INTRODUCTION

In 2010 the Brazilian government established its National Policy on Climate Change that defined the voluntary national commitment reduction emissions goals until the year of 2020.

Brazil ratified the Paris Agreement on Climate Change confirming the Intended Nationally Determined Contribution (INDC) goals to reduce GHG emissions (below 2005 levels) by 37% in 2025 and by 43% in 2030 (INDC, 2015).

The achieve of these goals will require a strengthening of local government actions, anthropogenic emissions (Bulkeley, 2010. 230p), a rate that should raise once two-thirds of the global population are expected to live in urban areas until 2050 once cities may be responsible up to 75% of the carbon dioxide (GHGP-GPC, 2014).

Despite the importance of urban centers for reducing GHG emissions, Brazil still has a lack of mandates elements to ensure municipalities actions towards the compliance of these reduction targets.

METHODS

Rio de Janeiro was one of the first cities in the country to create a Municipal Policy on Climate Change, establishing goals for reducing the emissions of greenhouse gases in the GIC Inventory of 2012: the municipality or Rio, by the time a part of the GPC Pilot Program, considered the Global Protocol for Community-Scale Greenhouse Gas Emissions (GHGP-GPC, 2014) methodology to present its emissions, which had been calculated in 228.0 millions tons of CO₂ equivalents (Mt CO₂e).

The following pictures presents some actions already being taken by the municipality to reduce transports Greenhouse Gas Emissions.

In 2016, within the partnership established with the Centre for Integrated Studies on Climate Change and the Environment (Centro Clima/COPPE/UFRJ), the Climate Change and Sustainable Development Office of the Municipal Secretariat for the Environment (SMAC) launched a Climate Change Adaptation Strategy for the city of Rio de Janeiro. This study took into account the main climatic risks for the city, such as more intense and frequent rains, higher temperatures, longer heat waves, sea level rise, as well as the evaluation of changes in land use and coverage and the projection of urban expansion, proposing a series of adaptive measures to minimize the impacts.

After conducting three municipal inventories Rio de Janeiro City, decided for periodical update its inventories for which a GHG Emission Monitoring System has been decided to be implemented in accordance with the GPC. This project counted with the technical and financial assistance of the World Bank as part of the Strengthening Public Sector Management Project, called Rio de Excelência, and was prepared by the specialized consulting services of PPA – Política e Planejamento Ambiental Ltda.

The implementation of the Web System will facilitate the control of GHG emission data through the elaboration of appropriate tools for collecting, processing and storing information, as well as permitting the system actualization; additionally, it will enable the follow-up of local Action Plan for reducing Greenhouse Gas Emissions, meet targets set by cities, and guide and identify the most critical sectors.

The implementation of the Web System will provide several advantages for municipal management, including:

• Analyze the Energy; Industrial Processes and Product Use (IPPU); Agriculture, Forestry and Other Land Use (AFOLU) and Solid Waste sectors;
• Consider CO₂, CH₄, N₂O, HFCs, PFCs, SF₆ and the black carbon emissions;
• Review of past inventories in events of significant methodologies actualization, as well as permitting the system actualization;
• Allow remote querying and data manipulation with different levels of editing permissions;
• Guide and identify in real time the most critical sectors;
• Evaluate the effectiveness of policies and facilitate the definition of new adaptation measures and;
• Monitoring progress towards the city emission reduction targets.

DISCUSSION AND RESULTS

This system aims to strengthen the municipality on facing climate change by creating a protocol for data collection and continuous analysis of the effectiveness of implemented policies.

In addition, the project has its focus on environmental secretariat capacity building and staff training for maintaining and updating GHG emission inventories, implementing measures to reduce GHG emissions, and elaborating mitigation, adaptation and resilience measures on climate change effects, thus reducing financial needs and hiring of external consultants.

As the project follows all international standards on analyzing GHG emissions, it can be replicate for others local governments interested to improve their actions to combating climate change.