

## **NAMA development in Kyrgyzstan: insides from practical experiences<sup>1</sup>**

The Central Asian Kyrgyz Republic is situated in the high mountain area between the Tian-Shan and the Pamir and belongs to the group of countries with very low carbon intensity of economic activities (0.58 kg CO<sub>2</sub>/USD [2000] PPP) as well as per capita (1.33 kg CO<sub>2</sub>).<sup>2</sup> This is mainly due to the 30% share of hydropower in the country's total energy supply, and also because of the fact that the country's economy is poorly developed. Thus, mitigation of GHG emissions for Kyrgyzstan is the question of avoiding future increases of carbon intensity while enhancing economic and social development. The country will suffer substantially under such climate change effects due to the melting of the glaciers which are the major source of its water resources. For Kyrgyzstan, water is not only essential for agriculture but is also the key source for electricity generation. Currently, electricity is partly exported and additional hydro-power stations are planned in order to increase such exports in the future. That is why there is widespread awareness among politicians, NGOs, and businesses related to the climate change challenge. Therefore, the Kyrgyz government is discussing a long-term goal to achieve future economic growth without additional increase of energy.<sup>3</sup> During the Side Event of the Kyrgyz government at Rio+20 Conference in June 2012, Vice Prime minister Otorbayev, underpinned the country's efforts to embark on a low-carbon development path.

In order to support the Kyrgyz government's efforts currently, a concept for a supported NAMA is being developed for raising energy efficiency in local heat supply and overcoming the partly observed undersupply of heat in residential and public buildings, which is a result of insufficient performance of the boiler houses. The bulk of Kyrgyzstan's overall CO<sub>2</sub> emissions results from combustion processes in the industry, including centralized and local heat generation and distribution. Generation and distribution in general require serious modernization of management and hardware. Local heat is mostly generated from coal which is considered an affordable and long-term available national resource. Thus, the heating sector is one of the most important target sectors for reduction of GHG emissions.

However, the existing legislations — Law No. 137 on 'Energy Efficiency in Buildings' of 2011 which does not include the issue of boiler houses and Law No. 283 on 'Renewable Energies' of 2008 — are not sufficient to tackle this potential. The reason is not only the huge number of relatively small assets with their data difficult and costly to assess, but also the weak economic situation of the boiler houses. The latter is mainly due to the current regulation which focuses on subsidized heat tariffs and to the budget constraints at the state and community/municipality level. Weakly organized accountability and control for the usage of fuels is another factor contributing to heat undersupply of costumers. In addition, today boiler houses are often oversized and situated at large distances away from customers.

The supported NAMA approach is seen as an opportunity to help better organize heat supply and distribution activities through deployment of climate-friendly technologies and thereby making heat supply less carbon intensive while increasing heat comfort simultaneously. The current

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<sup>1</sup> Published in: Mitigation Talks, Volume 3(4) and 4(1) 2013;

[http://www.teriin.org/projects/nfa/pdf/NAMAs\\_newsletter\\_2013.pdf](http://www.teriin.org/projects/nfa/pdf/NAMAs_newsletter_2013.pdf)

<sup>2</sup> IEA Statistics, data for 2009.

<sup>3</sup> Energy Program of the Republic of Kyrgyzstan until 2015 (draft)

development of the abovementioned NAMA concept is financially supported by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, Germany, and carried out by a consortium under leadership of DIW econ.

Re-organization of the local heating sector consisting of a huge number of small boiler houses, which is a typical heritage of the Soviet Era in most Central Asian countries, is on the institutional reform agenda in Kyrgyzstan. This includes a shift in the ownership of the boiler houses from the state represented by the former State Agency for the communal sphere (Zhykkomunsojus) to municipalities and local administrations. The NAMA aims at combining this institutional reform with low carbon development goals. The reform should be coupled with achieving the target to increasing efficiency of local heat supply from small coal-fired boilers by at least 35% until 2020.

The selection of the mentioned sub-sector of local heating as an important sector for development of a new policy approach with NAMA support was agreed by an inter-ministerial body, the National Committee of Climate Change Consequences of the Kyrgyz Republic, currently reorganized as Coordinating Commission on Climate Change Issues. The backing by an inter-ministerial body is seen as crucial for tackling such a socially and economically sensitive and complicated sector which involves different governmental bodies in decision making. This is especially true under conditions of the described ownership shift. For the NAMA to be successful, ownership and backing by the respective government body is essential.

Small boiler houses (each with less than 10 MW installed capacity) play an important role for GHG mitigation in Kyrgyzstan. They combust 12% of all coal used in the country and supply about 60% of all schools, kindergartens, and hospitals as well as residential buildings in different cities and regions of the country. The NAMA will provide support to create demand for modernization of boiler houses and the respective heat pipelines by providing financial incentives to:

- replacement of existing outdated boilers with low efficiency indicators by modern, highly efficient boilers including more efficient circulation pumps;
- adjustment of the new heat capacities to real demand and, in some cases, installation of the new boiler houses closer to the costumers;
- improving management and accounting by installation of heat metering devices at boiler houses; and
- replacement of existing heat pipelines by modern, pre-insulated pipelines where necessary.

These measures will lead to efficiency improvement of coal combustion at boiler houses and to reduction of heat losses in the respective pipelines. However, a special issue concerning the relation of efficiency improvement and GHG emission reduction needs to be considered, which might be typical for other countries as well, especially for post-Soviet countries. In fact, currently not all customers are supplied with heat according established standards. As heat supplied is not measured but only calculated, compliant with official standards, huge heat losses in the heat pipeline infrastructure result in undersupply of final customers. That is why not all energy-efficiency measures planned to be implemented by the NAMA will result in GHG reductions and will therefore contribute to avoiding severe social tensions which might arise from weakening heat supply. Thus, the NAMA will also include indirect benefits and transformational changes besides GHG reductions. According to current calculations, the envisaged replacement of boilers will transfer immediately into GHG emission reductions, the estimated considerable reduction of pipeline losses, however, which will be

achieved by replacement of leaking old heat pipelines by modern, pre-insulated pipelines, may not lead automatically to GHG emission cuts. But, the envisaged replacement of pipelines will improve heat comfort of final customers. They will finally receive the amount of heat necessary in accordance with standard requirements they already pay for. Additional co-benefits are expected to result in enhancement of the service personal's qualifications and creation of new jobs for the maintenance of modernized boiler houses.

The incentive scheme being developed within the NAMA concept shall consist of a mixture of soft loans and grants offered under certain conditions to the owners of small coal-fired boilers and will help to overcome existing financing restrictions of the involved companies. These conditions still need to be elaborated in more detail, taking into account the economic constraints of the public budgets in Kyrgyzstan and bearing in mind that tariff increases would not be affordable for the majority of private households. As there is no longer state ownership of small boiler houses, the government needs to take responsibility for NAMA implementation and, in addition, needs to provide the respective framework for participation of the respective municipalities and local administrations in the planned incentive scheme. The framework includes requirements towards the owners of small boiler houses, which usually own and manage a portfolio of different boiler houses. The owners might apply for financial support in order to implement the abovementioned measures. Although the procedure of approval for participation in the modernization programme is not finalised yet, it will require at least the following:

- Documentation of ownership and clear responsibilities for the assets (boilers) included into the application;
- provision of plausible and reliable data for each boiler house on capacities, fuel consumption, heat demand, and structure of customers;
- documentation of current efficiency of each boiler house (no modernization undertaken during the last years); and
- expression of interest and willingness or the Letter of Intent (LoI) of the owner to participate in the NAMA programme and to follow its requirements. The respective LoI shall indicate the following:
  - List of boilers being subject of modernization under the programme indicating the measures being implemented;
  - readiness to take over the responsibility to organize maintenance service for the newly installed equipment and capacity building of the personnel including also improvement of accountability and control for the usage of fuels; and
  - readiness to partially finance the modernization of small boiler houses with own administrative and human resources.

Therefore, the NAMA instrument provides the opportunity gaining financial support for improving energy efficiency of several "packages"<sup>4</sup> of small boiler houses in a very poor country. The "package" approach allows for inclusion of boilers of different cities and municipalities within a certain time frame and thereby helps to overcome some of the identified barriers. This is especially related to delay in implementation of the ownership-transfer reform and respective absorption of management capacities. Thus, the NAMA implementation is planned within a time frame of at least 3 or 4 years. Such an approach also takes into consideration existing capability of carrying out modernization.

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<sup>4</sup> Package means the respective number of boiler houses owned by a municipality or local administration.

Existing service units for maintenance and repair work need to be trained for implementation of new technologies and their capacities needs to be enlarged additionally in order to successfully implement the programme.

An additional issue, which is currently discussed, is the development of a respective option for monitoring, reporting, and verification (MRV) of implementation of the planned measures. Currently, the only available and reliable indicators for calculation of GHG emissions are the data on coal burned which are processed from bills of the boiler houses coal purchases and the exchanges in stocks. The MRV system to be developed will continue to rely on this data but in addition, will be completed by the output data provided by the new to-be installed metring devices. So far, no experiences exist, hence the implementation of MRV would need to set up a respective training scheme on monitoring and reporting for all owners of small boiler houses as well.

The NAMA concept is a new approach for Kyrgyzstan combining institutional reform with clear energy efficiency and GHG mitigation goals and designing a respective policy which aims to reach a special target by providing investment incentives with new management approaches. The stakeholders are very much eager to reach that goal because they understand that the NAMA approach will help them to improve overall efficiency of their economic activities, improve the environment, and in parallel improve heat supply for the bulk of the small country's schools, kindergartens, and hospitals. The current German initiative is building capacities and readiness for using this new instrument.

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