

# **THE CLEAN DEVELOPMENT MECHANISM: LOCAL IMPACTS OF A GLOBAL SYSTEM**

*October 2018*



## Executive Summary

The Clean Development Mechanism (CDM) was set up under the 1997 Kyoto Protocol to allow developed countries to buy emissions reductions from developing countries in the form of credits, called *Certified Emissions Reductions* (CERs). The objectives of the CDM are to help developed countries achieve their climate commitment and to assist developing countries in achieving sustainable development, but evidence on the success of the mechanism is, at best, mixed.

This publication summarizes scientific findings on the climate impacts of the CDM, and concludes that it is unlikely to have reached its objective of producing high-quality credits which can be used to compensate a country's emissions. Most CDM credits have been issued from projects which would probably have happened anyway, and in some cases the mechanism even set an incentive for companies to increase their production of pollutants in order to generate credits for their destruction.

In addition to its lack of climate benefits, the CDM has also failed to adopt sufficiently stringent safeguards against harms to the environment or local people, especially indigenous communities. This publication presents 4 cases where CDM projects ended up hurting people.

In Uganda, a private company blocked access to land vital for the livelihoods of local communities in order to claim credits for planting forests in that area. In India, a waste incinerator project diverted waste from landfills, where it would get sorted by local informal workers, and burned them in a facility located close to villages. In Chile and Guatemala, hydroelectricity projects exacerbated land right conflicts, destroyed social cohesion within villages, and damaged ecosystems and biodiversity.

While future schemes are being negotiated at various institutional levels, it is important that those designing these mechanisms take stock of the experience with the CDM, and adopt measures to prevent that projects such as the ones described in this publication receive support in the name of fighting climate change.

### Recommendations:

- Do not allow the use of any CDM credits to meet post-2020 climate targets
- Adopt more ambitious rules to improve the environmental integrity of credits in future mechanisms
- Design future mechanisms with good social and environmental safeguards, including rules for stakeholder consultations and a grievance mechanism

## Introduction: The Clean Development Mechanism 101

The Clean Development Mechanism (CDM) was set up under the 1997 Kyoto Protocol to allow developed countries to buy emissions reductions from developing countries in the form of credits, called *Certified Emissions Reductions* (CERs). This would allow developed countries to meet their climate targets at a lower overall cost, with the view of subsequently increasing their ambition. At the same time, it would promote mitigation activities in developing countries which, under the Kyoto Protocol, were not subject to any climate targets.

To be eligible for selling credits under the CDM, projects must meet a set of criteria, and be approved and verified by organizations registered under the UNFCCC. Many project-specific methodologies have been developed since the inception of the mechanism, in order to determine the contribution of a specific activity to emissions reductions.

In order to ensure that credits traded under the CDM embody effective climate action, they must be backed by emissions reductions which are **real, additional, verifiable, and permanent**. This means that the emissions reductions achieved (*real*) would not have happened in the absence of the mechanism (*additional*), will have been reduced or avoided forever (*permanent*), and can be traced back to a specific project and activity (*verifiable*). Additionally, projects issuing credits should benefit communities at a local level, and contribute to their sustainable development.

Verifying that CDM credits truly meet all these criteria has been subject to a lot of research, and evidence is, at best, mixed. This publication reviews these findings and presents some of the real-world local impacts of the CDM. It demonstrates that the mechanism suffers from serious shortcomings which justify a shift away from it after 2020 and a focus on financing systems which will incentivize new and additional emission reductions.

## The future of carbon markets

Experiences with existing carbon markets need to be reflected in future rules, drawing on lessons from the past. Two major international agreements are set to shape their future: the Paris Agreement and the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).

The Paris Agreement sets up a market for the exchange of carbon credits, called the *Sustainable Development Mechanism* (*SDM*), the rules of which are currently being negotiated at the UNFCCC. This market must meet several objectives, including achieving overall mitigation of emissions, promoting sustainable development, and avoiding double counting. In setting up this new market, countries will also need to decide on the “transition” of the CDM, i.e. agree on what will happen to existing CDM credits, projects, and methodologies.

In addition to this new mechanism, the International Civil Aviation Organization (ICAO) is currently negotiating the rules of its own offsetting scheme, which will be used to compensate the growth in aviation emissions above 2020 levels, starting in 2021. At this stage, countries are yet to define which types of carbon credits will be eligible for use under this mechanism, and allowing CDM credits is one of the options on the table. This would strongly undermine the already weak contribution of CORSIA to fight climate change, as most of the demand for credits (estimated around 3Gt CO<sub>2</sub>e) could be met with cheap CDM credits at a cost below €1 (DEHSt, January 2018) and issued from projects which reduced emissions before CORSIA was started.

## CDM achievements and failures: reviewing the literature

### Is a tonne a tonne? Assessing the environmental integrity of the CDM

The environmental integrity of the CDM hinges on whether or not projects are additional to business-as-usual and thereby help to reduce emissions. While gradual improvements to the CDM additionality rules have been made following early-stage

research on their lack of stringency (Michaelowa & Purohit, 2007), a 2016 study published by the European Commission still found that 85% of CDM projects, generating 73% of the potential 2013-2020 CER supply, have a low likelihood of generating emissions reductions which are additional and not over-estimated (DG Clima, 2016). This means that the use of CDM credits towards climate targets has increased global greenhouse gas emissions. In the EU alone, emissions increased by over 650 million tonnes of CO<sub>2</sub> as a result of the use of low-quality CDM credits in the EU Emissions Trading System<sup>1</sup>.

Beyond additionality, a major concern in the early phases of the CDM was the existence of perverse incentives whereby the prospect of issuing credits from the destruction of harmful industrial gases provided an incentive for industries to increase the production of such gases. This led project developers to increase destruction and hence increase the number of credits available, like with the case for HFC-23, a powerful greenhouse gas generated from the production of HCFC-22, a refrigerant. CDM methodologies were modified to correct this perverse incentive but this experience highlights the need to robustly designed methodologies to avoid perverse incentives.

A similar result was found in a sector-specific study, focused on adipic acid projects, which found that, although the CDM contributed significantly to finding new ways of reducing emissions from such activities, about 20% of CDM credits issued to adipic acid projects between 2008 and 2009 did not represent real emission reductions, because the emissions were displaced to another plant (“carbon leakage”).

Furthermore, evidence is also mixed regarding the CDM’s ability to financially support mitigation projects, given the oversupply of credits and their low prices. As of October 2018, CER prices linger around \$0.30, of which \$0.20 is used to cover administration costs (UNFCCC/CCNUCC, 2005). A 2015 study from Ecofys and the New Climate Institute analysed a large sample of CDM projects and concluded that revenues from the CDM were insufficient for financing the registered projects (Warnecke, Day & Klein, May 2015). This prompted a follow-up study which proposed that Corporate Social Responsibility, and the prospect of increased future demand, were bigger drivers in the continuation of certain CDM projects (Sachweh & Zhu, 2015)<sup>2</sup>.

This impact of low prices on the continuation of CDM crediting activities could have had an indirect effect on overall mitigation. Looking at CDM supply up to 2020, one study finds that, ironically, the failures of the CDM have contributed to overall mitigation of emissions, which the study estimates at around 1% of global emissions in 2014. This is because many CDM projects have continued to reduce emissions after prices crashed, but stopped issuing credits because the costs of validation and verification were too high relative to the credit prices (Warnecke, Day & Klein, November 2015). This effect is however largely dependent on the additionality assessment of CDM projects (Erickson, Lazarus & Spalding-Fecher, 2014), as non-additional CDM credits would counterbalance it. Rather, it is the symptom of a dysfunctional market, in which investor confidence has been broken due to a crash in prices which made it unattractive to carry out the verification and validation stages necessary to the issuance of credits.

While the criticisms mentioned above are very real problems, the CDM has also been beneficial in several ways. One study in particular reflects this, while acknowledging the mixed evidence surrounding additionality and the problematic cases of fossil fuel projects. It highlights the important contribution of the CDM to technology transfer, as well as to employment and building capacity in low carbon development for developing countries (CDM Policy Dialogue, 2012).

## Case studies: Taking stock of the situation on the ground

### Case Study 1 - Afforestation in Kachung Central Forest Reserve, Uganda

*Name of Author of this case study: Kristen Lyons, The Oakland Institute*

- Name of the project: Kachung Forest Project
- CDM project number: 4653
- Host country: Uganda
- Project developer: Green Resources AS (also trading under Busoga Forestry Company and Lango Forestry Company)
- International Funders: Norfund, FMO and Finnfund have collective investments in Green Resources of approximately US \$33 million
- Number of credits issued: 30 000

#### Summary of the project:

The Kachung Central Forest Reserve afforestation project is an industrial forestry plantation project, led by Green Resources, a company specialised in forestry and renewable energy. Afforestation operations commenced in 2006, and planting is now completed, with the establishment and management of mostly monoculture plantations on approximately 2,050 hectares of ‘degraded’ grass and shrub land. The project is certified with the Forest Stewardship Council (FSC), it is recognised as a Clean Development Mechanism (CDM) project, and was validated under the Climate Community and Biodiversity Standard (CCBS) in 2011.

Following severe negative impacts on local communities, the Swedish Energy Agency – Green Resources sole carbon credit buyer – stopped payments to the company in November 2015. In explaining its decision to withdraw from the project, the Swedish Energy Agency stated that “*Villagers were (being) deprived of vital resources and experienced threats and violence, and there is a lack of clarity regarding ownership in the reserve*”.

#### Key information about the harms associated with this project

There are 17 villages adjacent to the Kachung industrial monoculture plantation and many of the villagers have been denied access to the plantation. This land was vital for growing food and grazing livestock, as well as for collecting forest resources (including firewood). As designated Central Forest Reserve, this was land villagers previously had access to, and relied upon for vital livelihood activities. Food insecurity, hunger and poverty are acute in these villages.

Villagers also describe observing pollution of land and waterways by agrochemicals used in forestry plantations, resulting in crop losses and livestock deaths. Many of those evicted, as well as those seeking to use land now licensed to Green Resources, also report being subjected to physical violence at the hands of the police.

#### Stakeholder Consultation

Since the Swedish Energy Agency ceased payment, alongside mounting international pressure, two assessment processes were carried out, both of which have involved a consultation with local communities. In November 2016, Green Resources commissioned a Socioeconomic Impact Assessment of its operations in the Dokolo District, and, in 2017, the Swedish Energy Agency commissioned a Community Development Plan Performance Audit to assess the company’s progress related to the stated reform requirements.

While these assessments involved some consultation with local communities, the findings presented in the reports have ig-

<sup>1</sup> So far, 900 million CDM credits have been used under the EU ETS and it is assumed that 73% of these credits may not represent actual emission reductions.

<sup>2</sup> The study focused on HFC-23 and N<sub>2</sub>O CDM projects in China and India.



nored substantial issues of concern, which were documented in independent research, conducted prior and after the Green Resources and SEA audits. Importantly, this independent research has recognised the acute problem of food insecurity for the 17 villages living adjacent to the Green Resources license area. It also acknowledged the extent to which loss of land to the companies' plantation has exacerbated the challenges of achieving food security, including by having access to land for grazing and cultivation.

#### Environmental impact

Local impacts on the environment include encroachment into fragile ecosystems, including by planting trees and spraying chemicals in riparian zones. Chemical runoff has led to the killing of vegetation and animals, and the replacement of bio-diverse ecosystems with monoculture tree farms has destroyed the habitat for insects, birds, and other animals. This is in contradiction with the approval of Green Resources' Environmental Impact Statement (EIS) which was conditional upon the implementation of several environmental safeguards.



Picture: A sign forbidding grazing to local communities' animals at the border of the forest

#### Communication with the project developer or designated national authority

The Oakland Institute has engaged over a number of years with Green Resources staff in Uganda and Norway. Green Resources is aware of concerns raised by several organizations, and to date has failed to substantially engage with them.



Sprayers - workers explained they could earn a maximum of \$2 – 2.50 per day, while Pruning workers earned just \$0.50 per day. As one worker explained, it is desperation that leaves him working for the company, despite the poor pay rate and other conditions on offer: "It is the lack of any other job, and pressing family problems, that forced me to take work with this company".

#### Lessons learned from Kachung

This project highlights the limits of carbon market regulations to adequately consider the social, environmental and other costs associated with carbon projects. The lesson from the Kachung Central Forest Reserve project is clear: if the world is to take seriously the challenges posed by climate change, we must look beyond markets and corporate capital for solutions.

You can also read Swedwatch's article on lessons learned from Kachung, [here!](#)

#### Case Study 2 - Methane-reduction through waste incineration in Delhi, India

Name of Author of this case study: Pratibha Sharma, Global Alliance for Incinerator Alternatives (GAIA)

- Name of project: The TIMARPUR-OKHLA Waste Management Company Pvt Ltd's (Towmcl) integrated waste-to-energy (WTE) project in Delhi
- CDM project number: 1254
- CDM registration year: 2007
- Host country: India
- Project developer: TIMARPUR-OKHLA Waste Management Company Pvt Ltd's (Towmcl)
- Offset credits issued: 329, 591CERS have been issued between 30/03/2011 and 09/03/2016

#### Summary of the project

The "integrated waste-to-energy project" in Delhi aims to provide a sustainable waste management solution to the city of Delhi by processing 2050 tons of municipal solid waste per day using a 20.9 MW waste-to-energy incinerator plant at the Okhla site. However, it has achieved far fewer emissions reductions than predicted and has harmed local employment as well as the environment, violating industrial siting laws and laws prescribing emissions standards set by the regulatory bodies. It has also provided misleading and false information about design and impacts of the plant activity.

The unsegregated municipal waste incinerated in the Okhla plant causes serious health hazards to thousands of people living in this densely populated and ecologically-sensitive region. The plant is a serious departure from the approved technology and is a major source of toxic air emission. It also undermines Delhi's recycling sector by burning recyclables, thus threatening the livelihood of thousands of recycling workers.

#### Key information about the harms associated with this project

Several sources of harm have been identified from the incinerator project. First, in the report submitted by the expert committee appointed by the National Green Tribunal (India's tribunal for environmental cases), the plant has been found to emit toxic carcinogenic chemicals in excess of the allowed standards, and on several occasions. Second, the plant's location is in violation of the Delhi Master Plan which requires the location of this type of waste treatment plant to be either in the vicinity of a landfill site, or as an integral part of a landfill site. Third, there has been a misrepresentation of facts in the environmental impact assessment (EIA) report which shows the distance between the plant and Sukhdev Vihar locality to be around 5 km, but the actual distance is around 30 m. This means local residents are much more heavily affected by the harmful gases generated by the plant than what the assessment reports. Fourth, the plant is in complete deviation from the approved technology. Rather than pellets and biomethanation, the project developer installed mass burn incinerator facilities for mixed solid waste, emitting toxins beyond the permissible limits. This led the regulatory agencies to temporarily shut down the incinerator plant, from 2012 to 2015.

Finally, the plant reduces the amount of waste that is being recycled, which is in complete contradiction with the waste management hierarchy which prioritises recycling over incineration.

### Stakeholder consultation

An announcement for a public hearing was made via two local newspapers. However, the announcement failed to communicate the nature of the project and excluded crucial facts about emissions and the plant's proximity to a residential area<sup>3</sup>. Moreover, instead of being held at the site of the plant, the meeting was held 10 km away from the location. As a result, no member of the public appeared at the hearing, and the project was passed without any objections. In its Project Design Document for the CDM, the project developer communicated that: *“The project will be providing both direct and indirect employment opportunity to the local people. The project does not propose to displace any community; it does not have any direct conflict with the people of the region”*. This does not reflect the reality of the project's impact, as it is still facing stiff resistance from local communities, including the residents of Okhla and the waste-pickers of Delhi.

### Environmental impact

The Environmental Impact Assessment (EIA) report was not made available to the public. In a petition for access made to the court by the Sukhdev Vihar Resident Welfare Association, it was found that the EIA report had distorted critical facts to make its case. This included a serious deviation in the final project from the technology for which environmental clearance had been



Picture: This is a picture of bottom ash on the conveyor of the Okhla incinerator plant. The fact that paper and plastic are only half-burnt shows clearly that the furnace temperature is nowhere as high as it should be (850 degrees centigrade – the condition required to eliminate generation of toxic emissions such as dioxins and furans) - Image Credit: Ranjit Devraj

obtained. Despite this change and the modified plan, no updated EIA report was produced and no new public hearing was conducted. In addition to this, the EIA report mentioned that the proposed project is at the landfill site, whereas in reality it was 30 meters away from the residential area.

### Communication with the project developer / Designated National Authority

The health hazard posed by the Okhla incinerator sparked a court case raised by the affected communities, which is now being heard at the Supreme Court of India, after failing to receive justice from the Delhi High Court and the National Green Tribunal for the last ten years. The community has also filed a written complaint with UNFCCC, but despite such tainted record of the plant, UNFCCC has allowed the issuance of over 225,000 CERs between 2011 and 2017<sup>4</sup>.

*“The Okhla incinerator is best described as a monument of illegality. It is an example of a highly polluting project that was set up in defiance of major laws relating to waste management, industrial siting norms and zoning laws. The plant was set up in the guise of a pilot but right from the start it was evident that this was going to be a full-fledged incinerator. Far from taking the public into confidence, the operators have repeatedly lied to us as well as to the authorities on the true nature of the plant.”*

**Ranjit Devraj, Resident- Sukhdev Vihar, Okhla, Delhi**

<sup>3</sup> The announcement read “Public Hearing for environmental clearance to the construction of proposed integrated municipal solid waste processing complex at Okhla –adjacent to existing Sewage Treatment Plant (STP) Delhi.”

<sup>4</sup> CDM Monitoring report form (Version 6), UNFCCC reference number of the project activity - 1254

### Lessons learned

The CDM's support to this waste incineration plant demonstrates flaws in both the carbon credit mechanism as well as the corporate-driven, technology-focused approach to climate change mitigation. The project had planned to reduce emissions by an average of 308,262 tons of CO<sub>2</sub> equivalent (tCO<sub>2</sub>e) per year whereas Delhi's waste-pickers are responsible for annual emissions reductions of approximately 962,133 tCO<sub>2</sub>e through recycling (Chintan, 2009). If the incinerator project burns even one-quarter of Delhi's recyclables, it will effectively wipe out its own emissions savings, resulting in no net emissions reductions. There is hence a clear gap in the CDM methodology which promotes the incineration of waste rather than recycling. Instead of continuing to support such thermal waste-to-energy projects which generate significant toxic and greenhouse gas emissions, and destroy local jobs, public authorities should ensure that climate finance is devoted to truly sustainable, low-carbon, and toxic-free projects that have regard for recycling and circular economy processes.

### Case Study 3 - Hydroelectricity project in Alto Maipo, Chile

*Author of this case study: Fernanda Miranda, Javiera Valencia. Geógrafas Fundación Terram (Translated from Spanish by Carbon Market Watch)*

- Name of project: Proyecto Hidroeléctrico Alto Maipo
- CDM number: At Validation
- CDM registration: 2012
- Host country: Chile
- Project developer: AES Gener (USA), Strabag (Austria), Grupo Luksic (Chile). The latter was withdrawn for losses of USD \$380 million.
- International Funders: Overseas Private Investment Corporation (OPIC), Inter-American Development Bank (IDB), International Finance Corporation (IFC) of the World Bank (WB), Corpbanca, Banco de Crédito e Inversiones (Bci), Banco Itaú Chile, Banco Estado (Chile), KfW Ipx-Bank GmbH (Germany), and DNB Bank ASA (Norway)

### Summary of the project

The Alto Maipo project is a “run of the river” electricity generation project with an installed capacity of 530 MW. This technology generates electricity from the natural flow of water, without construction of a dam. It is located in the Maipo river basin which supplies millions of people with clean water.

The project has had adverse impacts on local biodiversity and the environment, and land rights conflicts with the project developer have increased social tensions within communities.

### Key information about the harms associated with this project

The project has both environmental and social impacts. First, it has adverse effects on the upper part of the Maipo river basin, by diverting water from its tributaries: the Volcán, Yeso and Colorado rivers through a 70 kilometers tunnel, therefore drastically decreasing the Maipo river's flow. This in turn endangers the quality and availability of water supply to the capital city, Santiago.

It has further destroyed the social fabric of the towns of El Alfalfal and Los Maitenes, by dividing the population with economic tactics to favor some parts of the population while excluding others from the benefits of the project. Livestock, beekeeping and tourism activities, developed by the communities of El Alfalfal and Los Maitenes, have suffered irreversible impacts with



direct consequences on the economic development of these villages.

The project companies have even built a perimeter wall in El Alfalfal to supposedly isolate it from the noise and pollution produced by the removal of the soil, further altering the life of the inhabitants of El Alfalfal.

#### Stakeholder consultation

As part of the Environmental Impact Assessment, a non-binding process was carried out to engage with citizens. This means that even if the affected communities were informed about the project, it was not compulsory for local authorities to take into account people's opinions and concerns.

#### Environmental and social impacts

An Environmental Impact Assessment (EIA) was carried out, but it was reported in highly technical language which made it extremely difficult for local communities to understand the results and engage with the project developers. The non-binding citizen participation process also reduced the incentive for local people to participate, undermining the influence they could have on the project design.

Furthermore, there were differences between the impacts identified in the EIA, and real changes on the ground. This is due to synergistic impacts, which were not considered in the EIA, and which affect the availability of water for the capital of Chile. The project is located in the upper part of the Maipo river basin, an area which typically receives some amount of snowfall. However, due to the impacts of climate change, this area has had increasing amounts of rain rather than snow, which has generated mudslides that have affected the sanitary plants supplying water to the capital of the country.

Moreover, the Alto Maipo construction site has replaced land which was used by the local people for grazing.

#### Communication with the project developer / Designated National Authority



Picture: In the background, the initial stages of the construction of a red wall can be seen. The wall was justified by the company as a means to limit excess noise and contamination, but it blocks access to land for the local people and their animals

Opposition groups have raised questions to the Parliament which as a result has created a «Special Investigative Commission» for Alto Maipo. The investigation showed a series of inconsistencies in the evaluation of sectoral agencies on environmental issues such as the protection of natural monuments, native forest, aggregates and water availability. Groups also filed a complaint to the National Institute of Human Rights (INDH), as well as to lenders of the project in the USA, among them the Inter-American Development Bank (IDB) and the World Bank (WB).

*“My father spends a lot of money on forage and to have the animals enclosed, because there is no more meadow to graze... Alto Maipo destroyed all the native vegetation that we had here”*

*“It is sad to see how we are all locked up.”*

*“We who were born and raised here cannot even have a piece of land”*

**Anonymous quotes from local people**

#### Lessons learned

By applying a “divide and conquer” tactic to get the project approved, the company in charge of the Alto Maipo project destroyed important social ties within communities. In the future, it is important that the benefits of projects are shared in a fair and balanced way, guaranteeing a binding citizen participation in the assessment of local environmental projects. In addition, climate change impacts should better be reflected in Environmental Impact Assessments.

#### Case Study 4 - Xacbal Hydroelectric Project, Guatemala

*Name of Author of this case study: Anne Bordatto, International Platform Against Impunity*

- Name of project: Xacbal Hydroelectric Project
- CDM project number: 1834
- CDM registration year: 2008
- Host country: Guatemala
- Project developer: Hidro Xacbal S.A. (a subsidiary of Terra Group, Honduras), Corporación Andina de Fomento (acting as administrator of the CAF-Netherlands CDM Facility for the Government of the Netherlands)
- Financial backers: Royal Bank Trinidad & Tobago Merchant Bank (US\$25 millions), GTC Bank of Panamá (US\$15 millions), InterAmerican Development Bank (US\$90 millions), Netherlands Development Finance Company (US\$30 millions), G&T Continental bank and German Development bank (no information found on amount contributed)
- Offset credits issued: 1 323 000 CERs as of 1 September 2018 (source:UNEP DTU CDM Pipeline)

#### Summary of the project

The Xacbal project is the biggest private hydroelectric plant (94 MW) in Guatemala. It was implemented by a Honduran company in the La Perla property, which local communities claim to own. It aims to optimize the use of local hydraulic resources, reducing CO<sub>2</sub> emissions caused by fossil fuel combustion, improving forest coverage in the river basin and lessening soil degradation through activities established in the Xacbal River Basin Management Plan. It includes the development of maps, support to the local Municipal Forestry Office, and meetings with interested groups in order to present technical and administrative management information. It also aimed to support local initiatives through a Cooperation Agreement between HidroXacbal, S.A. and the Municipality of Chajul, including improvement to local infrastructure (bridges and roads), and primary distribution grids for electrification.

The project has run into multiple problems and severely affected communities. It has damaged natural resources such as water and forests, blocked access to sacred sites, and created social tensions among local communities.

#### Key information about the harms associated with this project

The implementation of the project broke the fragile social peace of the Mayan-Ixil inhabitants of communities from Chajul and Nebaj in the surroundings of the project. It has also generated deforestation, impairment of water and river resources, and landslides.

Access to the archaeological and ceremonial site Panchita, the Ixil population's oldest site, has been restricted as the site was included in Xacbal's property. This restriction has also affected access to water which was used for coffee washing, baptisms and fishing.

Physical damages have also occurred, with the tragic death of two young people from Santa Cecilia la Pimienta who were dragged by the water released from the machines. The lack of information regarding the plant's operation is partly to blame for this, as it is difficult to know when it operates at full capacity or not.

#### Stakeholder consultation

Since 2007, communities affected by the project have been complaining about the project and the lack of information made available by the company. Communities have asked for the implementation of a roundtable to establish a dialogue between them and the company, under government supervision. However, construction continued during the roundtables and the company left the roundtable as soon as the plant started operations. This eroded trust from local communities.

#### Other regional developments

The Terra Group constructed a second hydroelectric plant (Delta Xacbal) upstream of the Xacbal river (the outflow of the Delta Xacbal plant is at the Xacbal plant intake). This construction generated social problems, including the death of two people in a road accident involving a truck, and the violent eviction of a communitarian blockade demanding payment for the land purchased.

There are currently six different hydroelectric projects in development in the Xacbal river basin (two of them, La Vega and La Vega II, have been demanded for the lack of Indigenous People's free, prior and informed consultation and the State is currently carrying them in).

#### Environmental and social impacts

Local impacts on the environment include decrease in the river flow, destruction of ecosystems, and loss of aquatic biodiversity. Consequently, several are the adverse effects on the affected communities such as limited access to the river as well as severe reduction in fishing, recreation activities, coffee washing, and water usage.

Furthermore, hydroelectric plants and electricity transportation have caused deforestation, landslides, and soil erosion, impacting negatively the whole landscape.

#### Communication with the project developer / Designated National Authority

Due to a lack of information from the Government and the project developers, ancestral and community authorities have risen their voice not only for gaining more knowledge on the Xacbal hydroelectric project, but also for obtaining a compensation for the caused damage.

However, the affected communities did not achieve any commitment. Rather, the Hidro Xacbal S.A. carried on in corrupting representatives of the communities, the municipality, and the central Government for continuing with the construction site.



Picture: View of the Xacbal project during construction  
(Credits: Memoria Historica)

*“They are going from a house to another in order to convince, ask [to sell] and even if we do not want to sell, we are sometimes compelled to do so because there are no alternatives to make money. Some people have denounced others for selling their land and this has created conflicts.”*

*“They say they made studies and asked people but these surveys were private, not a public consultation.”*

#### Interview with a focal group of Viucalvitz COCODE

#### Lessons learned

The case of the Xacbal hydroelectric plant shows the importance of engaging with local communities on the identification and respect of land rights and ownership. Contested property titles have led to serious conflicts and the lack of dialogue has only reinforced these tensions.

Local consultations and empowerment of communities are crucial to avoid conflicts and a prerequisite to the start of any construction.

### Looking ahead towards a better mechanism

In the years up to 2020, particularly at COP24 and COP25, countries will have the opportunity to adopt measures which would prevent projects such as those presented in this publication to be accredited under an international market mechanism. For this, improved rules and new safeguards must be adopted as part of the rules agreed under Article 6 of the Paris Agreement.

To ensure that the new carbon markets truly reduce emissions, they should move away from offsetting and towards results based climate finance, i.e. financing emissions reductions projects without claiming the resulting credits towards the buyer's targets. Rules to ensure additionality, avoid double counting, and achieve overall mitigation will also need to be carefully designed (CMW, 2018).

To prevent that mitigation projects harm local people and the environment, new safeguards must be set up. First, clear rules on how to conduct local stakeholder consultations should be agreed. They should ensure that local people, as well as indigenous communities, are empowered to contribute to the design and implementation of projects. At least, they should ensure that such peoples are invited to submit their views in ways which are appropriate to the local circumstances, and that these views are reflected in the agreed project (CMW, 26 April 2018). Second, the new UN market should include a grievance mechanism, to allow affected stakeholders to seek recourse against a project if it has had adverse impacts on them or the environment. This mechanism should be inclusive, transparent, and governed by an independent body.

These measures would help promote projects with positive impacts on people, climate, and the environment. Market mechanisms have the potential to spur investments in truly beneficial projects, and a set of improved rules for the next generation of markets would help achieve this. Under the CDM, some projects have been truly beneficial, showing that there isn't anything inherent to markets which would prevent projects from having positive impacts. What is needed are rules which help increase the number of such projects, and social and Human Rights safeguards such as the two mentioned above are a crucial part of this.

#### A positive example for future schemes

Author of this case study: Ram Esteves, Project Director, ADATS

One positive example of a CDM project is the Bagepalli CDM Biogas Programme (India), which not only represents a success in tackling climate change challenges while promoting sustainable development, but also allowed the empowerment of Indian women, who nowadays can “cook like the rich city women!”.

Name of the project: Bagepalli CDM Biogas Programme

CDM project number: 0121

CDM registration year: 2005

Host Country: India

Project developer: Agricultural Development & Training Society (ADATS), Bagepalli 561207



Carbon investor: Velcan Energy (France)

The Bagepalli CDM Biogas Programme aims to build 5,500 domestic biogas units in 1,252 villages of Chickbalapur District (India), replacing non-renewable biomass and generating 19,553 Gold Standard CERs every year for 21 years (since 2006).



This project has improved local people's lives in two ways. First, it has had a positive health impact by significantly improving indoor air quality. With the introduction of biogas digesters to replace biomass cookstoves, the 5,500 women involved in the project have started to cook in a cleaner environment. Furthermore, they spend less time collecting firewood which allows them to spend more time on other activities.

The great environmental benefit of the project, through the reduction of greenhouse gas emissions, is coupled with a concrete step towards women empowerment. In fact, thanks to this project, local women have started to consider themselves as business women with one main task: providing a vital, environmental service to society.

“Now I cook without burning my eyes and lungs in less than half the time it used to take before. I can now concentrate on generating income for the house. I don't need to rush to forest to get wood. I get time to spend with my family.” - Hansi Devi

Looking ahead at future schemes, initial research on the risk of discontinuing needed support to useful projects, and that of failing to supply a sufficient number of credits post-2020 to meet demand, has shown that both of these risks would only materialize to a limited extent. Recent research (DEHSt, May 2017) investigated the vulnerability of projects to discontinuation, i.e. the risk of a project ending its emission reduction activities due to a lack of support, and concluded that this risk varies greatly depending on the project type. For example, renewable energy projects have a low vulnerability, because of their ability to sell electricity which generates revenues, while cook stove projects in India and Kenya are at high risk of discontinuation due to the absence of financial support other than the CDM.

This debate prompted another study, enquiring into the potential supply from CDM credits for post-2020 markets. It found that CDM credits could potentially flood future markets as potential supply exceeds demand (DEHSt, January 2018). From a potential supply of 4.7bn CERs over the period 2013-2020, the study estimates that 3.8bn could be supplied at a price below 1€. In the absence of any restriction, this means that existing projects under the CDM could supply more than the total estimated demand for CORSIA, the aviation sector's new offsetting scheme which has an estimated demand of 1.6-3.7bn credits between 2021 and 2035 (Healy, 2017).

## Conclusion

This publication highlights the lessons learned with the CDM, both from literature sources, as well as from experiences on the ground. This is useful basis for designing the Sustainable Development Mechanism, and ensure that the next generation of trading mechanisms do not repeat the mistakes of the CDM.

Research on the CDM has shown that it has fallen short of its objectives. A large amount of credits lack environmental integrity and, combined to the perverse incentive and carbon leakage issues, this has led to an increase in overall emissions compared to a situation where emissions reductions would have been met through domestic action. In addition, the accumulated surplus of cheap, low-quality credits represents a real and significant threat for the future of the next generation of carbon markets.

Moreover, the case studies in this publication demonstrate that the CDM has had severe negative impacts on local people and the environment, through the implementation of low-quality projects by careless developers. These cases also highlight how

these impacts were exacerbated by the absence of safeguards and grievance channels in the CDM.

Countries have it in their hands to set up the next generation of markets in a way which truly benefits people, climate, and the environment. This will require:

- A shift away from offsetting (i.e. relying on others to clean up your pollution) towards financing emissions reductions in less-wealthy countries;
- Robust social and human rights safeguards, including clear rules on how to conduct local stakeholder consultations, and the set up of a grievance mechanism governed by an independent body;
- Improved environmental integrity rules to ensure that emissions reductions are real, additional, permanent, and verifiable;
- Detailed accounting rules to avoid double counting of emissions reductions;
- No use of the large surplus of non-additional CDM credits for post-2020 climate targets.

### Looking for more information?

Below are some useful resources to start further research on each of the case studies.

#### Afforestation in Kachung Central Forest Reserve

*Lyons K., Westoby P., (2014) "Carbon colonialism and the new land grab: plantation forestry in Uganda and its livelihood impacts", Journal of rural studies, 36, p.13-21*

[See here](#)

In this study, the authors argue that the privatisation of public land for carbon sequestration in the Kachung central forest reserve has led to a significant harm for local people, which tends to be neglected as a mere negative externality for the greater environmental good.

*Hajdu R., Fischer K., (2016) "Questioning the use of "degradation" in climate mitigation: A case study of a forest carbon CDM project in Uganda", Land-use Policy, 59, p.412-422*

[See here](#)

In this study, the authors contest Green Resources' initial justification of the project which they argue over-emphasizes the impact of local activities on "land degradation". Through analysis of satellite data, the authors provide elements to disprove GR's claims according to which significant degradation of land had occurred in their project area, which was used as a major reason for implementing their project.

*The Oakland Institute, (2014) "The darker side of green"*

[See here](#)

This is an extensive version of the case study reported in this booklet, with a more detailed review of field research carried out in 2012 and 2013 in and around the Kachung Central Forest Reserve.

#### The Okhla Waste Incineration plant

*Ferris D., (2013): "Out of India's trash heaps, A controversy on incineration"*

[See here](#)

This article provides further information on the Okhla plant and its impact on local people and the environment, including on Delhi's informal recycling workers and how they have been affected by the plant.

*Swapan Kumar P., Demaria F., (2018): "Okhla waste to energy plant, Delhi, India"*

[See here](#)

This interactive article provides an accurate location-image of the Okhla incinerator, highlighting at the same time how local protests and contestations arised in these last few months for protecting environmental integrity and human health. Two fundamental rights that incineration projects cannot guarantee.

*Nandi J., (2015): "Delhi's waste-to-energy plants toxic, costly, inefficient"*

[See here](#)

This article summarizes key arguments against the use of waste-to-energy plants



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