

Policies for Rice Production Towards Reducing Greenhouse Gas Emission

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Reducing greenhouse gas emission in agricultural production is now an important trend in the world. In Vietnam, in recent years, the Government has issued different policies to deal with climate change and limit the gas emission. In the agricultural sector, the Ministry of Agriculture and Rural Development has implemented many programs and projects on adaptation to climate change.

As a result of greenhouse gas (GHG) emissions test in 2000, total gas emissions in Vietnam were 150.9 Tg CO₂ (million tons), of which, greenhouse gas emissions in the agricultural sector were 65.09 Tg CO₂, accounting for the highest proportion of 43.1% of the whole country. In agriculture, emissions in rice cultivation accounted for the highest proportion of 57.5%. To reduce emissions in agriculture, the Ministry of Agriculture and Rural Development sets the target of reducing the green house gas emissions to 5.7 Tg CO₂ in 2020, equivalent to about 10% of greenhouse gas emissions in the agricultural sector.

Vietnam has ratified the UNFCCC (1992-1994) and the Kyoto Protocol - KP (1998-2002), including the UNFCCC under Article 2, Section iii, Kyoto Protocol. According to this article, countries such as Vietnam are required to promote sustainable agricultural practices in the context of climate change; the commitment of the parties to create policies to control operations and reduce greenhouse gas emissions in order to stabilize greenhouse gas concentrations in the atmosphere; commitment to reduce greenhouse gas emissions, with a special rate for each country (in Europe: 8%, USA: 7%, Japan 6%); countries under Annex 1 of the UNFCCC ratified the Kyoto Protocol with emissions accounted for 61.6% of total global CO₂ emissions; 6 kinds of greenhouse gases controlled.

The Steering Committee for the implementation of the UNFCCC and the Kyoto Protocol has established since 2007 with 18 members (of which there are 14 ministries of Vietnam). Vietnam has issued different legal documents on implementation of commitment under the Kyoto

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Protocol, including Decision No.743/QĐ-BTNMT of the Minister of Natural Resources and Environment dated 20/4/ 2009, Directive No.35/2005/CT-TTg, 17/10/2005 on the organization and implementation of the Kyoto Protocol under UNFCCC; Decision No.47/2007/QĐ-TTg, 06/4/2007 to approve organization and implementation of the Kyoto Protocol in 2007-2010 period; Decision No.130/2007/QĐ-TTg, 02/8/2007 on a number of mechanisms and policies for investment projects under the CDM. MONRE issued circular 10/2006/TT-BTNMT, 12/12/2006 guiding to formulate CDM under the Kyoto Protocol; Circular No. 58/2008/TTLT -BTC-BTNMT, 04/7/2008 of the Ministry of Natural Resources and Environment and the Ministry of Finance guiding the implementation of some articles of Decision 103; and Resolution No. 07/2010 TTLT of MONRE, MOF and MPI guiding the management regulations of the Kyoto Protocol and the national target program, 15/03/2010, Completed and submitted the first National Report to the Convention Secretariat in 12/2003.

In the agricultural sector, Vietnam has been implementing various other models which are effective and similar to 1M to 5D². These models also bring many benefits to rice growers and improve soil quality and reduce greenhouse gas emissions. Since 2006, Directive 24/2006/CT-BNN of the Ministry of Agriculture and Rural Development on strengthening the implementation of the 3 down 3 up program confirmed that the "3 down 3 up" program have been implemented throughout the national scale and its contents are suitable with farming practices and the regional ecological conditions in the Mekong Delta provinces.

The "3 down 3 up" program is the technical progress in plant protection in order to manage scientifically nutrient and integrated pest in rice. The application of this program reduces about 20 - 80kg of seeds per ha, reduces costs for pesticides, adjusts an appropriate amount of fertilizers, increases productivity and economic efficiency, generates clean agricultural products, protects environment, ecosystem and public health.

The “1M- 5D” program is that: certified rice seeds must be used; the amount of irrigation water must be reduced sufficiently; post-harvest losses, the amount of sowed seeds, use of crop protection chemicals and fertilizers must also be reduced. This model can help farmers not only

²1 M: must to use of certified rice seeds;

5D: decrease of sowed seeds, decrease of crop protection chemicals, decrease of nitrogenous fertilizer, decrease of water use, and decrease of post-harvest losses;

save their seeds, agricultural supplies, money for pumping water which total about 1.5 million / ha, but also make optimal profit and safely and sustainably produce rice.

There are rice fields applying “3 down 3 up” model in the Central Region. The area applying “3 down 3 up” program (3 down: seeds, fertilizers and pesticides; 3 Up: productivity, quality and economic efficiency) are more productive than the other rice fields and income increased by an average of one million VND/ha. In particular, the density of aphids in the field applying the 3 down 3 up program is 2-3 times lower than normal fields, leading to the decrease of pressure to use chemicals to eliminate pests. There are more than 3000 models with an area of about 2000ha applying the program of “3 down 3 up” in the Red River Delta provinces and the zone 4. All the fields applying the program help to reduce costs for fertilizers and pesticides, and increase rice yields, contributing to create clean agricultural products, protect environment and public health.

The “3 down 3 up” program has been listed as one of the supported items. For example, Decision No. 311/QD-BNN-KHCN and Decision 2113/QD-BNN-KHCN are on the list of the extension projects in 2011. Directive No. 3685/CT-BNN-TT of the Ministry of Agriculture and Rural Development on winter-spring rice production in 2012-2013 period in the Mekong Delta region has confirmed continuing to expand the "large sample fields" with the policies supporting involved farmers and businesses; direct and guide to produce rice complying VietGAP, “3 down 3 up” program, “1M-5D”; train farmers in balance use of fertilizers in terms of quantity and category, avoid to use wastefully nitrogen fertilizers causing the increase of disease; apply Integrated Pest Management (IPM) to prevent aphids and diseases³.

In addition to government regulations, provinces in the major rice producing area also offer a variety of support programs, in which they give priority to rice areas applying “3 down 3 up” and “1M 5D” programs. For example, Resolution No. 01/2012/NQ-HDND, 05/2012/QD-UBND of Tra Vinh province dated 18/4/2012 on approving a number of policies to encourage the development of commercial rice production in the province has defined the concept of high quality rice as follows: rice produced from the high quality criteria seeds in the category list given by the Ministry of Agriculture and rural Development; rice produced complying with (3 down, 3 up; 1 , 5 down) to ensure the security of plant protection chemical residues, levels of

³ Directive No. 3685/CT-BNN-TT dated 26/10/2012 of the Ministry of Agriculture and Rural Development on directions for the production of 2012-2013 winter-spring rice in the MeKong Delta.

some heavy metals, nitrate content, and permitted maximum rate of insects, fungi in a grain of rice⁴. Organizations and individuals using attested rice seeds (attestation 1 and attestation 2) to produce high quality commercial rice supported by provincial planning are assisted 40% of costs for buying seeds (according to the production norm of 100 kg /ha) in the first 02 years. The support rate is based on the market price of rice seeds by time-period. Decision No. 05/2012/QĐ-UBND dated 04/5/2012 of the Tra Vinh People's Committee on the issuance of policies to support, encourage the development of rice seeds and high quality commercial rice within Tra Vinh province. Some other provinces such as An Giang, Hau Giang, Can Tho and Long An also has a number of policies to support rice areas applying “3 down 3 up” and “1M to 5D” program. With regards to SRI model, Decision No.1315/QĐ-BNN-KHCN of the Minister of Agriculture and Rural Development approved the proposal and carried out in 2012 the following tasks: develop rice cultivation pilot projects to decrease greenhouse gas emissions by water-saving irrigation techniques with the total funding of 1 billion VND⁵. If the pilot study is successful, it will be widely recommended to the producers. Currently, in addition to pilot projects which was carried out by the Ministry of Agriculture and Rural Development, there are lots of SRI models which were carried out by non-governmental organizations in these provinces. Therefore, there is currently no any specific policy from government or ministries for SRI application in rice production. Some provinces have been applying the program and gained success so far such as Ha Noi, Thai Nguyen, Nam Dinh and Thai Binh. However, in order to expand the program widely, it requires specific policies from Government to support farmers in their application.

From 2010 to 2012, the Institute of Development Studies Institute of the Mekong Delta, Hanoi University of Water Resources and Department of Agriculture and Rural Development of An Giang province was tasked to coordinate the implementation of carbon projects low rice production in Binh Hoa commune, Chau Thanh district, An Giang province. The project was funded by the Environmental Defense Fund (EDF).

The low carbon rice farming model produced positive results and the agricultural sector will consider expanding it in Vietnam to produce prestigious and high-quality rice to meet consumer requirements and build sustainable agriculture.

⁴ Resolution No. 01/2012/NQ-HĐND dated 18/4/2012 approving a number of policies to encourage the production of seed rice and high quality commercial rice in Tra Vinh province.

⁵ Decision No. 1315/QĐ-BNN-KHCN dated 10/9/2012 on approving the proposal carried out in 2012 with the tasks of developing rice cultivation model to reduce greenhouse gas emissions by water-saving irrigation techniques.

In the future, the agricultural sector will apply advanced farming techniques and solutions to reduce water use and input costs; collect, re-use and disposal of straw thoroughly to reduce greenhouse gas emissions and environmental pollution. Along with these specific measures, the Ministry of Agriculture and Rural Development will study to complete GHG reduction methods in arable farming systems; complete cultivation process to improve productivity, reduce emissions, waste treatment technology research, and re-use of agricultural products to increase economic efficiency and reduce emissions.

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