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Leveraging carbon financing to enable accountable water treatment programs

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This article outlines the technical premise and policy considerations surrounding the first program to generate carbon finance for drinking water treatment.

The Global Water Forum publishes a series of discussion papers to share the insights and knowledge contained within our online articles. The articles are contributed by experts in the field and provide original academic research; unique, informed insights and arguments; evaluations of water policies and projects; as well as concise overviews and explanations of complex topics. We encourage our readers to engage in discussion with our contributing authors through the GWF website.

Keywords: drinking water, carbon credits, carbon finance, Clean Development Mechanism, Africa, water treatment.

International carbon credit markets are designed to encourage sustainable, clean development around the world, while reducing current and projected emissions. The United Nations Clean Development Mechanism (CDM) has created a worldwide market for carbon credits from clean projects. However, few of those programs are active in

truly developing countries – less than 2% of the projects are registered in African Nations,¹ even while the impacts of climate change are expected to be severe in these regions.²

In 2010, a social enterprise I co-founded, Manna Energy Limited, was the first to successfully register a UN CDM program combining drinking water treatment with carbon financing. We are able to earn UN carbon credits for treating drinking water in rural Rwanda. The premise of our carbon credits is that of the methods currently available to rural residents, one prevailing practice to boil their water with non-renewable wood. When we install a water treatment system that treats water to World Health Organization standards³ for microbiological contamination, we are providing a clean alternative to these baseline practices.

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Many people in Rwanda and elsewhere do boil their water.⁴ Some use alternatives such as chlorination or solar distillation, while many consume untreated water and often suffer the health consequences.

Our first program in Rwanda only claims carbon credits for about 5% of the water that we treat – this represents the fraction of the water that was previously boiled (1-2 liters per person per day) by a fraction of the residents that engaged in this practice (roughly 25%). As such, the program is not financially sustainable from the carbon credits, and therefore not scalable. This gap highlights some of the challenges inherent in encouraging clean development in regions where the baseline energy use is below worldwide averages.

In an effort to address this disparity, the United Nations has incorporated the concept of “suppressed demand” wherein emission reductions can be calculated based on projected future energy use. Suppressed demand involves estimating an energy demand or need that is not actually being realized and proactively making available a cleaner alternative. Carbon credits are then claimed on the “demand” for the baseline energy source, rather than status quo usage. This is controversial because the credits are given for emissions avoidance, rather than

reductions of current emissions. In essence, suppressed demand can be thought of as a prevention, rather than a cure.

The CDM Executive Board defines suppressed demand as arising in circumstances where a, “minimum service level that is able to meet basic human needs...is unavailable to the end user of the service prior to the implementation of the project activity...This service level is a ‘choice’ that reflects that the service provided prior to the implementation of the project activity would increase if it were not suppressed by the lack of income and high unit costs of the service.”⁵ The UN CDM recently incorporated this concept into a drinking water treatment methodology that allows project developers, including ourselves, to claim carbon credits for residents in regions where water boiling is otherwise a viable alternative.

Separate from the technical premise of suppressed demand for water treatment, which has been hotly debated, it is important to recognize the political considerations that led to the suppressed demand approach. With less than 2% of CDM programs active in Africa, there was a clear skew in favor of developing economies rich enough to realize the tremendous demand for energy, while poorer countries, with the same demand for the

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health and welfare benefits from increased energy usage, were left out of the market.

The technical premise of suppressed demand is only a tool to reach an important political end – increased engagement by the world’s poorest countries in increased clean development.

Through Manna Energy Limited, we have since worked with the disease control textile company Vestergaard Frandsen to conceive and develop the first-ever voluntary mechanism carbon-financed water treatment program, now treating water for over four million people in rural Kenya, and we are now working with a water quality test kit company, DelAgua, to develop a new, 600,000 household program in Rwanda. Both of these programs are viable because of suppressed demand.

This approach has been criticized within the global development water sector as a mis-use of the carbon markets, since suppressed demand allows claims that exceed the current baseline use of fuel. Interestingly, the criticisms primarily come from the water non-governmental organization sector, rather than from the carbon credit technical experts.

Traditional development organizations rely on government, United Nations, or philanthropic

grants, and have finite funding with specific goals for discrete projects. From a water treatment and regulatory perspective, we believe that carbon financing enables a viable funding mechanism that pays only on performance – we do not require up-front donor or governmental funding, and these projects only recuperate their costs when actual impact is demonstrated, rather than simply promises.

In these projects, ongoing monitoring is required by the registration authorities; carbon credits are not issued unless it can be demonstrated and independently verified that the water treatment systems are both functional and used by the target communities. This meets the definition of sustainability – the program continues to be financed when ongoing success is demonstrated. No longer is there a disconnection between funding and public health outcomes.

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