliance standards** | | | X | | |
| **b] procurement regulations** | | | X | | |
| **c] energy efficiency quotas** | | X | | | |
| **13. Financial-based instruments** | | | | | |
| **a] cooperative procurement** | | X | | | |
| **b] energy performance contracting** | | | | X | |
| **14. Fiscal instruments and incentives** | | | | | |
| **a] tax exemptions and reductions** | | | | X | |
| **b] public benefit charges** | X | | | | |
| **c] capital subsidies, grants, subsidized loans and rebates** | | | | X | |
| **15. Information and voluntary instruments** | | | | | |
| **a] public-leadership initiatives** | | | | X | |
| **b] awareness raising and education** | | | X | | |

**Evaluation criteria: 1 (nonexistent), 2 (poor), 3 (regular), 4 (good), 5 (optimal).**

**12. Regulatory & Control Mechanism:**

**a] appliance standards:** Uruguayans policy decision-makers already started working for bringing sustainable standards within the construction industry. Some examples are the projects generated after Energy Efficiency law 18.597 and Thermal Solar Energy law 18.585, that established minimum standards for buildings, especially for new constructions. (More about these laws in *3.3.2 Sustainable Housing Policy Framework*). The Montevideo Intendance is also encouraging sustainable standards for buildings, but they have not reached a nationwide level. In addition, the MVOTMA is working on including many sustainable standards among the specifications for future projects bidding, adding sustainable social housing projects. (Please read *3.3.1 Social Housing Policy Framework).* And yet, on the other hand, some experts consider there is still a long way in order to reach international standards in sustainability among all buildings, and there are not many building construction companies that

[442] Personal Interview with **Diulio Amandora**, President of the Architects Society of Montevideo, Montevideo, Uruguay, April 2012.

applied more than the minimum required by the existing policies, and therefore, the government should become more stringent in the requirement of more strong sustainable oriented standards. Therefore, the score is 3 (regular).

**b] procurement regulations:** Like mentioned before, there are some sustainable friendly laws that launched many projects so as to encourage sustainable procurement regulation for public projects, nevertheless, in the authors' opinion, even there is a perception of well intentioned willingness from the Uruguayan authorities at the time the policy was designed, these are still in a early stage, and for that reason the score is 3 (regular).

**c] energy efficiency quotas:** despite Uruguay has integrated, in 2006, a Standard and Labeling Program which classifies energy products and equipments, this has not reach the entire nationwide building sector. Energy efficiency quotas are not mentioned in other programs, and therefore, the evaluation makes 2 (poor).

**13. Financial-based instruments:**

**a] cooperative procurement:** this allows the exercise of procurement agreement by more than one institution in order to be able to divide the workload of the procurement and agreement management processes, making a better use of the institutions' resources by dropping the amount of administrative processes.[443] The only case observed by the author that could help as an example for this matrix point, is the agreement between MVOTMA and MEP, which ended up in the creation of the CAIVIS with the objective to accelerate in an efficient way the approval for social housing projects coming from the private sector (More information about this agreement available in *3.2.2 The Private-Public Agreement: More Opportunities*). Indeed, this has been a very important step for the improvement of the social housing Uruguayan governance, yet, this is an isolate case, and therefore the score is 2 (poor).

**b] energy performance contracting:** this kind of procurement method is a financial mechanism for building restoration, where the installation of energy-reduced systems are paid by means of the electricity bill.[444] As showed in *3.3.2 Sustainable Housing Policy Framework*, there are many institutions involved in

[443] Australian Government, Department of Finance and Deregulation, Available at: http://www.finance.gov.au/procurement/wog-procurement/cooperative-procurement.html (Access July 2012).

[444] EPC Watch: watching the world of energy performance contracting, Available at: http://energyperformancecontracting.org/ (Access July 2012).

order to support energy performance contracting, with the aim to reduce energy consumption in buildings, some of these institutions are MIEM, MVOTMA, UTE, Solar Board, BHU, among others. As a result, the evaluation achieve the score 4 (good).

**14. Fiscal instruments and incentives:**

**a] tax exemptions and reductions:** After analyzing *3.3.1 Social Housing Policy Framework* followed by *3.3.2 Sustainable Housing Policy Framework* it becomes clear the Uruguayan are investing a lot of efforts to support both social housing and sustainability by means of fiscal instruments and incentives. This comes within well targeted programs; the most important ones are explained in chapter 3. Accordingly, the evaluation score, in this case, is 4 (good).

**b] public benefits charges:** this kind of financial instrument is usually enforced by legislation or regulations and consists of an extra charge (ranging from 2.5% to 5%) within the energy bill. Thus, with the objective to target these funds to support, for example, environmental and efficiency projects[445]. The author did not find information to prove the Uruguayan government is currently making use of this tool. The score in this case is 1 (nonexistent).

**c] capital subsidies, grants, subsidized loans and rebates:** It was already named the many public programs that are supported by this type of financial instruments, after considering the *3.3.1 Social Housing Policy Framework* and *3.3.2 Sustainable Housing Policy Framework*, the author evaluates this issue as 4 (good).

**15. Information and voluntary instruments:**

**a] public-leadership initiatives:** Uruguayan population is very well known as a society with a strong civic responsibility, from the local neighborhoods councilors in charge of dealing with the day-to-day affairs, until the cooperative associated working under the self-help construction system, all of them show very commitment public-leadership initiatives. For that reason, the score is 4 (good).

**b] awareness raising and education:** after analyzing the information delivered from the local experts, there is a clear intention towards sustainability among the government and a few academia groups, and there has been some campaigns for raising awareness and education among the Uruguayan citizens. Many things get

[445] Available at: http://www.energyvortex.com/energydictionary/public_benefits_charge.html (Access July 2012).

done in the country in the following order: first by public acceptation and then things get implemented. Nevertheless, experts recognize this voluntary process is difficult and time consuming, especially when it comes to change behavioral habits.[446] Taking into consideration the enormous importance of educating the population about sustainability matters in a serious way, the author considers the efforts made until now have not been strong enough to bridge the knowledge gap, for that reason, the score is also 3 (regular).

| Elements B: Actions | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 16. Effective implementation strategies | | | | X | |
| 17. Promotion of security tenure | | | X | | |
| 18. Adequate supply of affordable land | | | X | | |
| 19. Improving infrastructure and services | | | X | | |
| 20. Promotion of housing finance mechanism | | | | X | |
| 21. Utilization of local building materials and technologies | | | | X | |
| 22. Support to small-scale construction activities | | | | X | |
| 23. Adjusting standards for building and land subdivision | | | X | | |
| 24. Promotion of community participation and self help | | | | | X |
| 25. Investing in pilot projects | | | X | | |
| 26. Incentive mortgage finance | | | | X | |
| 27. Appropriate subsidies | | | | X | |
| 28. Ensure sustainable infrastructure for urban development | | | | X | |
| 29. Regulate land and housing development | | | | X | |
| 30. Organize the building industry | | | | X | |
| 31. Set a Long-Term Plan | | | | X | |
| 32. Measurement of water and sanitary services | | X | | | |
| 33. Waste management in constructions | | | | | X |
| 34. Adapting other case studies strategies to the local context | | | | X | |
| 35. Local Policy Report and Local Plan | | | | X | |
| 36. Land Use Plan | | | | X | |
| 37. Subdivision Plan | | | | X | |
| 38. Practice Codes and Standards | | | X | | |
| 39. Building Codes Administration | | X | | | |
| 40. Ruling | | | | X | |
| 41. Fee reductions and incentives | | | | X | |
| 42. Loans | | | | X | |

[446] Personal Interview with **Miguel Rodríguez Bonnecarrère**, UNEP and MVOTMA Sustainability Consultant, Montevideo, Uruguay. April 2012.

| | | | | | |
|---|---|---|---|---|---|
| **43. Raising funds-targeted rates** | | | **X** | | |
| **44. Rates postponements and remissions** | | | **X** | | |

**evaluation criteria: 1 (nonexistent), 2 (poor), 3 (regular), 4 (good), 5 (optimal)**

**16. Effective implementation strategies:** According to some local experts, the government has good intentions toward the subject. Currently, there is a lot of knowledge being accumulated at a theoretical level, but there has being gaps in the implementation processes and results are still not showing up. The government should support and promote the implementation phases more, through its institutions.[447,448,449] Nevertheless, as illustrated in *3.3 Policy Framework in Uruguay,* there are many implementation strategies regarding sustainable and social housing currently being implemented in Uruguay. Hence, taking into consideration that results in this matter are more mid- and long term, and for that reason there are probably not showing up yet, the implementation strategy effectiveness is evaluated with the score 4 (good).

**17. Promotion of security tenure:** regarding security tenure issues, the United Nations Economic Commission for Latin America and the Caribbean (UNECLAC) acknowledged that conditions in developing countries may require a different approach due secure tenure is not considerate as a study unit for mainstreaming analysis systems, like in the cases of censuses, surveys, etc. Therefore, the percentage is being estimated with the informality data, which in the case of Uruguay is about 15%.[450] In addition, it was already mentioned at the beginning of chapter *3*, that, in Uruguay, the houses protected by legislation are about 75%, while, according to the MVOTMA around 25% are considered as legally doubtful. [451] Therefore, the evaluation is 3 (regular): despite the Uruguayan situation is by far better than many other Latin American countries; still, there is a lack of public action plan for this specific target.

**18. Adequate supply of affordable land:** There are public institutions like National Bureau of Land Directorate (DINOT), the Properties Portfolio for Social Interest (CIVIS) and Local Intendances that have the ability to supply with affordable land for social housing programs. Furthermore, MVOTMA assures, one of the main objectives of the current Social Housing National Plan is to find strategies that enable the urban sprawl

[447] Personal Interview with **Raul Valles**, Permanent Housing Unit, Architecture School of the Uruguayan Public University, Montevideo, Uruguay, April 2012.
[448] Personal Interview with **Hugo Rea**, Quality Management Unit, Intendance of Montevideo, Montevideo, Uruguay, April 2012.
[449] Personal Interview with **Diulio Amandora**, President of the Architects Society of Montevideo, Montevideo, Uruguay, April 2012.
[450] UN-HABITAT, **State of the world's cities 2006/7, The Millennium Development Goals and Urban Sustainability: 30 Years of Shaping the Habitat Agenda**, 2006. Available at: www.unhabitat.org
[451] MVOTMA, for its Spanish name, **Mi Lugar, entre todos, Plan Nacional de Vivienda 2010-2014 (My place, among all others, National Housing Plan 2010-2014).** For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).

reversion. Nevertheless, even there is a lot of available capacity in Montevideo city, and the fact there are many actors trying to bring these kind of project into the formal city, many experts criticize the prices in the city are too high, what makes them unaffordable for this layer of society, and the government's strategy is not enough to supply the demand. In addition, the population segregation among the different neighborhoods in Montevideo is great. For some experts, the enforcement of the law 18.308 Land Management and Sustainable Development is still in a very early stage, and municipalities are having difficulties for having readily availability to the land.[452] For this reason, the score for this issue is 3 (regular).

**19. Improving infrastructure and services:** with the funding of the MVOTMA (please see *Table 3.1* in *3.3.1 Social Housing Policy Framework*), one of the local Intendances' line of actions is *urbanized land recovery*, which aims to equip the land for residential purposes with infrastructure and/or services, that includes sanitation works, drinking water and electricity supply, roads and public spaces. The population targeted is the one already settled in the land and surroundings. And yet, like in the previous action evaluation point number 18, experts consider that not enough is being done and there are still a lot of settlements in the periphery of the city with no infrastructure and services at all. For these reasons, the score is also 3 (regular).

**20. Promotion of housing finance mechanisms:** there are plenty of housing programs available for low income families. Chapter 3 described them between Housing Access and Refurbishment and Housing Rent Subsidies, both being subsidy programs from the government. Besides, the new private-public agreement "More Opportunities" do have a high potential for developing more housing finance mechanisms within the real estate market focused in social housing. Even some experts judge there are some gaps within public subsidy, and some groups in need do not fit with the predefined requirements for having access to some of them, the author considers the score to be a 4 (good).

**21. Utilization of local building materials and technologies:** Uruguay has a very traditional society with strong cultural roots, and construction materials for housings with the business-as-usual systems are the same as many decades ago: cements, bricks and ceramic. The fact that MVOTMA is starting to accept alternative materials as valid for social housing, is considered, by the author, as a big improvement. Even there are first pilot project trying to incorporate materials like wood; in the expert's opinion, it is still a challenge to get the populations acceptance, and therefore, that kind of pilot

[452] Personal Interview with **Jorge Bertullo**, Monitoring and Evaluation Research Unit, MEVIR, Montevideo, Uruguay, April 2012.

project has not succeed as expected. Nonetheless, considering all pros and cons, the author considers evaluating the Uruguayan situation towards the utilization of local building materials and technologies as 4 (good).

**22. Support to small-scale construction activities:** there are many public programs for small-scale construction activities through self-help systems, some of local institutions that support these are MVOTMA-DINAVI, MEVIR, local Intendances and the PIAI that operates with international funds. For more detailed information, all these programs are explained in chapter 3. The score for this summit number 22 of the evaluation matrix is 4 (good).

**23. Adjusting standards for building and land subdivision:** This issue is not described within the Social Housing National Plan, and therefore can be assumed it is not included or very weak treated as a government action plan for social housing. On the other hand, when we talk about sustainable housing, indeed, there have been many adjusting standards for buildings in order to do them more sustainable. For that reason, balancing the information provided in chapter 3, the score will be 3 (regular).

**24. Promotion of community participation and self-help:** Like already mentioned in summit number *22*, there is a big support from the government side towards self-help and community participation, through, for instance, the already explained cooperation systems. This is very strong in Uruguay and therefore the score is 5 (optimal).

**25. Investing in pilot projects:** Even when there was some examples mentioned in chapter *3* about pilot projects for sustainable social housing, there are still rare and isolated cases in the country, and, even there is willingness, there is not enough support for such an important action. The score in this case is, consequently, 3 (regular).

**26. Incentive mortgage finance:** MVOTMA does support mortgage finances, either stepping as guarantee for low-income families and/or cooperatives to meet financial institutions requirements in order to gain access to mortgage credits as the creation of financial tools like the case of *fee subsidies* (Please see *3.3.1 Social Housing Policy Framework*). The score is 4 (good)

**27. Appropriate subsidies:** Subsidies are well targeted in the Uruguayan context, they come not alone but rather as a financial instrument support within a social housing program or policy, which allowed them to be successfully implemented and to reach the expected population. Even there is still some improvement range, due there are

disadvantages groups that still do not fit into any of the existent programs[453,454], still the coverage is wide, specially compared with past National Housing Plans already implemented in the country, hence, the score is 4 (good).

**28. Ensure sustainable infrastructure for urban development:** There is no specific action directly linked to fulfill this summit point *28*. Nevertheless, laws like 17.283 General Law for Environment and law 18.308 Land Management and Sustainable Development have already ensured a clear tendency towards sustainable infrastructure for urban development (Please see *3.3.2 Sustainable Housing Policy Framework*), besides the fact that MVOTMA works in coordination with the DINAMA (National Environment Directorate) and the DINOT (National Bureau of Land Directorate), which are part of the Ministry itself. Therefore, it is assumed this joint work between these public organisms guarantee sustainable infrastructure for urban development, and that is the reason why the author decided to adjudge a 4 (good) as evaluation score.

**29. Regulate land and housing development:** The Land Use Plan and the law of Population Centers were the antecedents for law 18.308, Land Management and Sustainable Development, since 2008, which is already explained in detail in *3.3.2 Sustainable Housing Policy Framework*. The score in this case is 4 (good).

**30. Organize the building industry:** encouraging competitiveness among construction industry is a good way for supporting the housing market. In the case of Uruguay, the government made an important move when decided to perform the already mentioned private-public agreement "More Opportunities". Adding the real-estate market as key stakeholder within social housing will supposedly bring competitiveness among the supply side, favoring the activation of the market for this social stratum. The score is, for that reason, 4 (good).

**31. Set a Long-term Plan:** It was mentioned a five-years National Social Housing Plan with clear long-terms objectives and strategy action line (Please observe *3.3.1 Social Housing Policy Framework*) and there is also a clear vision towards sustainability within the construction industry (Please see *3.3.2 Sustainable Housing Policy Framework*), due there is many laws and programs supporting sustainable criteria within the country. For that reason, the score is 4 (good).

[453] Personal Interview with **Francisco Beltrame**, Director of MEVIR, Montevideo, Uruguay, April 2012.
[454] Personal Interview with **Jorge Bertullo**, Monitoring and Evaluation Research Unit, MEVIR, Montevideo, Uruguay, April 2012

**32. Measurement of water and sanitary services:** This issue is not very well developed as a main concern issue in South American countries, the awareness of the water scarcity and its importance has not yet fully reached the population. In the case of Uruguay, even there is law 18.610 for a National Water Policy and Uruguayan's claim to have a Use and Protection strategy of water resources (there is more information available in *3.3.2 Sustainable Housing Policy Framework*), people's perception of water being everywhere and therefore an abundant natural resource is deep. Individual measurement of water and sanitary services is not included as a priority, and therefore the score is 2 (poor).

**33. Waste management in constructions:** This became, in recent years, a key action plan from the Uruguayan government and is a fundamental strategy in order to bring the construction industry into sustainability. Waste management in construction is already being implemented in many big scale projects, assisted by the Quality Management Unit from the Montevideo Intendance with great success in terms of monetary and resource savings (Please see *3.3.2 Sustainable Housing Policy Framework)*. For these reasons the evaluation score is 5 (optimal).

**34. Adapting other case studies strategies to the local context:** Chapter *3* already mentioned, as an example, that the Uruguayan government is intending to use as pattern model the SUSHI pilot project from Brazil for its own social housing projects. These can be followed under *3.3.2 Sustainable Housing Policy Framework,* specifically in *VII] Sustainable Construction Promotion*, where also other cases are described. The evaluation for this case is 4 (good).

**35. Local Policy Report and Local Plan:** One of the features of social housing governance of Uruguay is the independency of the Local Intendances, these are very important for collecting reliable data for policy making, due they are stakeholders directly linked to the local society, and therefore, more aware of what is needed. Nevertheless, the expert thinks that there is a coordination gap between local and national level when it comes to the collection of information and data quality; systems are sometimes not adaptable between them. Even so, when it comes to evaluate the recognition of the importance of local authorities, the score decided by the author sum up 4 (good).

**36. Land Use Plan:** The Uruguayan Land Use Plan is one of the key propeller for Law 18.308 of Land Management and Sustainable Development established, since 2008, a regulatory framework for land use planning (Please see *3.3.2 Sustainable Housing Policy Framework*). This is evaluated with 4 (good).

**37. Subdivision Plan:** The already mentioned law of Land Management and Sustainable Development has, among others, in its article 83 enables the public authority to design subdivision plans when needed. More detailed information about this important law can be found at http://www0.parlamento.gub.uy/leyes/AccesoTextoLey.asp?Ley=18308&Anchor= (Access July 2012). The evaluation is 4 (good).

**38. Practice Codes and Standards:** There are very traditional strength standards for the design and construction of social housing projects, nevertheless, a systematic approach and detailed guidance incorporating alternative solutions to business-as-usual systems is missing. First, practice codes and standards are in an early stage of implementation when it comes to sustainable buildings in Uruguay (please see chapter 3). It is important to underline the efforts made by the MVOTMA and Montevideo Intendance in this regard, but still, the author considers the Uruguayan actual situation regarding Practice Codes and Standards does not fill the gap; therefore, the score is 3 (regular).

**39. Building Code Administration:** Due the reasons mentioned in the previous summit number *38*, in addition, there is still lack of priority for administrating and enforcing building codes and standards with special focus in sustainability. Even when Montevideo Intendance is doing a very good work, the political vocation has not reached a nationwide level, resulting in an evaluation score of 2 (poor).

**40. Ruling:** Analyzing chapter 3, it becomes clear, the Uruguayan policy-makers do alter regulations when needed in order to reach behavioral changes. For instance, when the Montevideo Intendance demanded certain thermal insulation criteria - through a thermal transmittance calculations in an interactive internet site, which expert has to fill, print and attach to the building permit -. This forced professional and construction companies to change the design criteria, facades and roofs materials. All stakeholders involve rely on the legislative decisions that are made. What is written and regulated has its rules and therefore applies and works as long as there is an efficient monitoring.[455] There is no doubt the country's public authorities can make use of this action to support the transition from traditional social housing programs into more sustainable ones. Therefore, the score is 4 (good).

[455] Personal Interview with **Miguel Rodríguez Bonnecarrère**, UNEP and MVOTMA Sustainability Consultant, Montevideo, Uruguay. April 2012.

**41. Fee Reductions and incentives:** The case study chapter of Uruguay shows there are ample fee reductions and incentives for social housing and sustainable housing. In addition, there are plenty of programs that support both important issues with financial mechanism in order to encourage the society to use and develop them; chapter *3* mentions the most important ones. For that reason, the score is 4 (good).

**42. Loans:** Like just mentioned, loans also fit in the financial instruments kit that belongs to supporting social housing programs and sustainable housing promoted from national institutions as well as international institutions. The score is 4 (good).

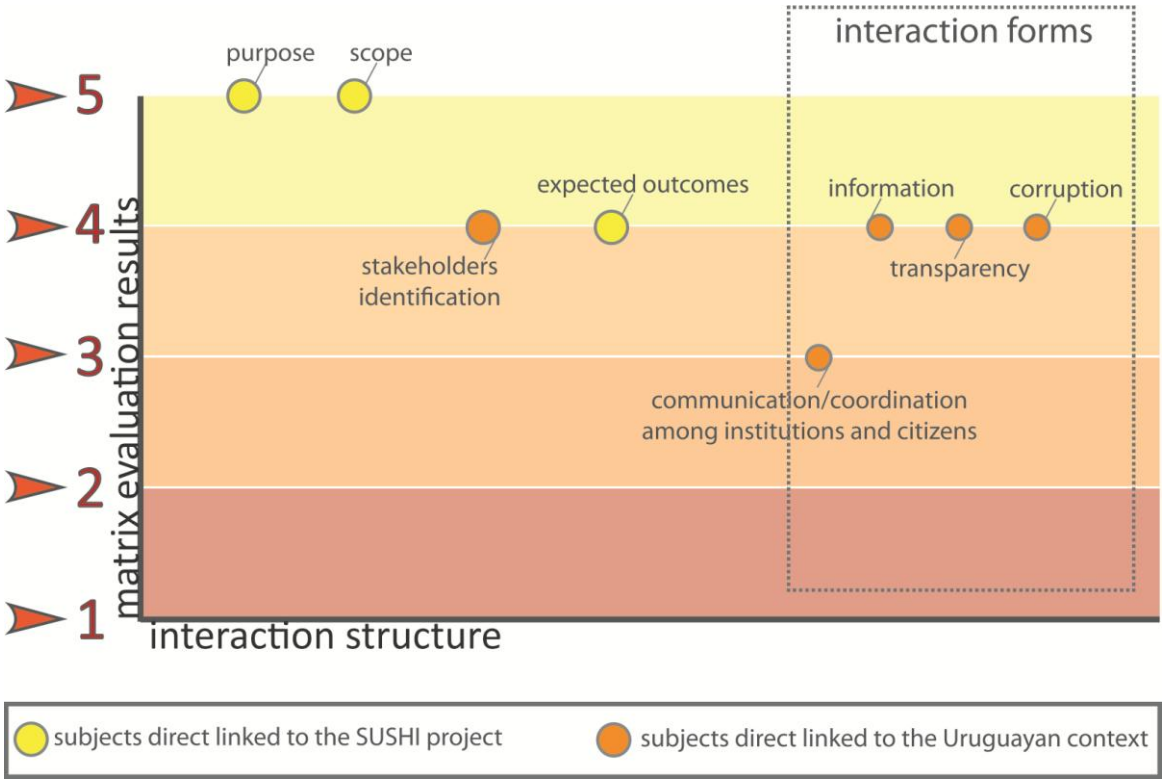
**43. Raising funds-targeted rates:** After analyzing the Uruguayan case carefully, the author considers the government does not use the full potential of this action strategy for supporting sustainable initiatives, and consequently, the score is 3 (regular).

**44. Rate postponements and remissions:** Even the government has been gaining willingness towards sustainability in the last years, still remitting and postponement rates that help to eradicate barriers for sustainable improvements do not belong completely to one the public agenda priority. Thus, the score is 3 (regular).

## 5.2 Results Discussion

### 5.2.1 Adaptation of SUSHI implementation to Uruguayan context

Knowing that the project success is directly linked to the local policy framework of the selected country, the first section of the results from the evaluation matrix will be discussed, the so called **Interaction Structure**. The following Graph 5.1 shows the results of the evaluation matrix.




**Graph 5.1: Interaction Structure analysis.**[456]

Graph 5.1 points up the Interaction Structure section divided into 2 axis, one with the matrix evaluation results (between 1 *nonexistent* and 5 *optimal*) and the type of interaction structure, which includes, **1- Purpose**, *2*- **Scope** and **4- Expected Outcomes**, that are subjects more related to the SUSHI project itself within the Uruguayan current situation. Then, there are **3- Stakeholders Identification** and **5- Interaction forms** that contains **a]** communication/coordination among institutions and citizens, **b]** information, **c]** transparency and **d]** corruption; matters directly linked to the Uruguayan context in relation to SUSHI prospects.

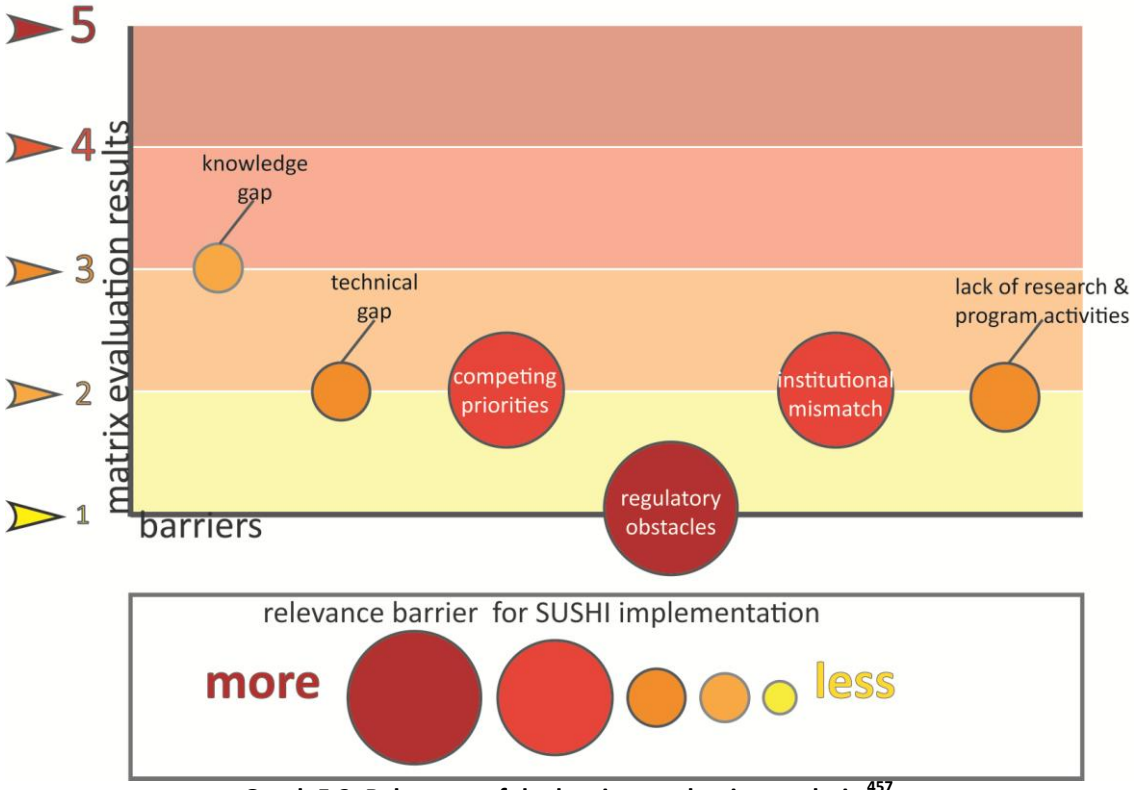
Taking into consideration the assessment results from this section, most notable is that there are two 5 (optimal) scores and most of the remaining evaluation scores are 4 (good). The reason why SUSHI project proved to be suitable for the Uruguayan context is because the **purpose**, **scope** and **expected outcomes** of SUSHI within the Uruguayan social housing governance do share common objectives and complement each other. **Stakeholders' identification** also proved to be a simple task for the Uruguayan sustainable and social housing governance system. In the case of **Interaction forms**, the result shows that communication/coordination among institutions and citizens are regular. By focusing on improving the integration and collaboration between institutions-institutions and institution-citizens relationships it may improve the chances

[456] Source: **Own creation**

of success. Other kinds of interaction structure are information, transparency and corruption evaluated as 4 (*good)*, proving that Uruguay possess suitable conditions for the implementation of projects like SUSHI, due it is well known, these are key factors for good governance, and it is imperative to have a good governance framework in order to embrace such a project in a effectively way.

### 5.2.2 Improving Uruguayan framework towards Sustainable Social Housing.

The following graph 5.2 is going to illustrate the **barriers** previously estimated with the evaluation matrix, in order to help us understand its relevance for SUSHI implementation within the Uruguayan context. Before starting the discussion, it is important to understand how the graph works. There are two axis: **1]** *matrix evaluation results* that contains the evaluation scores utilized in the matrix, 1 (*nonexistent*), 2 (*reduced*), 3 (*regular*), 4 (*much*) and 5 (*too much*). **2]** Type of possible identified *barriers*. The size, as well as the color, of the barrier and evaluation score describe its importance, and despite all of them are relevant, some could reject projects like SUSHI before even start thinking on a strategy for its possible implementation. Hence, barriers like research and program activities as well as knowledge, technical gaps are more easily bridge through a good multi level implementation strategy, while there are barriers like regulatory obstacle, institutional mismatch and competing priorities that, depending on its severity, it could irrevocably reject these kind of projects from the very beginning.




**Graph 5.2: Relevance of the barriers evaluation analysis.**[457]

Analyzing the results of the possible barriers for SUSHI implementation in the specific case of the Uruguayan context, the outcome is relatively positive, and the author will explain the outcomes from graph 5.2 showed above.

Results become immediately visible, **knowledge gaps** ends up being the most important barrier, which, in this case, is not very difficult to manage due the score is 3 (regular) and not 4 or 5, which would draw a much different and more concerning scenario for the implementation of SUSHI. During the evaluation process, it was told there is a considerable contrast between efforts being made by institutions in order to bring awareness among the population about sustainability. On one hand, it is important to recognize the endeavor of institutions like UTE, MVOTMA, among others, which are making a great effort in that matter. But on the other hand, many sectors of the academia are, in the author's opinion, not taking into account (or very little) the importance of sustainability, therefore, it is not included in their programs. Units of the faculty working closely with housing issues of social interest, like in the case of Permanent Housing Unit (Unidad Permanente de Vivienda) of the Architecture Faculty, do not realized, yet, the importance of including sustainability within social housing. Indeed, this is only example directly linked to social housing, but there are many more. It is not fair to generalize, due there are some other sectors that also belong to the

[457] Source: **Own Creation**

academia, that are trying to make things change, and an extra support could make a big difference. In the authors opinion, as regards to knowledge creation and dissemination of information in the subject matter fields, this is one of the gap that needs to be filled up within the current Uruguayan education system, because if there is no right knowledge for the future construction industry's experts and stakeholders, the inclusion of sustainable criteria will always have to face this kind of barrier that challenges its development.

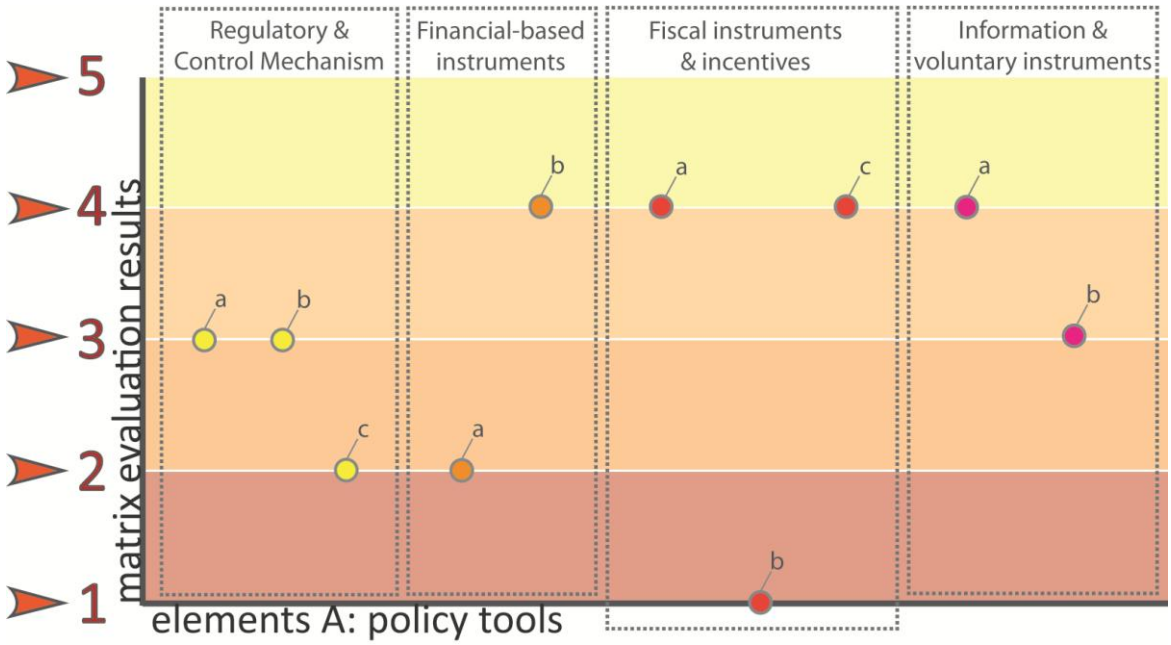
Other barriers like **technical gaps**, **lack of research and program activities, competing priorities** and **institutional mismatch** are evaluated as 2 (reduced). The first two mentioned barriers, are very important because if the local professional do not have sufficient technical tools as well as research and program activities support that encourages them to include sustainable criteria within the social housing projects, the implementation of such projects, like in this case SUSHI, will face more difficulties for its short-, middle- and long-term goals accomplishment. Regarding the last two mentioned barriers, those were showed in graph 5.2 as being more relevant than the previous discussed ones. *Competing Priorities* and *Institutional Mismatch* are indeed, major barriers and its importance must not be underestimated, since, when detected, they are very difficult to bridge. Local public authorities with absence of willingness for including sustainable criteria within the construction sector and, therefore, *competing priorities*, would sentence such project to a certain failure. Taking into consideration that *institutional mismatch* includes lack of effectiveness among the institutions, in the case of Uruguay, even there are some issues to be tackle in order to accelerate the respond and decision-making processes from the institutions towards other institutions and citizens, the system works and projects achievements are met.

Finally, **regulatory obstacles** will be discussed. As can be observed in graph 5.2, this specific barrier is marked by the author as the most relevant one, due removing them may be very time and work consuming, and sometimes there is no alternative but to shut this kind of project, because usually they are very time- and schedule- dependant. Good news are, as mentioned before, the author was not able to find any regulatory obstacle within the Uruguayan policy framework for SUSHI project's successfully implementation, and therefore evaluated with a score 1 (*nonexistent*). For that reason, this possible barrier is not an obstruction to be tackled by the SUSHI team.

As it was mentioned in chapter *1*, one of the concepts of Interactive Governance are the elements (images, instruments and actions), which are the tools that both government authorities and stakeholders can utilize in order to accomplish goals. For this reason, the

following will discuss the results of the evaluation matrix section **Elements A: Policy tools**, followed by **Elements B: Actions**

Starting with the discussion of the **Elements A: Policy tools** already evaluated, the results provide the reader an idea about the current Uruguayan policy framework panorama and which are the instruments currently being used for supporting sustainability and social housing. The following graph 5.3 illustrates the results from the evaluation matrix. As in the matrix, the policy tools are divided in 4 main groups: **12. Regulatory & Control Mechanism**, whose enclose **a]** appliance standards, **b]** procurement regulations and **c]** energy efficiency quotas; **13. Financial-based instruments**, that includes **a]** cooperative procurement and **b]** energy performance contracting; **14. Fiscal instruments and incentives**, meaning **a]** tax exemptions and reductions, **b]** public benefit charges and **c]** capital subsidies, grants, subsidized loans and rebates; finally **15- Information and voluntary instruments**, embracing **a]** public-leadership initiatives and **b]** awareness raising and education.




**Legend:**

| | |
|---|---|
| **12. Regulatory & Control Mechanism** | **14. Fiscal instruments and incentives** |
| a] appliance standards | a] tax exemptions and reductions |
| b] procurement regulations | b] public benefit charges |
| c] energy efficiency quotas | c] capital subsidies, grants, subsidized loans and rebates |
| **13. Financial-based instruments** | **15. Information and voluntary instruments** |
| a] cooperative procurement | a] public-leadership initiatives |
| b] energy performance contracting | b] awareness raising and education |

**Graph 5.3: Elements A: Policy Tools analysis.**[458]

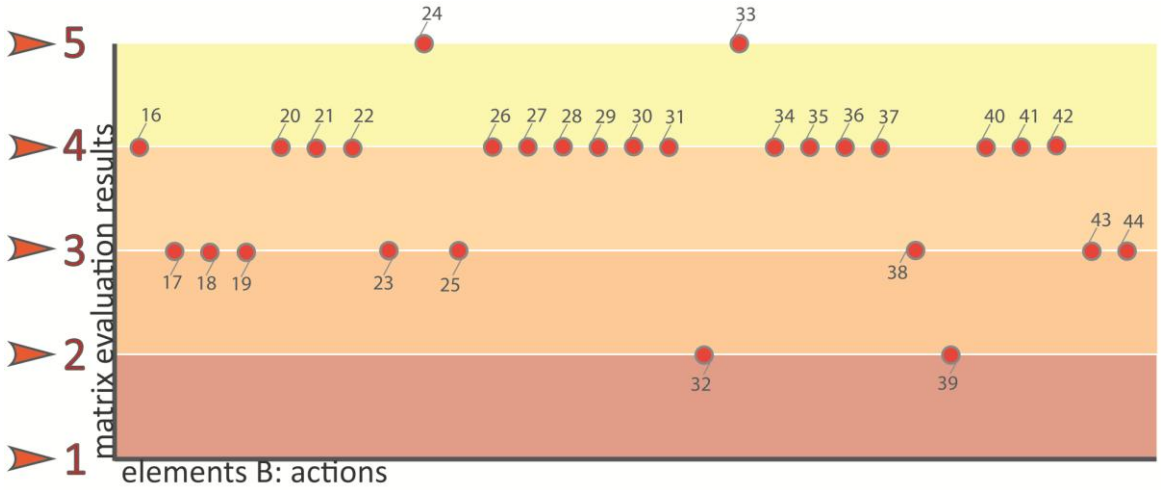
[458] Source: **Own creation**

During the matrix evaluation, the author explained the grounds for evaluating all these mentioned summit about policy tools relevant for SUSHI within the Uruguayan policy context. By observing the previous graph, the tools more utilized by the Uruguayan authorities, at the time to enforce and strength sustainability, are -in this case, the ones evaluated with 4 "good"- **b]** energy performance contracting (Financial-based instruments), **a]** tax exemptions and reductions, **c]** capital subsidies, grants, subsidized loans and rebates (both from Fiscal instruments and incentives) and last, **a]** public leadership initiatives (Information and voluntary instruments).

At the same time, there are other tools being currently employed by the Uruguayan government but they are not being used to its full potential -the policy tools evaluated as 3 "regular" and 2 "poor"-, like in the case of **a]** appliance standards, **b]** procurement regulations followed by energy efficiency quotas (all three belong to Regulatory & control mechanism), in addition, **a]** cooperative procurement (Financial-based instruments) and **b]** awareness raising and education (Information and voluntary instruments). The policy tool that the author was not able to identify within the Uruguayan policy framework was **b]** public benefit charges (Fiscal instruments and incentives).

It is important to take into consideration the fact that the aim of this part of the evaluation matrix for policy tools was not an intent to "approve" or "discourage" whether or not the Uruguayan government is making use properly of available policy instruments, but rather to have an overview on the local panorama among policies that are suitable for bringing sustainability into projects, in order to recognize opportunities for SUSHI implementation and setting a stage for providing information for a future possible strategy. That is exactly what graph 5.3 shows, the current status of the tools being used by the public authorities for enforcing sustainability criteria.

Beneath, **Elements B: Actions** will be analyzed. The following graph 5.4 illustrates the results of the evaluation matrix for the combination of possible actions that local government authorities can apply in order to support and enforce sustainable social housing policy framework. The aim of the graph is to help the reader to observe the evaluation score of the matrix that shows the actions that are currently being taken by the Uruguayan government. Please note that the actions are numbered the same way in the evaluation matrix, and therefore, numbers start in this section from 16 and go all the way through number 44.




**Legend:**

16. Effective implementation strategies
17. Promotion of security tenure
18. Adequate supply of affordable land
19. Improving infrastructure and services
20. Promotion of housing finance mechanism
21. Utilization of local building materials and technologies
22. Support to small-scale construction activities
23. Adjusting standards for building and land subdivision
24. Promotion of community participation and self help
25. Investing in pilot projects
26. Incentive mortgage finance
27. Appropriate subsidies
28. Ensure sustainable infrastructure for urban development
30. Organize the building industry
31. Set a Long-Term Plan
32. Measurement of water and sanitary services
33. Waste management in constructions
34. Adapting other case studies strategies to the local context
35. Local Policy Report and Local Plan
36. Land Use Plan
37. Subdivision Plan
38. Practice Codes and Standards
39. Building Codes Administration
40. Ruling
41. Fee reductions and incentives
42. Loans
43. Raising funds-targeted rates
44. Rates postponements and remissions

**Graph 5.4: Elements B: Action analysis.**[459]

By looking at the graph, the first thing that catches the eye is the fact of the good score received in the evaluation matrix for actions being taken by the Uruguayan government. Apart from the fact there is always place for improvement, and there are a few actions not being very well developed at the time, like in the case of *32- Measurement of water and sanitary services* and *39- Building Codes Administration*, the overall result is very good indeed. The actions that stand out the most for having obtained the best results during the evaluation are *24- Promotion of community participation and self help* and *33- Waste management in constructions*, while the rest were assessed mostly with 4 (good), which means very good news for developing the SUSHI project.

[459] Source: **Own creation**

## 5.3 Recommendations.

### 5.3.1 Content recommendation.

In order to close the idea of **Interactive Governance** that was already explained in a theoretical way in chapter 1, the author will explain how that concept was put into practice for the case studies during the entire thesis. But before starting the discussion, the author decided to bring the Figure 1.1 about Interactive Governance with some modifications. The reason is because it will be more understandable for the reader to catch up easily the discussion that will follow. The following will be the order of the discussion: first, the **interaction structure**; second, the **mode**; third the **orders** of governance; and fourth, the **elements**.

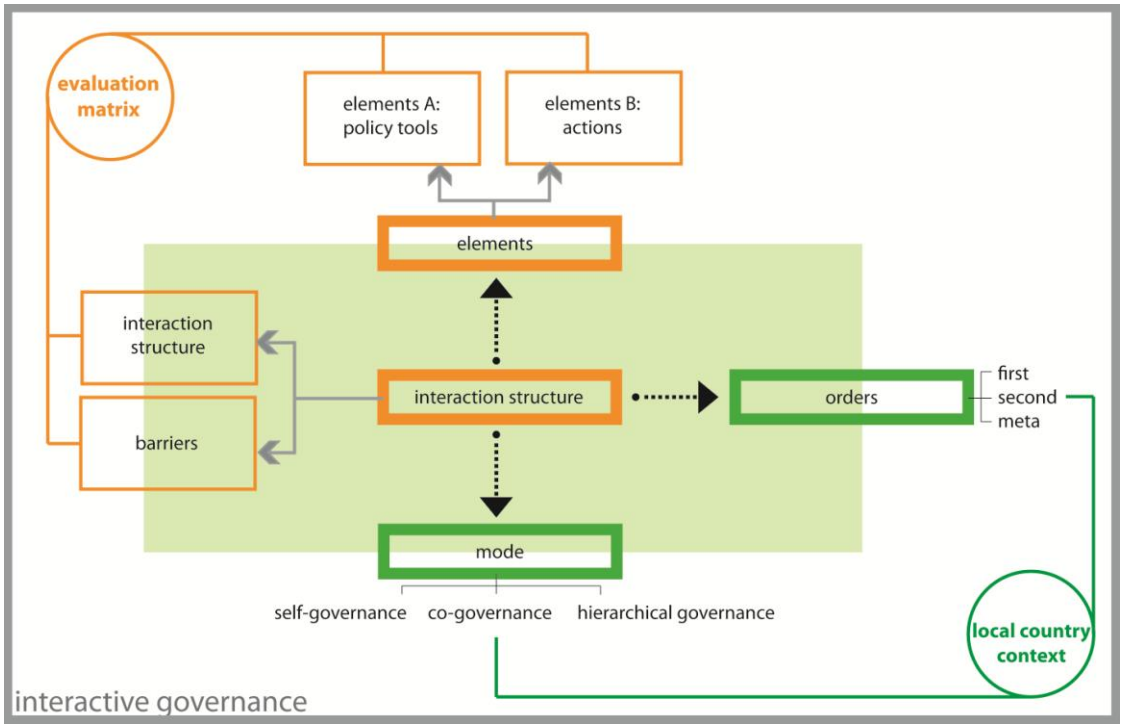



**Figure 5.1: Components of the Interactive Governance model.**[460]

#### 1] Interaction Structure.

It was already debated in a very precise way, about the stakeholders and its interactions. In both chapter *3. Case Study: Sustainable and Social Housing in Uruguay* and chapter *4. Sustainable Social Housing Initiative* was discussed about their actors and how they

[460] Source: Figure 1.1 from Kooiman J., Bavinck M., Chuenpagdee R., Mahon R., Pullin R., **Interactive Governance and Governability: An Introduction**, The Journal of Transdisciplinary Environmental Studies vol.7, no.1, 2008. Available at: http://www.journal-tes.dk/vol_7_no_1/no_2_Jan.pdf (Access February 2012). **Modified by Author.**

interrelate and cooperate with each other. In addition, both *Interaction Structure* as well as *Elements* explained underneath in number *4]*) were included in the Evaluation Matrix developed in *2.4 Matrix for Evaluating Success Criteria of policy framework in sustainable social housing.*

**2] Mode.**

It was previously stated, the **Governance Mode** is cataloged into three categories: **Self-governance**, **Co-governance** and **Hierarchical-governance**. All three groups can be find in chapter *3. Case Study: Sustainable and Social Housing in Uruguay,* and the last two of them in chapter *4. Sustainable Social Housing Initiative.*

In chapter *3*, observing *Figure 3.1*, the Uruguayan Governance Mode becomes more than clear. In this figure, all relevant sustainable and social housing stakeholders are showed, together with its interrelations and hierarchies. Thus, examples of *Self-governance* can be founded, like the cases of self-help (or self-construction/renovation) programs and cooperation systems. *Co-governance* is also visible in the figure, when different (local and international) institutions articulate/coordinate among each other. And finally, the case of *Hierarchical-governance*, as the Uruguayan National Government and main institutions control/administrate, finance and promote/encourage other stakeholders involved. Thus, in a patent hierarchical system.

As mentioned before, in chapter 4 there are also examples of Governance Mode. *Figure 4.4* showed *Co-governance* and *Hierarchical-governance* modes within the SUSHI pilot project in Sao Paolo. Section *4.2.3 Case Study: Overview of SUSHI Brazil* describes the governance modes of the project: the main SUSHI stakeholders are explained, in addition how they interact in a in a hierarchy system between the different levels (global, regional and local). And at the same time, how they interact with a *Co-governance mode* with other stakeholders as "partners" at a local level.

**3] Orders.**

The Orders of Governance (the *"who does what"*) was already identified in the previous chapters *3. Case Study: Sustainable and Social Housing in Uruguay* and *4. Sustainable Social Housing Initiative.* In both of them, multi-level stakeholders were described with its respective duties and obligations.

In chapter *3*, sustainable and social housing stakeholders were described in *3.1.2 Stakeholders* and illustrated in the *Figure 3.1.* In addition, the chapter sections *3.3.1 Social Housing Policy Framework* and *3.3.2 Sustainable Housing Policy Framework* also pointed up the role and responsibilities of the actors within the Uruguayan programs.

In the following Figure 5.2, the author will show **(1)** the **First Order of Governance** (the *day-to-day affairs*), **(2)** the **Second Order of Governance** and **(3)** the **Third Order of Governance** using as pattern the already mentioned *Figure 3.1*.

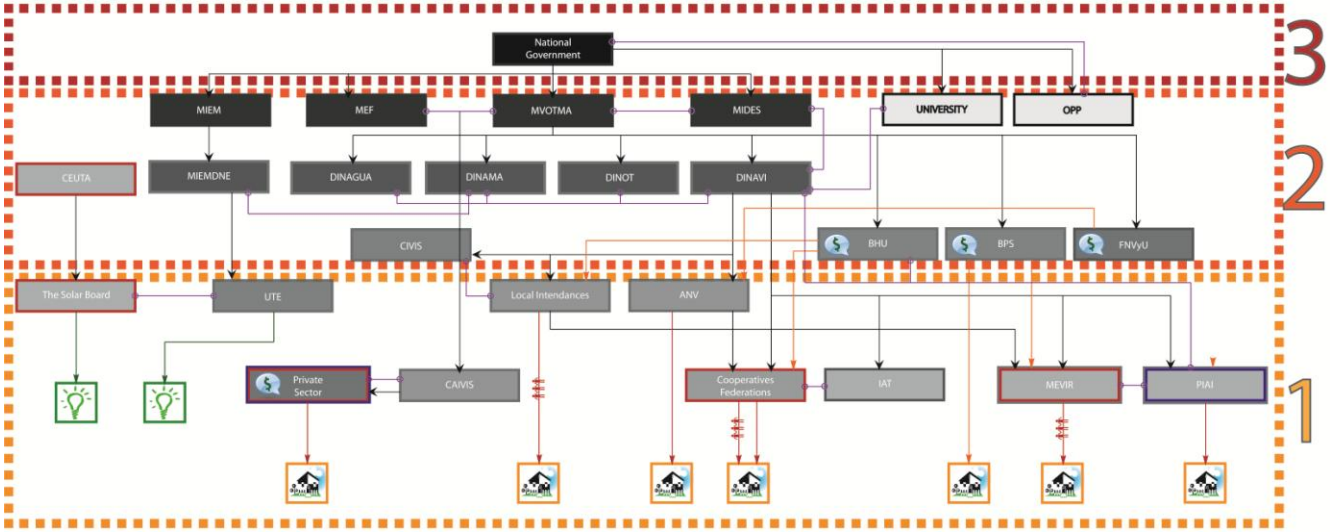



**Figure 5.2: Orders of Governance.**[461]

In chapter *4*, the orders of governance are also reflected in section *4.2.3 Case Study: Overview of SUSHI* (please see *Figure 4.4*). In this case, the *"who does what"* is described in each different governance levels from the pilot project SUSHI Sao Paolo.

**4] Elements.**

The theory showed us that elements are subdivided into images ("*the how and why*"), instruments and actions. In chapter *2. Supportive Factors and Barriers for Sustainable Social Housing Implementation,* the author used a lot of references from many sources in order to show the most relevant elements for sustainable social housing. The most important Images, instruments and actions were discussed at length in that section of the thesis. Also in *2.4 Matrix for Evaluating Success Criteria of policy framework in sustainable social housing,* the Elements were discussed and divided in A (Policy Tools) and B (Actions) in the evaluation matrix. Those, were used later on for evaluating the case studies at the beginning of this current chapter.

Assembling all the information mentioned above, it is possible to observe how the theoretical concept of Interactive Governance is put into practice during the thesis development. Taking into consideration all ingredients of this concept is the only way to

[461] Source: Own creation after Figure 3.1

have a whole picture of sustainable social housing governance. On one hand, the *Interaction Structure* and *Elements* prove to possess the capacity to be defined as an evaluation matrix pattern, and therefore, able to be adapted to different countries' contexts. On the other hand, the *Mode* and *Order* can only be identified locally for each case, through for example, a Stakeholder Analysis. Thus, depending on the local housing situation and market structure, there will be a large number of stakeholders involved at different levels. Therefore, the **country selected** will be evaluated among its **Interactive Governance** and **Elements through the Evaluation Matrix**. At the same time, the **SUSHI** project will have to design an appropriate strategy, depending on the **Evaluation Matrix outcomes**, to deal with each particular **local Mode** and **Orders of Governance**.

Analyzing the results and discussions of the evaluation matrix and the Interactive Governance concept, and taking into consideration the information located in chapter 3 Case Study: Sustainable and Social Housing in Uruguay and chapter 4 Sustainable Social Housing Initiative, there is a broad consensus on the fact that the Uruguayan policy framework represents a fitting environment for the implementation of SUSHI.

**a] Recommendations for SUSHI**

According to the above mentioned statements, and given each country is different, in order to be able to formulate recommendations for the possible implementation of SUSHI in Uruguay, it is necessary to contemplate all factors of the Interactive Governance simultaneously.

Considering the Uruguayan sustainable social housing governance, it will be necessary for the SUSHI project to make use of the *Co-governance* mode with the local institution MVOTMA (Uruguayan Ministry of Housing, Regional Planning and Environment) at the *Second Order of Governance*. Strategically speaking, the MVOTMA is a potential partner that covers all first implementation needs. And the reason is because this institution is in charge of designing and defining Uruguayan National Housing Plans (including all policies and programs). In addition, MVOTMA is divided in different departments depending on its functions: the DINAGUA, DINAMA, DINOT and DINAVI, which envelops practically all subjects of SUSHI interests. For more detailed information about the MVOTMA please see *3.1.3 Stakeholders*, section *c] National Stakeholders*.

Therefore, a cooperative partnership with this local institution would incorporate common interests, may enhance mutual gains and create win-win opportunities. Besides, in this cases it is important to foster a Co-governance mode rather than a hierarchical-governance for implementing SUSHI. In the

long-term, the selected local institutions should be able to keep incorporating and developing sustainable social housing programs without depending on external interventions.

Setting the stage for sustainability within social housing is not an easy task. It was already analyzed, SUSHI has specific targeted purposes, scope and expected outcomes. Besides, the pilot projects performed in Bangkok and Sao Paulo are the proof of its implementation feasibility in the respective local context of Thailand and Brazil. In addition, after analyzing the evaluation matrix results, SUSHI's flexible implementation methodology also proved to be suitable for the Uruguayan local conditions.

As recommendation, the author suggests the SUSHI team to assess the stakeholders' petitions and expectations and to be more closely considered. Especially cultural background and needs of the end users may not be sufficient to gain the internal acceptance among stakeholders, which is a very important matter for implementing project that is sustainable in time. Speaking in the specific case of Uruguay, stakeholder's resistance may come from previous bad experiences. Sometimes, resistance among some stakeholders must also be read as people who has their own knowledge and properly raises questions, rather than looking at who is resistant to the change as someone "old-fashioned" and in the search of personal benefits.[462]

Another important issue is to support local governments in the recognition of suitable methods and strategies of interaction to successfully communicate with stakeholders involved and all citizens. Sharing knowledge and tools support may empower local stakeholders who can make decisions and assign responsibilities. A supplementary suggestion would be for the UNEP to create a SUSHI operating model that accounts for organizational structure, IT architecture infrastructure and sustainable business demands. Thus, providing local authorities with implementation patterns that assist further sustainable social housing programs.

**b] Recommendations for the Uruguayan Government**

Knowing the fact that SUSHI must be adjusted to local conditions of each country, the Uruguayan sustainable and social housing governance analyzed

[462] Personal Interview with **Raul Valles**, Permanent Housing Unit, Architecture School of the Uruguayan Public University, Montevideo, Uruguay, April 2012.

and assessed the SUSHI project adaptability within its context. In chapter *3- Case Study: Sustainable and Social Housing in Uruguay* the interactive governance was described and later, at the beginning of the current chapter, assessed through the evaluation matrix.

The evaluation and further discussion performed above showed the current situation about the Interaction Structure, Barriers, Elements ( A: Policy Tools and B: Actions), and the results were suitable for implementing the SUSHI project. There are some weak links, meaning that there is still space for improvements, like in the case of *Elements*, and also observable when the *Barriers* were evaluated and analyzed.

The selection of the appropriate policy tools imply, for the local policy-makers, to have a deep understanding of the situation as much as the policy environment at the moment of the decision-making process. A rigorous evaluation and accurate selection of available policy instruments can lead to a long-lasting transformation of the building industry into a more energy-efficient sector. Generally speaking, policy instrument combinations have proved to be more successful than individual ones. Reasons for this are their specific barriers such as corruption, lack of funds and financing, poor awareness and information, and problems with policy framework enforcements and implementations. Having a well design policy and actions portfolio is imperative for achieving sustainable objectives, but are only efficient if extraordinary efforts are made to execute and strength them. Otherwise, if a vital policy or action instrument is missing, all the others will never be able to achieve the expected outcome.

In addition, it is necessary to make some adaptation in the construction requirements of social housing in order to meet sustainable achievements. There are some regulatory demands that became obsolete in the last decades and need to be readjusted to the current situation. Many experts consider these "business-as-usual" building codes to be a major barrier, because they enhance outdated solutions that are costly and hinder to use the budget for more efficient ones. These apply to all construction criteria, for example the pre-established size of the interiors and the materials of the building.[463,464,465] Another issue that also need to be pointed out is the fact that there are great

[463] Personal Interview with **Juan Antonio Camma**, Director CCU, Montevideo, Uruguay, April 2012.
[464] Personal Interview with **Francisco Beltrame**, Director of MEVIR, Montevideo, Uruguay, April 2012.
[465] Personal Interview with **Hugo Rea**, Quality Management Unit, Intendance of Montevideo, Montevideo, Uruguay, April 2012.

difficulties in the management and concretion of urgent matters in this and others matters. Even this is a problem that transcend this specific topic, according to experts, a big obstacle that should be handled, is the bureaucratic synergy inefficiency.[466,467]

Therefore, as first recommendation for the Uruguayan decision-makers is to carefully analyze the points of the evaluation matrix with scores between 1 (*nonexistent)* and 3 (*regular*) for the **Interaction Structure** and both **Elements A** and **B**; in addition, the **barrier** evaluated with the score 3 (*regular*): **Knowledge Gaps**. This last mentioned barrier must be considered. Because, even when there is a lot of knowledge within the university, there is no strong connection and not enough cooperation commitment to transfer that theoretical knowledge collected. Failing in the efficient performance of some of these factors, may considerable hinder desire results. Therefore, as a supplementary recommendation, the author advises to improve with highly targeted actions toward the point listed in the evaluation matrix estimated with the score 4 (*good*).

Furthermore, to implement successfully sustainable initiatives like the SUSHI in a country like Uruguay, the success factor is directly linked to efficiency and effectiveness of the local governance and its interactions, rather than only the implementation adaptability of SUSHI. Thus, Uruguayan authorities need to call for intensive actions and strength their policy framework, by focusing on improving the integration and collaboration among all stakeholders involved in order to improve the likelihood of success. Even the smallest improvement in the maturity of the governance system may lead to a major improvement in accomplishments. Therefore, highly targeted programs, well-built institutions that are strengthened and supported with good practices, technical details and transparency are pillars of good governance. After all, it is more undemanding to build a bridge from two sides that meet in the middle, than exclusively from one bank.

[466] Personal Interview with **Juan Pedro Urruzola**, General Director of the Planning Department, Montevideo Intendance, Montevideo, Uruguay, April 2012.
[467] Personal Interview with **Diulio Amandora**, President of the Architects Society of Montevideo, Montevideo, Uruguay, April 2012.

### 5.3.2 Recommendations for Evaluation Matrix continued development and Further research needs.

With a master thesis, time and resources are very limited, the investigation's reach has not been as exhaustive as the subject requires. Nevertheless, the results are able to show a wide range of knowledge about how to evolve business-as-usual social housing systems into more sustainable ones through the examination of the SUSHI project demands to fit into the Uruguayan context. Additionally, the author considers there will be a great deal of potential for the matrix to determine and meet further challenges both in Uruguay and in other countries considered for SUSHI or similar projects. For this reason, the author will deliver additional recommendations to be implemented in the selected evaluation system. This, in order to enable them for delivering more accurate results at the time of the implementation of such a project like SUSHI into a Latin-American country's context.

It can be observed in the Evaluation Matrix results, some of the Elements' scores are low. Some factors may be limiting or indispensable: some of they may exterminate the whole process of implementation while others may be just supportive tools. Therefore, further development of the evaluation success criteria for the matrix must be made, in order to deliver more accurate outcomes. For instance, the barriers debate showed first steps for improvement by analyzing the matrix outcomes though weight of importance. Due to time issues, this was not the case for the evaluation discussion in the cases of the Interaction Structure and Elements. Nevertheless, those are very important issues that call for a supplementary development approach and deeper understanding on the topic. Therefore, the author also recommends to develop further methods and tools to assess, quantify and analyze the nature, extent, severity and impacts of the evaluated factors in the matrix.

Furthermore, the Evaluation Matrix progress made so far in this master thesis requires to be applied in further pilot countries. This, in order to be able to test its pattern adaptability for assess the local Interaction Structures, Barriers and Elements contexts in other countries with similar conditions.

For these reasons, the author considers as a further investigation option, a deeper analysis of available Monitoring and Evaluation concepts. As an example an Impact Pathway Evaluation (IPE) may help to transfer the criteria developed in this thesis into a standardized procedure for further implementation assessment. According to Rogers, an IPE is an evaluation model that determines how a project will be achieved, or has

produced impact[468]. The Program Theory Evaluation (PTE) is an IPE's evaluation guide, which would be suitable for future improvements and applications of the Evaluation Matrix. This kind of evaluation starts with the organization of the end product of previous discussions, and categorize it into a succession hierarchy of results and conclusions. After that, this hierarchy succession could be followed by recommendations containing a further sequence of middle- and long- term outcomes. PTE embodies a set of suggestions about what further steps need to be done, in order for the project research to be more developed.[469]

[468] Rogers P.J., Petrsino A., Huebner T., Hasci T.A., **Program theory evaluation: practice, promise, and problems**, 2000. In: Rogers P.J., Petrsino A., Hasci T.A., Huebner T., **Program Theory in Evaluation. Challenges and Opportunities**. Eds. New Directions for Evaluation 87. In: Douthewaite B., Kuby T., van de Fliert E., Schulz S., **Impact pathway evaluation: an approach for achieving and attributing impact in complex systems,** www.sciencedirect.com, 2003. Available at: http://www.cgiar-ilac.org/files/Douthwaite_Impact_pathway.pdf (Access July 2012).

[469] Douthewaite B., Kuby T., van de Fliert E., Schulz S., **Impact pathway evaluation: an approach for achieving and attributing impact in complex systems,** www.sciencedirect.com, 2003. Available at: http://www.cgiar-ilac.org/files/Douthwaite_Impact_pathway.pdf (Access July 2012).

# 6. References


ANDRADE S., PILEGGI R., **Programa de Redução de Pós-ocupação em Conjuntos Habitacionais de Interesse Social** (*Program to Reduce Post-Occupation in Social Housing Developments*). In: FÓRUM NACIONAL DE HABITAÇÃO DE INTERESSE SOCIAL, 52. Anais do Concurso Prêmio Selo de Mérito 2005. João Pessoa, 2006. in UNEP, **Mapping Report-Final Version**, Mapping of the main stakeholders and processes affecting the selection of solutions (technologies and materials) for social housing projects- Sao Paulo, Sustainable Social Housing Initiative, Brazilian Team – Version 4.1, 2010

Arim R., Vigorito A., **Un Analisis Multidimensional de la Pobreza en Uruguay**. 1991-2005, Instituto de Economia, Uruguay, page 4, 2007 Available at: http://observatoriosocial.mides.gub.uy/mides/portalMides/portalMides/Documentos/documento_mides_72.pdf (Access June 2012).

Asif M., Muneer T., Kelley R., **Life cycle assessment: a case study of a dwelling home in Scotland. Building and Environment**, 2005. Available at: http://www.sciencedirect.com. (Access January 2012).

Australian Government, Department of Finance and Deregulation, Available at: http://www.finance.gov.au/procurement/wog-procurement/cooperative-procurement.html (Access July 2012).

Awesti A., **The European Union, New Institutionalism and Types of Multi-Level Governance**, University of Warwick, Political Perspectives EPRU, 2007. Available at: http://www.politicalperspectives.org.uk/wp-content/uploads/2010/08/EPRU-2007-S1-08.pdf (Access February 2012).

Bache I., Flinders M., **Multi-level Governance**, Oxford University Press, New York, 2004. In: Piattoni S., Multi-Level Governance in the EU. Does it work?, University of Trento, Italy, 2009. Available at: http://www.princeton.edu/~smeunier/Piattoni (Access August 2012).

Bigsten A. et al., **Contract Facilities and Dispute Resolution**, Journal of Development Studies 36,p. 1-37, 2000. In: Court J., Hyden G. and Mease K., **The Judiciary and Governance in 16 Developing Countries**, United Nations University, World Governance Survey Discussion Paper 9, 2003. Available at: http://www.odi.org.uk/resources/docs/4108.pdf (Access August 2012).

Bleyl-Androschin J.W. and Schinnerl D., **Comprehensive refurbishment of buildings through energy performance contracting: A guide for building owners and ESCos,** Grazer Energieagentur, 2008. Available at: http://www.ieadsm.org/Files/Exco%20File%20Library/Key%20Publications/IEAdsm-TaskXVI_Bleyl,%20Schinnerl_Comprehensive%20Refurbishment%20of%20Buildings%20through%20EPC_081118_vers2.pdf (Access July 2012).

Blotevogel H.H., **Zur Konjunktur der Regionsdiskurse. Informationen zur Raumentwicklung**, 2000. In: Pütz M., Vogelpohl K., **Raumbezogene Konflikte bei Multi-Level-Governance: Fallstudien zu Strukturpolitik und Raumplanung**. In: Brunnengräber A., Walk H., **Multi-Level-Governance: Klima-, Umwelt- und Sozialpolitik in einer interdependenten Welt**, Wissenschaftszentrum Berlin für Sozialforschung, 2007.

Buillon C.P., **Room For Development, Housing Markets in Latin America and the Caribbean**, IBD, 2012.

Burchardt H.J., Ernst T., Isidoro Losada A.M., **More Levels than Governance: Transnationale Mehrebenenpolitik am Beispiel lateinamerikanischer Sozialfonds**. In: Wissen M., **Politics of Scale, Multi-Level-Governance aus der Perspektive kritischer (Raum-) Theorien**. In: Brunnengräber A., Walk H., **Multi-Level-Governance: Klima-, Umwelt- und Sozialpolitik in einer interdependenten Welt**, Wissenschaftszentrum Berlin für Sozialforschung, 2007.

Carbon Trust, **The UK Climate Change Programme: Potential Evolution for Business and the Public Sector**. Technical Report available online: www.carbontrust.co.uk., 2005; in SBCI, **Assessment of policy**

**instruments for reducing greenhouse gas emissions from buildings**, Budapest, 2007. Available at: http://www.unep.org/themes/consumption/pdf/SBCI_CEU_Policy_Tool_Report.pdf (Access July 2012).

Casacuberta C., **Situacion de la Vivienda en Uruguay**, INE (Instituto Nacional de Estadistica).

Cat C., **Uruguay Statement to the World Summit on Sustainable Development**, Johannesburg 2002.

Chandrasekar V., **Affordable Housing: Opportunities in emerging markets**, 2008. Article available at http://viewswire.eiu.com/report_dl.asp?mode=fi&fi=1434193728.PDF&rf=0 (Access June 2010).

Chappells H., Shove E. **Debating the future of comfort: environmental sustainability, energy consumption and the indoor environment**. Building Research and Information, 2005. Available at: http://www.tandfonline.com/doi/pdf/10.1080/0961321042000322762 (Access January 2012).

CIB & CSIR, **Agenda 21 for Sustainable Construction in Developing Countries**. First Discussion Document, 2001. Available at: http://www.sustainablesettlement.co.za/docs/a21_discussiondocexecsum.pdf (Access July 2012).

Cities Action for Sustainable Housing, **Energy Efficiency for Social Housing,** Baseline Study, 2010. Available at: http://urbact.eu/fileadmin/Projects/CASH/documents_media/cash_brochure_Baseline_Study_web-1.pdf (Access July 2012).

Council of Europe, **Housing Policy and Vulnerable Social Groups**, Report and guidelines prepared by the Group of Specialists on Housing Policies for Social Cohesion (CS-HO), 2008. Available at: http://www.coe.int/t/dg3/socialpolicies/socialrights/source/Publication_Housing%20policy%20vulnerable%20groups.pdf (Access July 2012).

**Decision matrix: definition and examples**, 2012. Available at: http://rfptemplates.technologyevaluation.com/What-is-a-Decision-Matrix.html (Access July 2012).

Department of Economic and Social Affairs, **Indicators of Sustainable Development: Frameworks and Methodologies**, Commission on Sustainable Development, Ninth Session, 16-27April 2001, New York. Available at: http://www.un.org/esa/sustdev/csd/csd9_indi_bp3.pdf (Access July 2012).

Deringer J. and Huang Y., **Transferred Just on Paper? Why Doesn't the Reality of Transferring/Adapting Energy Efficiency Codes and Standards Come Close to the Potential?**, ACEEE, 2004. Available at: http://www.aceee.org/sites/default/files/publications/proceedings/SS04_Panel8_Paper07.pdf (Access January 2012).

Division for Sustainable Development, UN-DESA, UNEP, UN Conference on Trade and Development, **The Transition to a Green Economy: Benefits, Challenges and Risks from a Sustainable Development Perspective**, Report by a Panel of Experts to Second Preparatory Committee Meeting for United Nations Conference on Sustainable Development, 2012. Available at: http://www.uncsd2012.org/rio20/content/documents/Green%20Economy_full%20report.pdf (Access July 2012).

Douthewaite B., Kuby T., van de Fliert E., Schulz S., **Impact pathway evaluation: an approach for achieving and attributing impact in complex systems,** www.sciencedirect.com, 2003. Available at: http://www.cgiar-ilac.org/files/Douthwaite_Impact_pathway.pdf (Access July 2012).

**ENHA** (Encuesta Nacional de Hogares Ampliada). Available at: http://observatoriosocial.mides.gub.uy/mides/portalMides/portalMides/Documentos/documento_mides_171.pdf (Access June 2012).

EPC Watch: **watching the world of energy performance contracting**, Available at: http://energyperformancecontracting.org/ (Access July 2012).

Erguden S., **Low-Cost Housing: Policies and Constraints in Developing Countries**, Housing Policy Section,

United Nations Center for Human Settlements (Habitat). Available at: http://www.fig.net/pub/proceedings/nairobi/erguden-CMTS1-1.pdf (Access July 2012).

Erguden S., **Low-Cost Housing: Policies and Constraints in Developing Countries**, Housing Policy Section, United Nations Center for Human Settlements (Habitat). Available at: http://www.fig.net/pub/proceedings/nairobi/erguden-CMTS1-1.pdf (Access July 2012).

**Evaluation Methodology Report: Benchmarking of virtual campuses**, Benchmarking of Virtual Campuses Project, 2002, Available at: http://www.benvic.odl.org/16_02_tot.pdf (Access July 2012).

FAY M., **The urban poor in Latin America International Bank for Reconstruction and Development**, World Bank, Washington DC, 2005. Available at: http://siteresources.worldbank.org/INTLACREGTOPURBDEV/Home/20843636/UrbanPoorinLA.pdf (Access July 2012).

Fenhann J., and Staun F., **An analysis of key issues in the Clean Development Mechanism based on the UNEP Risoe Clean Development Mechanism pipeline**, *Carbon Management, 2010. Available at:* http://www.future-science.com/doi/abs/10.4155/cmt.10.13 (Access July 2012).

Garces M., Giraldez S., Goldar M.R., Albuquerque M., Riquelme Q. and Buroni T., **Democracia y ciudadanía en el MERCOSUR**, Programa MERCOSUR Social y Solidario, 2006.

Gilbert A., **La vivienda en America Latina**, INDES, 2009. Available at: http://www.habitants.org/the_urban_way/popular_fund_for_land_and_housing/virtual_archive/la_vivienda_en_america_latina (Access June 2012).

Granade H.C., Creyts J., Derkach A., Farese P., Nyquist S., Ostrowski K., **Unlocking energy efficiency in the U.S. economy**, 2009. Available at: http://www.mckinsey.com/mgi/publications/ (Access January 2012).

Grande E., **Multi-Level Governance: Institutionelle Besonderheiten und Funktionsbedingungen des europaeischen Mehrebenensystems**, 2000. In: ders.; Jachtensfuchs M., **Wie problemloesungsfaehig ist die EU? Regieren im europaeischen Mehrebenensystem**. In: Wissen M., **Politics of Scale, Multi-Level-Governance aus der Perspektive kritischer (Raum-) Theorien**. In: Brunnengräber A., Walk H., **Multi-Level-Governance: Klima-, Umwelt- und Sozialpolitik in einer interdependenten Welt**, Wissenschaftszentrum Berlin für Sozialforschung, 2007.

Gupta R., Svenningsen N., de Feraudy T**., Sustainable Solutions for Social Housing: Guidelines for project developers**, Draft Version 1, United Nations Environment Program, May 2011.

Hendricks B., Goldstein B., Detchon R. and Shickman K., **Rebuilding America: A national policy framework for investment in energy efficiency retrofits**, Center for American Progress and Energy Future Coalition, USA, 2009. Available at: http://www.americanprogress.org/issues/2009/08/pdf/rebuilding_america.pdf (Access January 2012).

Hitchin R., **Can building codes deliver energy efficiency? Defining a best practice approach**. A report for the Royal Institution of Chartered Surveyors by the Building Research Establishment, UK, 2008. Available at: http://www.rics.org/site/download_feed.aspx?fileID=4128&fileExtension=PDF (Access January 2012).

Howell M., Birchfield D., **Policy Options for Sustainable Homes: A Resource for Local Government**, Report HR2420/6 for Beacon, 2010. Available at: http://www.beaconpathway.co.nz/images/uploads/Resource_Manual_Local_Government_Apr10.pdf (Access July 2012).

Hyden G. and Cort J., **Governance and Development**, World Governance Survey Discussion, 2002.

Hyden G., **Governance and the Study of Politics**, 1992. In: in Hyden G. and Bratton M., eds. **Governance and Politics in Africa. Boulder**, CO: Lynne Rienner, 1–26.

Ibem E. O. Azuh D. E., **Framework for Evaluating the Sustainability of Public Housing Programmes in Developing Countries**, Journal of Sustainable Development and Environmental Protection Vol.1 No.3, 2011.

IDB 2004, in UN-HABITAT, **Affordable Land and Housing in Latin America and the Caribbean**, 2011, Available at: http://www.unhabitat.org (Access July 2012).

**INE** (Instituto Nacional de la Estadistica), Available at: http://www.ine.gub.uy/censos2011/adelantos_breves.html (Access June 2012).

IPCC, **Intergovernmental Panel on Climate Change**, 2007.

ISSCO, **Evaluation Methodology**, Genève University, 2008. Available at: http://www.issco.unige.ch/en/research/projects/ewg95//node225.html (Access July 2012).

Jachtenfuchs M., **Die Problemloesungsfaehigkeit der EU: Begriffe, Befunde, Erklaerungen**, 2000. In: Grande E., Jachtenfuchs M., **Wie problemloesungsfaehig ist die EU? Regieren im europaeischen Mehrebenensystem**. In: Wissen M., **Politics of Scale, Multi-Level-Governance aus der Perspektive kritischer (Raum-) Theorien**. In: Brunnengräber A., Walk H., **Multi-Level-Governance: Klima-, Umwelt- und Sozialpolitik in einer interdependenten Welt**, Wissenschaftszentrum Berlin für Sozialforschung, 2007.

Kaztman R., Retamoso A., **Residential Segregation in Montevideo: Challenges to education equality**, Universidad Catolica del Uruguay, 2006. Available at http://www.ucu.edu.uy/Portals/0/Publico/Facultades/Ciencias%20Humanas/IPES/Documentos/MS_Numero%2011.pdf (Access June 2012).

Kooiman J., Bavinck M., Chuenpagdee R., Mahon R., Pullin R., **Interactive Governance and Governability: An Introduction**, The Journal of Transdisciplinary Environmental Studies vol.7, no.1, 2008. Available at: http://www.journal-tes.dk/vol_7_no_1/no_2_Jan.pdf (Access February 2012).

Kooiman J., Bavinck M., Jentoft S. and Pullin R., **Fish for life**, Amsterdam University Press, 2005.

Kooiman J., **Governing as Governance**, SAGE Publications, 2003.

Lantsberg A., **Sustainable Urban Energy Planning: A Roadmap for Research and Funding**, Prepared for Calofornia Energy Commission, 2005. Available at: http://www.energy.ca.gov/2005publications/CEC-500-2005-102/CEC-500-2005-102.PDF (Access July 2012).

Lantsberg A., **Sustainable Urban Energy Planning: A Roadmap for Research and Funding**, Prepared for Calofornia Energy Commission, 2005. Available at: http://www.energy.ca.gov/2005publications/CEC-500-2005-102/CEC-500-2005-102.PDF (Access July 2012).

Lora E, Powell A., van Praag B, Sanguinetti P, **The Quality of Life in Latin American Cities: Markets and Perceptions**, The Inter-American Development Bank, 2010. Available at: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2010/05/11/000334955_20100511031143/Rendered/PDF/544310PUB0EPI01OX0349415B01Public10.pdf, (Access June 2012).

Lorenzo F., **Speech from Minister of MEF**, Press Conference March 2012, Available at http://www.youtube.com/watch?v=MD4BN-1J5JA, , Uruguay (Access June 2012).

Magri A., **Una reforma exitosa: la política de vivienda entre 1985 y 2000**, 2002.
Management, Simon Fraser University, Burnaby, BC, 1995. Available at: http://www.tandfonline.com/doi/pdf/10.1080/13549839608725492 (Access January 2012).

March J.G. & Olsen J.P., **Democratic Governance**, 1995.

Marks G. and Hooghe L. and Blank K, **State-Centric v. Multi-Level Governance**, Journal of Common Market Studies, 1996. Available at: http://www.unc.edu/~gwmarks/assets/doc/marks.hooghe.blank-european%20integration%20from%20the%201980s.%20state-centric%20v.%20multi-level%20governance.pdf (Access February 2012).

Marks G. and Hooghe L., **Optimality and Authority: A Critique of Neo-Classical Theory**, Journal of Common Market Studies, 2000. Available at: http://www.falw.vu/~mlg/papers/jcms.2000.pdf (Access February 2012).

Marks G., Nielsen F., Ray L., Salk J. E., **Competencies, Cracks, and Conflicts, Regional Mobilization in the European Union**, Comparative Political Studies, 1996. Available at: http://www.unc.edu/~gwmarks/assets/doc/Marks.Nielsen.Salk.%20Ray%20-%20%20competencies,%20cracks,%20and%20conflicts.pdf (Access February 2012).

Marks G., **Structural Policy and Multi-Level Governance in the EC**, The State of the European Community, 1993. Available at: http://www.princeton.edu/~smeunier/Piattoni (Access February 2012).

**Meeting-Sushi Project**, Ata Meeting 20 January 2009. Participants: Cristina Montenegro (PNUMA-Coordinator), Mara Luisa Alvim Motta (Caixa Economica Federal), Flávio Lantelme (Cohab), Francisco Vasconcellos (Sinduscon - SP), André Aranaha Campos (Sinduscon - SP), Marcelo Takaoka (CBCS), Vanderley John (CBCS), Orestes Marracine (CBCS), Lilian Sarrouf (CBCS), Diana Csillag (CBCS), Fernanda Kemeid (CBCS).

Mette Kjaer A., **Governance**, 2004.

Meyers S., McMahon J., Atkinson B, **Realized and projected impacts of U.S. energy efficiency standards for residential and commercial appliances**, 2008. Available at: http://ees.ead.lbl.gov/staff/current_staff/mcmahon_james (Access January 2012).

Mimbacas A., Honty G., **Instrumento de articulación público-privado para el fomento de la Energía Solar en el Uruguay**, Mesa Solar, Serie de Buenas Prácticas en Cambio Climático-Volumen 1, UNESCO, 2010. Available at: http://www.ceuta.org.uy/files/Experiencia_de_la_Mesa_Solar.pdf (Access June 2012).

Ministerio de Desarrollo Social Dirección de Coordinación Territorial, **Mesas Interinstitucionales de Políticas Sociales**, 2007. Available at: http://www.mides.gub.uy/innovaportal/file/4829/1/documentoMESASINST.pdf (Access November 2011).

Moreno-Dodson B., Wodon Q. Editors, **Public Finance for Poverty Reduction: Concepts and Case Studies from Africa and Latin America**, The World Bank, Washington DC, 2008.

MVOTMA, ***Mi Lugar, entre todos*****, Plan Nacional de Vivienda 2010-2014 (My place, among all others, National Housing Plan 2010-2014).** For more information about the Uruguayan National Housing Plan please see: http://www.mvotma.gub.uy/el-ministerio/transparencia/plan-quinquenal-2010-2014 (Access June 2012).

OECD, **Strategies for Sustainable Development**, International Development, The DAC Guidelines, 2001. Available at: http://www.oecd.org/dataoecd/34/10/2669958.pdf (Access July 2012).

Onibokun A.G., **Managing The Monster, Urban Waste and Governance in Africa**, International Development Research Centre, Canada, 1999.

Piattoni S., **Multi-level Governance in the EU. Does it Work?**, University of Trento, Italy, 2009. Available at: http://www.princeton.edu/~smeunier/Piattoni (Access February 2012).

PNUMA, ORPALC, MVOTMA, **Plan de Acción Nacional en Producción y Consumo Ambientalmente Sostenible 2010-2015**, 2010.
Policies for Social Cohesion (CS-HO), 2008. Available at: http://www.coe.int/t/dg3/socialpolicies/socialrights/source/Publication_Housing%20policy%20vulnerable%20groups.pdf (Access July 2012).

**Policies for Social Cohesion** (CS-HO), 2008. Available at: http://www.coe.int/t/dg3/socialpolicies/socialrights/source/Publication_Housing%20policy%20vulnerable%20groups.pdf (Access July 2012).

PoliCS, ICLEI, **Diagnostico y Análisis de la Situación Actual de Montevideo en su Relación con la Construcción Sustentable,** Available at: http://www.iclei.org/fileadmin/user_upload/documents/LACS/Espanol/Diagnostico_Montevideo.pdf (Access June 2012)

Pütz M., Vogelpohl K., **Raumbezogene Konflikte bei Multi-Level-Governance: Fallstudien zu Strukturpolitik und Raumplanung**. In: Brunnengräber A., Walk H., **Multi-Level-Governance: Klima-, Umwelt- und Sozialpolitik in einer interdependenten Welt**, Wissenschaftszentrum Berlin für Sozialforschung, 2007.

RAPIDO, Rural Areas, People & Innovative Development, **Deliverable No.: 1.1 Best practice database on case studies for innovation development and transfer in rural areas Deliverable No.: 1.2 Evaluation matrix to assess future initiatives and projects in the area of innovation**, 2010. Available at: http://www.rapido-fp6.eu/download/44264_RAPIDO_D1-1_1-2.pdf (Access July 2012).

Rebernik M., Bradač B., **Module 4: Idea evaluation methods and techniques**, Available at: http://www.creative-trainer.eu/fileadmin/template/download/module_idea_evaluation_final.pdf (Access July 2012).

REVIT, **Working toward more effective and sustainable Brownfield revitalisation policies**. Stakeholders engagement - A toolkit. Available at: http://www.revit-nweurope.org/selfguidingtrail/27_Stakeholder_engagement_a_toolkit-2.pdf (Access July 2012).

Ries C., Jenkins J and Wise O., **Improving the energy performance of buildings: Learning from the European Union and Australia**, RAND Corporation, 2009, Available at: http://www.rand.org/pubs/technical_reports/2009/RAND_TR728.pdf (Access July 2012).

Rogers P.J., Petrsino A., Hasci T.A., Huebner T., **Program Theory in Evaluation. Challenges and Opportunities**. Eds. New Directions for Evaluation 87.

Rogers R. and Gumuchdjian P., **Ciudades para un pequeño planeta**, 2008.

Roseland M., Jacobs M., **Sustainable Development, Economic Instruments, and the Sustainable Management of Aquatic Resources and Ecosystems: A New Framework for Water Management in the Fraser River Basin**, 1995; in Roseland M., **Sustainable community development: integrating environmental, economic, and social objectives**, 2000. Available at: http://www.sciencedirect.com (Access July 2012).

Roseland M., **Sustainable community development: integrating environmental, economic, and social objectives**, 2000. Available at: http://www.sciencedirect.com (Access July 2012).

Rosenau J.N., Czempiel E.O., **Governance without government: order and change in world politics**, Cambridge University Press, 1992. In: Wissen M., **Politics of Scale, Multi-Level-Governance aus der Perspektive kritischer (Raum-) Theorien**. In: Brunnengräber A., Walk H., **Multi-Level-Governance: Klima-, Umwelt- und Sozialpolitik in einer interdependenten Welt**, Wissenschaftszentrum Berlin für Sozialforschung, 2007.

Seyfang G., **Community action for sustainable housing: Building a low-carbon future**, 2009. Available at: www.elsevier.com/locate/enpol (Access July 2012).
Skelcher C., **Jurisdictional Integrity, Polycentrism, and the Design of Democratic Governance**, Governance, 2005. Available at: http://onlinelibrary.wiley.com/doi/10.1111/j.1468-0491.2004.00267.x/pdf (Access February 2012).

ACEEE, **Standards Come Close to the Potential?**, 2004. Available at: http://www.aceee.org/sites/default/files/publications/proceedings/SS04_Panel8_Paper07.pdf (Access January 2012).

Taborianski V.M., **Contributions to the method for evaluating Co2 emissions generated during the life cycle of the façades of office buildings**, Sao Paolo University, 2009.

**Toronto Declaration on World Cities and Their Environment**. World Cities and Their Environment Congress of Municipal Leaders, Toronto 1991.

UN, **Sustainable human settlements development in Latin America and the Caribbean**, Lucy Winchester, Sustainable Development and Human Settlements Division, 2005.

UN, **United Nation Governance concept**, available at: http://www.un.org/en/globalissues/governance/ (Access August 2012).

UNDP, **Housing co-operatives in Uruguay**. Available at: http://ssc.undp.org/uploads/media/Housing.pdf (Access November 2011).

UNEP SBCI, **Assessment of policy instruments for reducing greenhouse gas emissions from buildings**, Budapest, 2007. Available at: http://www.unep.org/themes/consumption/pdf/SBCI_CEU_Policy_Tool_Report.pdf (Access January 2012).

UNEP- SBCI, **Buildings Can Play Key Role In Combating Climate Change**. Available at: http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=502&ArticleID=5545&l=en> (Access January 2012).

UNEP SBCI, **Greenhouse gas emission baselines and reduction potentials from buildings in Mexico**, A discussion document, United Nations Environment Programme Sustainable Buildings and Climate Initiative, Paris, 2009. Available at: http://www.unep.org/sbci/pdfs/ SBCI-Mexicoreport.pdf (Access January 2012).

UNEP, **General considerations regarding the objectives and expectations of the Rio+20 Conference and its outcome document**, Permanent Mission of Uruguay to the United Nations, 2012. Available at: http://www.uncsd2012.org/rio20/index.php?menu=119 (Access January 2012).

UNEP, **Green Report: Buildings, Investing in energy and resource efficiency**, 2011. Available at: http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/9.0-BUI-Buildings.pdf (Access January 2012).

UNEP, **Green Report: Buildings, Investing in energy and resource efficiency**, 2011. Available at:
UNEP, **Green Report: Cities, Investing in Energy and Resource Efficiency**, 2011. Available at: http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/9.0-BUI-Buildings.pdf (Access February 2012).

UNEP, **Mapping Report-Final Version**, Mapping of the main stakeholders and processes affecting the selection of solutions (technologies and materials) for social housing projects- Sao Paulo, Sustainable Social Housing Initiative, Brazilian Team – Version 4.1, 2010.

UNEP, **MINUTES SUSHI Conference Call - BRAZIL TEAM, August 31**, 2010. Participants: de Feraudy T., Svenningsen N., Gupta R., Takaoka M., John V., Csillag D., Carla, Andrea.

UNEP, MINUTES **SUSHI Conference Call, April 7, 2010.** Participants: de Feraudy T., Kurian J., Svenningsen N., Csillag D., Takaoka M., Gupta R., Taborianski V.

UNEP, MINUTES **SUSHI Conference Call, June 15, 2010.** Participants: de Feraudy T., Kurian J., Takaoka M., Csillag D., Taborianski V., Gupta R.

UNEP, **MINUTES SUSHI Conference Call, September 21**, 2010. Participants: de Feraudy T., Gupta R., Kurian J., Takaoka M., Bessa V., Csillag D.

UNEP, **SUSHI Conference Call, January 28**, 2010. Participants: Csillag D., Tonda E., Kurian J., Spangenberg J., Prof. Vanderley John, Laurindo R., de Feraudy T.

UNEP, **SUSHI Mapping Report - Final Version**, 2010.

UNEP, **SUSHI Preliminary Report,** 2010.

UNEP, **SUSHI PROJECT: Categories for the mapping of alternatives**, Vanderley John- Coordinator, Diana Csillag, Rafael Laurindo, Joerg Spangenberg.

UNEP, SUSHI, **Lesson Learned: Sustainable Solutions in Social Housing from the experience of the Housing and Urban Development Company of the State of Sao Paulo**, 2010. Available at: http://www.cbcs.org.br/sushi/images/relatorios/Final_Brazil_reports_160511/2_Lessons_Learned_100511.pdf (Access July 2012).

UNEP, **Sustainable Social Housing Initiative (SUSHI) Phase II, Latin America and the Caribbean**, Draft Project Document v.1.

UNEP, **Sustainable Social Housing Initiative (SUSHI), Progress and Results Report September 2010**.

UNEP, Sustainable Social Housing Initiative (SUSHI), **SUSHI Project Description**.

UNEP, **Sustainable Social Housing Initiative (SUSHI), Teleconference October 14,** 2009. Participants: John V., Takaoka M., McIntire D., Svenningsen N., Csillag D., de Feraudy T.

UNEP, **Sustainable Social Initiative (SUSHI), Project Workshop Outcomes**, CTCC, Universidade de São Paulo (USP), São Paulo, Brazil, 5 March 2010.

UN-HABITAT, **A Practical Guide for Conducting: Housing Profiles**, 2010. Available at: http://www.unhabitat.org (Access January 2012).

UN-HABITAT, **Affordable Land and Housing in Latin America and the Caribbean**, 2011, Available at: http://www.unhabitat.org (Access July 2012).

UN-HABITAT, **Financing Urban Shelter: Global Report on Human Settlements, United Nations Human Settlements Programme**, Nairobi, 2005. Available at: http://www.unhabitat.org (Access July 2012).

UN-HABITAT, **Planning Sustainable Cities, UN-HABITAT Practices and Perspectives**, 2010. Available at: http://www.scribd.com/doc/32041802/Planning-Sustainable-Cities-UN-HABITAT-Practices-and-Perspectives (access June 2011).

UN-HABITAT, **Secure Land Rights for All, United Nations Human Settlements Programme**, Nairobi, 2008. Available at:

http://www.responsibleagroinvestment.org/rai/sites/responsibleagroinvestment.org/files/Secure%20land%20rights%20for%20all-UN%20HABITAT.pdf (Access July 2012).

UN-HABITAT, **State of the world's cities 2006/7**, Nairobi, 2006. Available at: http://www.unhabitat.org/pmss/listItemDetails.aspx?publicationID=2101 (Access July 2012).

UN-HABITAT, **State of the world's cities 2006/7, The Millennium Development Goals and Urban Sustainability: 30 Years of Shaping the Habitat Agenda**, 2006. Available at: www.unhabitat.org

United Nations, **Resolution adopted by the General Assembly**, General Assembly, 2001. Available at: http://www.google.de/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CE4QFjAA&url=http%3A%2F%2Fwww.unhabitat.org%2Fdownloads%2Fdocs%2F2071_246_A_RES_S25_2.doc&ei=_qgCUPf2Nsbk4QT6q6GFCA&usg=AFQjCNHibOBBn2ETMDoY6PJJEJZXz1Z08g&sig2=e3xJpuMsHzmop5Po2T6eMQ (Access July 2012).

United Nations, **Resolution adopted by the General Assembly**, General Assembly, 2001. Available at: http://www.google.de/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CE4QFjAA&url=http%3A%2F%2Fwww.unhabitat.org%2Fdownloads%2Fdocs%2F2071_246_A_RES_S25_2.doc&ei=_qgCUPf2Nsbk4QT6q6GFCA&usg=AFQjCNHibOBBn2ETMDoY6PJJEJZXz1Z08g&sig2=e3xJpuMsHzmop5Po2T6eMQ (Access July 2012).

Urge-Vorsatz D., Koeppel S., **An assessment of Energy Service Companies worldwide**. Report submitted to the World Energy Council, 2007; in UNEP SBCI, **Assessment of policy instruments for reducing greenhouse gas emissions from buildings**, Budapest, 2007. Available at: http://www.unep.org/themes/consumption/pdf/SBCI_CEU_Policy_Tool_Report.pdf (Access July 2012).

Urwicz T., **Uruguayan government seeks to work with housing philanthropy**, article for Infosurhoy.com, 2010 (access May 2011).

Valentin A, and Spangenberg J H**, A guide to community sustainability indicators**, 2000. Available at: http://www.sciencedirect.com (Access July 2012).

Varvasovszky Z., Brugha R., **How to do (or not to do) ... A stakeholder analysis**, Health Policy and Planning; 15(3): 338-345, Oxford University Press, 2000. Available at: http://heapol.oxfordjournals.org/content/15/3/338.full.pdf (Access August 2012).

Wissen M., **Politics of Scale, Multi-Level-Governance aus der Perspektive kritischer (Raum-) Theorien**. In: Brunnengräber A., Walk H., **Multi-Level-Governance: Klima-, Umwelt- und Sozialpolitik in einer interdependenten Welt**, Wissenschaftszentrum Berlin für Sozialforschung, 2007.

Wissen M., **Politics of Scale, Multi-Level-Governance aus der Perspektive kritischer (Raum-) Theorien**. In: Brunnengräber A., Walk H., **Multi-Level-Governance: Klima-, Umwelt- und Sozialpolitik in einer interdependenten Welt**, Wissenschaftszentrum Berlin für Sozialforschung, 2007.

**World Bank**. Available at: http://www1.worldbank.org/publicsector/anticorrupt/PoliticalEconomy/stakeholderanalysis.htm (Access July 2012).

**WWF**, Cross-Cutting Tool: Stakeholder Analysis, 2005. Available at: http://www.google.de/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CEwQFjAA&url=http%3A%2F%2Fwww.panda.org%2Fstandards%2F1_1_stakeholder_analysis%2F&ei=bngOUKCHM8uL4gSJwYC4Cg&usg=AFQjCNGN-Si2XqAe1oxStjGLZERzI6THQ&sig2=oN_Nyk7u5LqeNULHNPoh6w (Access July 2012).

# 8. Interviewees.

## 8.1 Brazil.

**Housholder 1**, SUSHI end user, Cubatão, Sao Paolo, Brazil, April 2012.

**Housholder 2**, SUSHI end user, Cubatão, Sao Paolo, Brazil, April 2012.

**Housholder 3**, SUSHI end user, Cubatão, Sao Paolo, Brazil, April 2012.

**Housholder 4**, SUSHI end user, Cubatão, Sao Paolo, Brazil, April 2012.

**Housholder 5**, SUSHI end user, Cubatão, Sao Paolo, Brazil, April 2012.

**Housholder 6**, SUSHI end user, Cubatão, Sao Paolo, Brazil, April 2012.

## 8.2 Uruguay.

**Benjamin Nahoum**, Technical Office FUCVAM, Montevideo, Uruguay, April 2012.

**Charna Furman**, Architect and Neighbor Councilor, Montevideo, Uruguay, April 2012.

**Danilo Gutierrez**, Executive Director, INACOOP, Montevideo, Uruguay, April 2012.

**Diulio Amandora**, President of the Architects Society of Montevideo, Montevideo, Uruguay, April 2012.

**Francisco Beltrame**, Director of MEVIR, Montevideo, Uruguay, April 2012.

**Hugo Rea**, Quality Management Unit, Intendance of Montevideo, Montevideo, Uruguay, April 2012.

**Javier Taks**, Social Anthropologist, Research Professor at the Republic University, Professor of the Faculty of Social Sciences, Montevideo, Uruguay, April 2012.

**Jorge Bertullo**, Monitoring and Evaluation Research Unit, MEVIR, Montevideo, Uruguay, April 2012.

**Juan Antonio Camma**, Director CCU, Montevideo, Uruguay, April 2012.

**Juan Pedro Urruzola**, General Director of the Planning Department, Montevideo Intendance, Montevideo, Uruguay, April 2012.

**Julio Villamide**, Uruguayan real state expert and consultant, Montevideo, Uruguay, June 2012.

**Lucia Anzalone**, Architect at CCU, Montevideo, Uruguay, April 2012.

**Miguel Rodríguez Bonnecarrère**, UNEP and MVOTMA Sustainability Consultant, Montevideo, Uruguay. April 2012.

**Raquel Lejtreger**, Deputy Minister, MVOTMA, Montevideo, Uruguay, May 2012.

**Raul Valles**, Permanent Housing Unit, Architecture School of the Uruguayan Public University, Montevideo, Uruguay, April 2012.

**Ricardo Pscicabatto**, Member of the Director Committee of FECOVI, Montevideo, Uruguay, April 2012.

# 9. Web Sites.


http://200.40.229.134/leyes/AccesoTextoLey.asp?Ley=18381&Anchor (Access July 2012).

http://anterior.mvotma.gub.uy/dinavi/index.php?option=com_content&task=view&id=105&Itemid=105 (Access November 2011).

http://anterior.mvotma.gub.uy/dinavi/index.php?option=com_content&task=view&id=60&Itemid=60 (Access June 2012).

http://archivo.presidencia.gub.uy/sci/resoluciones/2012/02/mvotma_20.pdf (Access June 2012).

http://guiaderecursos.mides.gub.uy/mides/text.jsp?contentid=5752&site=1&channel=mides (Access June 2012).

http://medios.presidencia.gub.uy/jm_portal/2012/mem_anual/mvotma/mvotma.pdf (Access June 2012).

http://unesdoc.unesco.org/images/0021/002160/216077e.pdf (Access June 2012).

http://unesdoc.unesco.org/images/0021/002160/216077e.pdf (Access June 2012).

http://www.anv.gub.uy/archivos/Octubre/FOGADI.pdf (Access June 2012).

http://www.anv.gub.uy/home/contenido.aspx?id_contenido=52 (Access June 2012).

http://www.avina.net/eng/nota/cambio-climatico-2/ (Access June 2012).

http://www.bhu.net (Access November 2011).

http://www.bps.gub.uy/ (Access November 2011).

http://www.cbcs.org.br/sobreocbcs/index.php? (Access July 2012).

http://www.cdhu.sp.gov.br/a_empresa/apresentacao-cdhu.asp (Access July 2012).

http://www.creative-trainer.eu/fileadmin/template/download/module_idea_evaluation_final.pdf (Access July 2012).

http://www.eclac.cl/drni/noticias/noticias/8/37118/Alfonso_Blanco.pdf (Access June 2012).

http://www.eficienciaenergetica.gub.uy/ (Access June 2012).

http://www.eficienciaenergetica.gub.uy/escos.htm (Access June 2012).

http://www.eficienciaenergetica.gub.uy/escos.htm (Access June 2012).

http://www.eficienciaenergetica.gub.uy/novedades.asp?id=157 (Access June 2012).

http://www.eficienciaenergetica.gub.uy/proyecto.htm (Access June 2012).

http://www.energiaeolica.gub.uy/ (Access June 2012).

http://www.energyvortex.com/energydictionary/public_benefits_charge.html (Access July 2012).

http://www.ffconsultores.com.br/consult_empresa.html (Access July 2012).

http://www.google.de/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&sqi=2&ved=0CEsQFjAA&url=http%3A%2F%2Fanterior.mvotma.gub.uy%2Fdinavi%2Findex.php%3Foption%3Dcom_docman%26task%3Ddoc_download%26gid%3D74%26Itemid%3D133&ei=Bx7PT4KzAsTEsgaolNnjCg&usg=AFQjCNH8AGci3qaODgJd_qyJaNyyu2VUSw (Access June 2012).

http://www.iadb.org (Access June 2012).

http://www.iclei.org/fileadmin/user_upload/documents/LACS/Espanol/Diagnostico_Montevideo.pdf (Access June 2012).

http://www.iclei.org/index.php?id=10904 (Access June 2012).

http://www.impo.com.uy/bancodatos/ur.htm, (Access June 2012).

http://www.juntos.gub.uy/creacion.html (Access June 2012).

http://www.kfw-entwicklungsbank.de/ebank/EN_Home/Evaluation/Ex-post_evaluation_reports/PDF-Dokumente_R-Z/kurz_uruguay_credimat.pdf (Access June 2012).

http://www.mesasolar.org.uy/documento/quienes_somos.html (Access June 2012).

http://www.mevir.org.uy/ (Access June 2012).

http://www.miem.gub.uy (Access June 2012).

http://www.minurvi.org/ (Access June 2012).

http://www.mvotma.gub.uy (Access June 2012).

http://www.mvotma.gub.uy/construir/sistemas-constructivos-no-tradicionales (Access June 2012).

http://www.mvotma.gub.uy/dinavi/index.php?option=com_content&view=article&id=44&Itemid=47 (Access November 2011).

http://www.mvotma.gub.uy/tu-vivienda/construir/inversion-privada-mas-oportunidades (Access June 2012).

http://www.pnuma.org/ (Access July 2012).

http://www.sociedaduruguaya.org/2007/08/una-nueva-forma-de-llegar-a-la-casa-propia.html (Access June 2012).

http://www.sustainablesettlement.co.za/docs/a21_discussiondocexecsum.pdf (Access July 2012).

http://www.thegef.org (Access June 2012).

http://www.uncsd2012.org/content/documents/434uruguaryenglish.pdf (Access June 2012).

http://www.unep.org (Access June 2012).

http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=43 (Access July 2012).

http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/9.0-BUI-Buildings.pdf (Access February 2012).

http://www.unep.org/sustainablesocialhousing/ (Access July 2012).

http://www.unep.org/sustainablesocialhousing/About_Sushi/AboutSushi.asp (Access July 2012).

http://www.unep.org/sustainablesocialhousing/CaseStudies_Brazil/Br_localassesment.asp (Access July 2012).

http://www.unesco.org.uy (Access June 2012).

http://www.unhabitat.org/cdrom/networking/regional_Programme_Social_housing.html (Access June 2012).

http://www.untechoparamipais.org.uy/actividades/ (Access June 2012).

http://www.ute.com.uy (Access June 2012).

http://www.worldhabitatawards.org (Access may 2011).

http://www0.parlamento.gub.uy/leyes/AccesoTextoLey.asp?Ley=18308&Anchor=

http://www12.caixa.gov.br/portal/public/acaixa/home/a_vida_pede_mais_que_um_banco/ (Access July 2012).

http://www2.opp.gub.uy/principal.php# (Access November 2011)

www.mvotma.gub.uy/DI.NA.VI/Reglamentos. (Access November 2011).

# ANNEX 1

| Group/ Organization | Cooperative of Afro-Uruguayan Women-headed households | |
|---|---|---|
| Aims and Objectives | Provide affordable housing for low-income women-headed households | |
| Project description | - Conversion of a derelict building in central Montevideo into 36 apartments for low-income families.<br>- Address the issue of derelict buildings in central areas of the city, allows for the incremental improvement of flats and promotes social integration as well as racial and gender equality.<br>- includes communal gathering spaces, playgrounds, sports facilities and a garden roof.<br>- Each flat can be improved and the layout modified to adapt to particular family needs through the addition and/or reconfiguration of internal subdivisions. | |
| Sustainability dimensions | **Environmental** | -re-use of derelict building.<br>-energy conservation design<br>-natural daylight/ventilation<br>-high insulation<br>-natural gas-powered heating<br>-hot water boilers.<br>-based upon a compact-city approach |
| | **Economic** | - Project funded by a combination of existing government funding mechanism<br>- Future residents of the building has generated income opportunities by working in the construction. The training in construction and management has been provided by Ciudad y Region and has also been helpful in income-generation strategies for the cooperative members.<br>- Families repay a symbolic portion of the government subsidy. After 5 years of repayment period, ownership of the apartment is transferred to each individual family. |
| | **Social** | - The social reinsertion of the group in the neighborhood. The activities in share spaces promotes cohesion amongst the member families of UFAMA.<br>- Additional neighborhood facilities (sports facilities and a community center) will be shared with the wider community as a further integration process.<br>- NGO involvement with the group of residents in the training process and in the capacity building of the group to develop the skills needed for different stages of the project construction. |

**Table 1.4: Cooperative of Afro-Uruguayan Women-headed households Sustainable Project Description[482]**

[482] http://www.worldhabitatawards.org (Access may 2011).