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Target-aimed versus wishful-thinking in designing efficient GHG reduction strategies for a metropolitan city: Taipei

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ABSTRACT

In recent years, many national and local governments claim for a specific GHG (greenhouse gas) reduction goal targeted for many years later. In 2005, the Taipei City government announced that Taipei's total GHG emission in 2015 will reach the same level as that in 2005 and then down to 75% of that level at year 2030. However, based on the estimated energy consumption and GHG emission and the proposed emission reduction plans from the local government, it is clear that these goals are not going to be accomplished.

In Taipei, the residential and commercial sector contributes more than 78% of the total GHG emission. Thus, in a business as usual scenario, the total GHG emission in 2030 would be 79% more than that in 2005, far more than the target value proclaimed. As many key factors are uncontrollable by the local government, a target-aimed strategy designing process by looking into changes in Taipei and identifying major targets is proposed in this study. It is demonstrated that such a universally applicable approach will give more confidence to the public on working toward the expected GHG reduction goal.

1. Introduction

As global warming becomes a key issue recently, many national and local governments are making commitments to reduce GHG (greenhouse gas) emission in the years to come. However, plans proposed by them for achieving the GHG reduction accountable are often designed according to wishful-thinking ideas. Governmental officials usually link these plans to the so-called "non-regret" policies, in which the actions taken will be environmentally and economically favorable and hence people will not feel regretful in the future (Kane and Yohe, 2000).

Taipei City is the capital of Taiwan, where commercial activities dominate its economy. In 2005, the Taipei City government has committed to the goals of reducing GHG emission in 2015 to the level of 2005 and further by 2030 pulling the emission down to the level as 75% of that in 2005. This made Taipei City be a first in Taiwan taking GHG reduction seriously and officially. However, a feasibility study of the GHG reduction plans outlined by the government suggested that only trivial reductions could be expected, which implied that the committed GHG reduction would never be obtained under a wishful-thinking strategy (Liou et al., 2006).

In this paper, the GHG emission data of Taiwan and Taipei are analyzed. Some key issues critical for the reductions of GHG emission by the local government are identified. Based on these results obtained, practical target-aimed action plans are designed. This kind of practice is meaningful in terms of shrinking the gap between wish and reality when facing the complicated and large-scale global warming related issues.

2. Methodology and approach

Many cities in the world have proposed or announced GHG reduction plans for coping with the trend of carbon neutrality. Theoretically, any city must be located in a county or country and thus any GHG reduction goals or targets should match those in the framework of a national or upper-leveled plan. However, in some cases the city government could put forward a GHG reduction goal more ambitious than those in the national level. The case of Taipei City in Taiwan is another extreme example that a national GHG reduction goal did not even exist when the city announced its own goal in 2005. Thus, it is not surprising that the possibility of meeting the 2015 and 2030 GHG emission goals is low, if taking into account the real energy consumption and urban development

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trends. Still, wishful-thinking GHG reduction goals should be re-evaluated and checked by systematic and step-by-step examinations of all related strategies, plans, and parameters.

In this research, by taking into account the theory and practice of GHG reduction and the real situation in Taiwan, we proposed a framework for checking, evaluating, and realizing the GHG reduction goal (GHGRG) of Taipei City. Basically, the approach consists of three major processes:

(1) check the administrative reasonability of the GHGRG;
(2) evaluate the possibility of achieving the GHGRG; and
(3) design and simulate the feasible scenarios for achieving the GHGRG.

This can be treated as a dynamic and interactive procedure that can sever as a "diagnosis and treatment" tool for helping the major, administrators, or citizens understand the visionaries and limitations of the existing GHGRG and then obtaining an applicable one.

In each of the processes, there exist several key tasks that need to be gone through. The following are some of these tasks:

(1) Check the administrative reasonability of the GHGRG:
   i. check if a national GHGRG exists;
   ii. check if the city GHGRG can be explained within the framework of the national one; and
   iii. check if the city GHGRG was designed based on scientific analysis and real strategies and corresponding data sets.

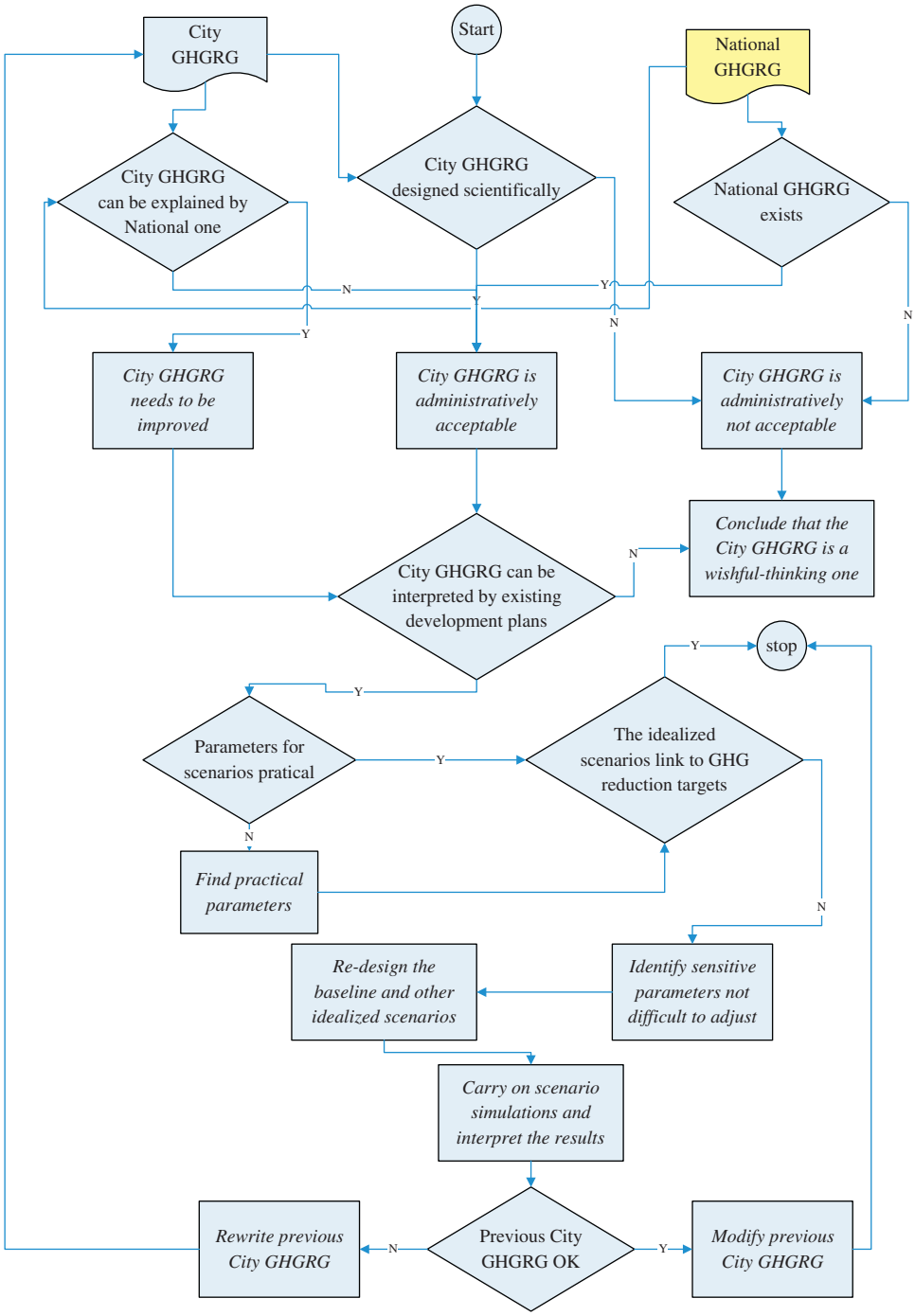

Fig. 1. The conceptual flowchart of checking, evaluating, and designing the city GHG reduction goal (GHGRG).