



# New market mechanism and its implication for carbon reduction in China



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## HIGHLIGHTS

- The paper aims to contribute to the discussion of the NMM for further development.
- A framework including four key elements to conceptualize the NMM is established.
- The national-level operational framework of the NMM is presented and assessed.
- Four contributions of the NMM are explored for carbon reduction in China.
- Implementation of the NMM at different stages of China's development is explored.

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## ABSTRACT

This article presents a detailed review and analysis of the discussions around the new market mechanism (NMM) and explores its potential in China. It contributes to the current discussion of the NMM in three aspects. First, this article attempts to streamline ideas about the NMM. The term NMM is considered to be an umbrella concept for emission trading systems which all Parties can engage in on a voluntary basis in the implementation of their intended nationally determined contributions, and which need to satisfy three criteria: (i) having a large scale scope; (ii) aiming to facilitate a net emission reduction; (iii) allowing flexibility for the host country. We also present a framework to clarify the NMM. Based on this framework, major options with a high implementation potential are identified. Second, we argue that the national-level operational framework determines the chance of successful implementation of the NMM. We identify different options based on a literature survey and evaluate them with respect to effectiveness and efficiency. Third, we choose China, a highly influential country regarding climate change policies, as a case to analyze the potential contributions and challenges of the NMM and its implementation at different stages of national development.

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## 1. Introduction

The idea of the new market-based mechanism (NMM) emerged at the 13th Conference of the Parties (COP) to the United Framework Convention on Climate Change in Bali in 2007. The discussion on the NMM is a continuation of discussion around so-called "sectoral approaches" proposed by developed countries in the hope to scale up developing and emerging countries' mitigation contributions. It is also driven by the need to improve existing

project-based mechanisms, such as the Clean Development Mechanism (CDM). After four years of discussion, the COP 17 in Durban agreed to define a NMM and proposed some broad guidance: the NMM is meant to scale up mitigation activities across broad segments of the economy; may operate at sectoral and/or project level; and aims to achieve a net decrease and/or avoidance of greenhouse gas emissions (UNFCCC, 2012). Since Durban, there has been hardly any progress on the NMM, which largely results from the fact that it may not be possible for Parties to give their final decision in advance of more clarity about the Durban Platform for Enhanced Action (ADP) (UNFCCC, 2014a). Notwithstanding, the new agreement of the Paris Climate Change Conference in 2015 established a new international carbon market mechanism ('Sustainable Development Mechanism') and specified some other

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important principles in Article 6 (UNFCCC, 2015a).

There are still many parties who see the relevance of NMM to both pre-2020 and post-2020 climate regimes (Svenningsen, 2013). One reason is that the NMM would achieve a net decrease, since not all emission reductions would be used to offset increased emissions elsewhere, which may increase mitigation actions pre-2020. Another reason is that the NMM could offer countries the ability to use emission reductions outside their borders to achieve their proposed targets. Therefore, the NMM may increase the willingness of countries to raise their ambition level, as stated in their Intended Nationally Determined Contributions (INDC). Indeed, some countries expressed their interest in using international credits in their INDC (e.g. Switzerland, Mexico, Liechtenstein, Canada, Morocco, South Korea, and so on) (Carbon Market Watch, 2015). Besides, some countries have started pilots to facilitate the development of the modalities and procedures for the NMM.

In spite of the slow progress in the global negotiations, the discussions of scaling up existing project-based mechanisms to the sectoral level and introducing sectoral approaches have been continuing in academic circles (e.g. Baron et al., 2009; Schneider and Cames, 2009; Schneider et al., 2014). Although the NMM may contain project-level activities, the sectoral NMM is often the main focus in the literature. This may result from the fact that sectoral actions are an effective means for countries to implement emission reduction plans (Cai, 2013; IPCC, 2014). Hence, many countries are actually piloting NMM activities at sectoral level with the aim to provide input into a potential NMM set-up and to get ready for developing other policy instruments in the future.

The paper makes a three-fold contribution to the current discussions around the NMM. First, because of the many different proposals of Parties and different pilot activities, there is a need to define and unify the overall concept of the NMM at the international level. In Section 2, we define the concept of the NMM, establish a framework to clarify the NMM and identify major options for future implementation. Second, as the NMM is mainly proposed at sectoral scale, the host country government – and not the private sector – will be the major operator. This raises the question of how host country governments can provide incentives to the private sector, who are supposed to make the actual emission reductions. The operational framework at the national level to incentivize emission reductions of the private sector is thus key for successful implementation. Based on a literature survey, Section 3 identifies and evaluates different approaches and options regarding the effectiveness and efficiency of such national frameworks. Third, some developing and emerging countries – such as China, Brazil and Bolivia – are cautious about the NMM and the inclusion of other market mechanisms (UNFCCC, 2015b). Therefore, it is important to clarify whether the NMM will bring benefits to these countries, discuss the challenges and difficulties that have to be solved before the NMM is implemented, and explore how the NMM can be implemented in order to function at different stages of national development. Since the attitude of China – as the largest greenhouse gas emitter in the world – towards the NMM would strongly influence the development and implementation of the NMM globally, China is taken as a case for analyzing the potential contributions and challenges of the NMM and its implementation at different stages of national development. Finally, the paper presents the conclusions and policy implications.

## 2. New market mechanism and its major options

### 2.1. New market mechanism and its relationship with existing

#### *market-based instruments*

The concept of the NMM can be clarified in relation to existing market-based mitigation instruments. Emission Trading System (ETS) and carbon taxes are two independent market-based instruments that can internalize environmental externalities. A carbon tax is levied on production activities or services that generate carbon emissions. The prices of such products or services increase because of the tax, thereby reducing the demand for them. An ETS sets a total amount of carbon emissions and allows emission units to be traded at market prices. The new market mechanism is classified as emission trading system. The emission trading system involves two mechanisms. The first one is a trading mechanism, also known as cap-and-trade system, which is widely applied globally (e.g. European Union, China, California). Another one is the crediting mechanism, also known as baseline-and-credit system, which is mainly used in the CDM and Joint Implementation (JI) under the Kyoto Protocol. As mentioned above, since the proposals around the NMM are partly driven by the need for improving the existing CDM, there is a strong relationship between the CDM and the NMM. On the one hand, the purpose and function of the NMM are the same as the CDM, promoting the cooperation among Parties and allowing Parties to use “international transferred mitigation outcomes” to meet their reduction targets. On the other hand, the NMM is “new” compared to the CDM in five main ways: (i) it can be applied by all countries, and not only by developing countries; (ii) the host country government has a more important role, including initiating the NMM and facilitating emission reductions; (iii) the NMM should go beyond the pure offset mechanism (i.e. CDM) to achieve a net decrease by implementing more ambitious policy or emission targets, discounting at issuance, or shortening crediting periods (Wehnert et al., 2013); (iv) the scope must be scaled up to broad segments of the economy; (v) both the trading and crediting mechanisms can be applied in the NMM.

To date, there has been no common understanding of what the NMM should be like, while such a common understanding is needed at the international level. Based on a comparative analysis with the existing project-based CDM, diverse proposals of Parties and current pilot activities, we explore the concept of the NMM. According to Lehmann et al. (2014) and Article 6 of the Paris agreement (UNFCCC, 2015a), the term new market mechanism is considered as an umbrella concept for those emission trading systems which all Parties can engage in on a voluntary basis in order to achieve their intended nationally determined contributions, and which need to satisfy three criteria: (i) having a large scale scope; (ii) aiming to facilitate net emission reductions; and (iii) allowing flexibility for the host country. In other words, the NMM can be used to contribute to the reduction of emission levels in the host Party, and, at the same time, the emission reductions from the NMM can also be transferred through carbon market to another Party to fulfill its INDC. The next part develops those criteria into a framework to define the NMM at the international level.

### 2.2. A framework to clarify NMM

Based on research of IGES (2013), we identify the key elements of the NMM, as the basis to clarify the overall concept of the NMM (see Fig. 1).

#### 2.2.1. Governance

The governance of the NMM could either be centralized or decentralized. Similar to the CDM and JI, a centrally governed NMM would set and approve common rules, procedures and methodologies that apply to all countries in the COP. In contrast,

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