NOTES TECHNIQUES
TECHNICAL REPORTS

SEPTEMBER 2016
No. 20

The effectiveness of an environmental credit line in Egypt: Synergies between market incentive and binding regulations

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Countries Multi

Keywords biodiversity, environment, development

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SUMMARY

This chapter is based on research funded by AFD in 2012-2013 (Krichewsky and Leménager, 2015).

ORIGINAL LANGUAGE

Français

ISSN

2492-2838

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CONTENTS

Green finance: a new Eldorado for environmental aid?

Among the many embodiments of the global sustainable development project, “green finance” is gaining ground and profile. Designed to both avoid investments with a negative environmental impact and make investments with positive environmental outcomes, green finance draws on a multifarious constellation of institutions, mechanisms, actors and practices all working towards a common general goal: to put the financial sector to work for objectives such as pollution abatement, preservation of biodiversity and natural resources, and greenhouse gas emissions reduction (Köhn, 2012). Green finance stands out for the indirect nature of the targeted contributions. It is designed to take action upstream of what is known as the “real” economy by redirecting financial flows to environmentally friendly activities (Helleiner, 2011)

As environmental issues in Southern countries are rising up the donors' strategic agendas and gaining in importance in their project portfolios (Rist, 2012; Hicks *et al.,* 2008; Jacquet and Loup, 2009; Buntaine and Parks, 2013; Ohara, 2005), donors are proving to be particularly sensitive to the promises of green finance, especially with regard to the potential role of the banking sector. Indeed, many benchmark studies present the commercial banks as an effective driving force for sustainable development (International Finance Corporation, 2007; Bouma *et al.,* 2001; Köhn, 2012; Scholtens, 2006; Kiernan, 2009; Green Growth Action Alliance, 2013; UNEP, 2011). Besides factoring environmental parameters into their risk management mechanisms and developing “socially responsible” financial products with integrated environmental selection criteria, banks can offer loans that match the specific requirements of investment projects that aim to generate positive environmental outcomes. Yet although green finance is seen as both ecologically promising and a source of profitable business opportunities for the banks (International Finance Corporation, 2007), many obstacles are impeding its development: “Most banks are in the early stages of integrating environmental factors into their internal procedures, offering only a few financial products in this field, because they believe other opportunities earn higher returns. Environmental finance faces a three-dimensional gap between needs and supply: instruments, funds and conditions. These, and the insufficient knowledge, lack of institutional capacity, and opportunity and startup costs, constitute the challenges for financial institutions entering the field of environmental finance". (Lindlein, 2012, p. 1).

These obstacles are particularly apparent in the banking sectors in Southern countries, to the extent that the involvement of commercial banks in “green finance” remains largely concentrated in the Organisation for Economic Co-operation and Development (OECD) countries (see Köhn, 2012; Park and Kowal, 2012). For donors, driven by the constant quest for new intervention areas, this combination of promising opportunities for sustainable development and obstacles in the way of these opportunities opens up a new horizon for the design and implementation of green finance promotion projects in Southern countries. Against this backdrop, environmental credit line (ECL) projects have become increasingly fashionable since the early 2000s. These projects consist of donors transferring technical and financial resources (in the form of loans and grants) to Southern banks in order to build their capacities to fund environmental investments. The World Bank, for example, launched ECLs in a number of countries (Egypt, India, Central and Eastern European Countries, etc.) in the late 1990s to help banks finance industrial pollution abatement investments. Similarly, the German development bank KfW has used ECLs in a number of regions (Latin America, Asia, Maghreb, and Central and Eastern Europe) to provide funding in the form of banking intermediation for corporate investments. AFD’s use of ECLs has grown since the mid-2000s as part of a strategy that promotes partnerships with private sector players and that follows France’s environmental protection commitments. In 2009, AFD earmarked over €900 million for ECLs, approximately 14.5% of its financial commitments.

What conditions the environmental potential and the level of effectiveness of this type of aid project based on green finance? The available literature provides few answers. Empirical studies on the effectiveness of green finance-based environmental aid are few and far between. It is not easy to draw conclusions about ECLs from studies, for example, on the Equator Principles (Wright, 2012), the inclusion of environmental parameters in banks' risk management systems (Campbell and Slack, 2011; Thompson and Cowton, 2004) or banks’ corporate social responsibility (CSR) policies (Gendron, 2007; Weber *et al.,* 2012). More quantitative studies on the effectiveness of environmental aid also provide few insights into ECLs, as they focus on aggregated target achievement rates, without examining project-level features underlying the aggregated outcomes (Buntaine and Parks, 2013; Hicks *et al.,* 2008).

The findings presented here seek to help fill this gap. The analysis is based on an empirical study of the Egyptian Pollution Abatement Project II (EPAP II), an ECL conducted by a consortium of donors from 2006 to 2013 to promote industrial pollution abatement in Cairo and Alexandria.[1] This study focuses on the concrete dynamics and processes involved in the implementation of the ECL. Rather than focusing on formal structures and measurable outcomes, the qualitative sociological approach adopted here sets out to analyse the project-level drivers and mechanisms that condition the greater or lesser environmental effectiveness of this environmental credit line. The findings of this study of EPAP II provide useful hypotheses that could guide future research in a comparative perspective.

The chapter starts with a presentation of the conditions surrounding the setting up of the EPAP II project. It then describes how the ECL was implemented, before analysing the drivers and mechanisms underlying the project's environmental achievements. This concrete, detailed study of an ECL transcends the often ideological controversies surrounding such “market- based” tools. It shows the key role of non-market actors and institutions in the success of EPAP II, and the importance of closely coordinating binding environmental regulations and market-based financial incentive mechanisms. Lastly, the study highlights the difficulty of maintaining such virtuous coordination between regulation and green finance beyond the limited time frame of environmental aid projects.

[1] The study draws on 42 semi-structured interviews of players involved more or less directly in the EPAP II project. The sample comprises nine interviews of staff at AFD head office, six interviews of staff working for different donors in agencies in Cairo (one World Bank, two AFD, two JICA and one KfW), six interviews of EPAP II project management unit agents in Cairo and Alexandria, two interviews of staff from other Egyptian Environmental Affairs Agency departments, four interviews of staff from participating banks (two National Bank of Egypt, one National Société Générale Bank and one Commercial International Bank), ten interviews of project recipient firm staff (Egyptian Starch & Glucose, Amreyah Cement, Suez Cement, Abu Qir Fertilizers, Crush and a cluster of 180 brickmaking plants in Arab Abu Saed), and five interviews of more outlying players (one Federation of Egyptian Industries, one Arab Media Forum for Environment and Development, and one Friends of the Environment Association). Documentary sources (reports, in-house memoranda, Internet content, press articles, etc.) and in-situ observations were added to these interviews.

Setting up an environmental credit line in response to Egyptian industrial pollution

I. THE OBJECTIVES OF THE ENVIRONMENTAL CREDIT LINE

The EPAP II credit line follows on from a first environmental aid project launched by the World Bank and the European Investment Bank (EIB) in 1999 in response to industrial pollution problems in the Nile Delta. The donors' choice to use an ECL is partly due to key characteristics of the targeted problem. Egypt's industrial equipment and technologies much of which are a legacy of the proactive industrialisation policies conducted during the Nasser era (1952-1979), have suffered from a lack of investment for decades. In addition to the outdated and poorly maintained state of the machinery, the industrial sector is dominated by polluting industries such as textiles, oil and petrochemicals (Cottenet-Djoufelkit, 2011). The Egyptian population's high concentration in the Nile Delta, especially in the conurbations of Cairo and Alexandria (which account for more than one-third of the population and 80% of the country's industry (Denis, 2011), exacerbates the socioeconomic costs of industrial pollution. These costs were estimated by the World Bank at 4.8% of Egyptian GDP in 1999 (World Bank, 2002 and 2005). In this setting, the introduction of an environmental law in 1994 with associated pollution standards fell short of the mark. Companies were now legally obliged to reduce their pollution levels, but most companies could not afford the massive investments required to become compliant. The World Bank and the EIB saw an opportunity to set up an ECL to help Egyptian banks provide cheap loans to public and private firms to invest in pollution abatement.

Yet the launch of EPAP in 1999 was also part of a dynamic specific to the donors, especially the World Bank. The Bank's leading position among the bilateral and multilateral donors and its economic reach and global political influence are due largely to its capacity to define the tenets of the mainstream development doctrine, including in the area of environmental governance

(Goldman, 2005). This means that its projects sometimes serve an in-house "laboratory" purpose to test new intervention tools and, in the best-case scenario, operate as a "showcase" demonstrating these new tools' effectiveness. Basically, as explained by a member of the Egyptian EPAP project management unit, "for the World Bank, their objective with EPAP is to test market-based instruments for pollution abatement. They want to get the banks to finance pollution abatement, and they want companies to borrow money to invest in pollution abatement. This is testing the market-based instrument, and also incentives, as there is the 20% bonus for companies that achieve the environmental targets."

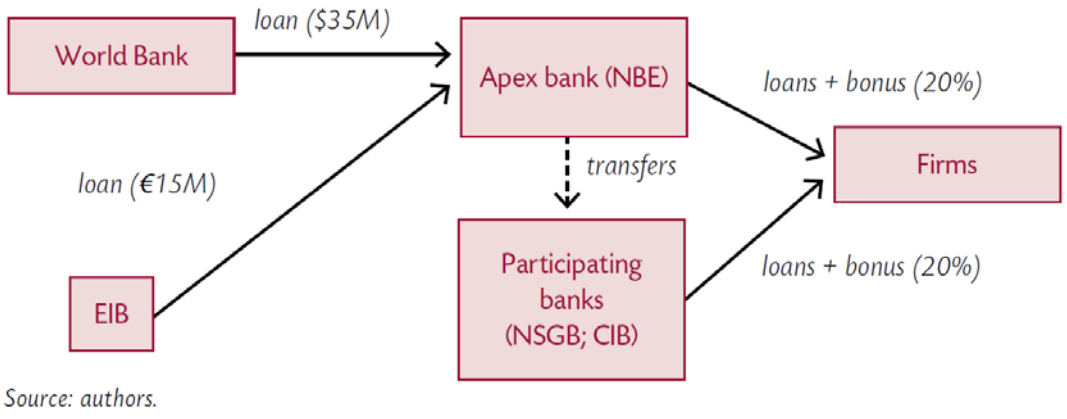
II. THE PURSUIT OF A SUCCESSFUL PILOT PROJECT

The first EPAP credit line in 1999 was designed as a pilot project. It comprised a USD 35 million loan from the World Bank, a €15 million loan from the EIB and a €4.5 million grant from the Finnish International Development Agency (FINNIDA) to finance technical assistance for the project's implementation. Granted at lower interest rates and with longer repayment schedules than market conditions, these loans were made available to an apex intermediary bank, the National Bank of Egypt (NBE), for it to issue loans to companies seeking to invest in pollution abatement. Companies were encouraged to apply for these loans with the promise of a free environmental audit of their facilities and the waiver of 20% of the loan in the form of a "bonus" in the event of a successful investment. Eligible projects had to meet predefined environmental requirements[2] and be located in the geographic areas targeted by the project in Greater Cairo and Alexandria. Two private banks, the National Société Générale Bank (NSGB) and the Commercial International Bank (CIB),

[2] EPAP-funded loans had to generate at least a 50% reduction in the targeted pollution and the adoption of an environmental compliance plan, the terms of which were negotiated between the firm and the Egyptian environmental agencies.

contributed to the project with their own spin-offs on the same terms as the NBE (see Figure 1).

Figure 1 : EPAP I project financial set-up



Source: authors.

Alongside this financial system came a technical track run by a project management unit (PMU). This unit was part of the Egyptian Environmental Affairs Agency (EEAA), the environment ministry's executive arm. It comprised mainly a director and a manager, a team of a dozen environmental experts in charge of monitoring the projects funded by the ECL, and a technical assistant specialised in environmental matters.

The PMU's main brief was to *(i)* work, with the NBE, on promoting the EPAP project to companies in the areas targeted by the project *(ii)* provide interested companies with technical assistance to develop projects eligible for EPAP financing (*iii)* help participating companies conduct the selected investment projects, and *(iv)* evaluate the environmental outcomes of the investments for the approval (or not) of payment of the 20% bonus by the bank. Some of the technical assistance resources were also assigned to EEAA for capacity building, especially with regard to monitoring systems and factory inspections.

The EPAP project was wound up in 2005, having co-financed 25 depollution projects in 21 companies. As the key actors involved (donors, NBE and

Egyptian authorities) graded EPAP a success, meetings were launched immediately in 2005 with the resulting decision to extend the work with a second project. This time, AFD and JICA joined the World Bank and the EIB, bringing the total EPAP II credit line up to USD 160 million (€142 million at 2006 rates). EPAP II was designed along the same lines as EPAP I, with the exception of a higher number of donors involved and a larger sum allocated. The project also included resources allocated for EEAA capacity building, such as support in the area of environmental impact assessment, the introduction of sector-specific inspection manuals, and an environmental monitoring system feeding into a database on industrial pollution in Egypt.

The implementation of EPAP II: green finance on the ground

As at March 2014, EPAP II was funding (or had funded) 35 investment projects initiated by 27 companies, including a group of 200 brick factories. The total investment sum was an estimated USD 320 million, including USD 175 million in EPAP II loans and the participating firms' contributions. These investments include a number of projects to reduce dust emissions by cement plants, convert factories from oil to natural gas and set up wastewater treatment plants. Others are more specific projects such as a solvent recovery plant and the renovation of and, in one case, contribution to the replacement of polluting production lines. How did the above described EPAP II ECL actually work upstream of and around these projects?

Three main axes structure the implementation of the ECL: *(i)* the stimulation of demand for loans by targeted companies, *(ii)* the execution of the pollution abatement projects and *(iii)* the overall management of the ECL.

I. Generating demand for loans by the targeted companies

Given that the main aim of ECLs is to encourage the financing of environmentally friendly investments, their capacity to stimulate the submission of eligible projects by eligible firms is a prerequisite for their success. Feeding the project "pipeline" (to borrow an expression from the professional jargon) is also a core concern for most of the participating actors. The donors' main concern is to disburse the ECL funds in line with a pre-defined schedule. The rate of disbursement and the use of all the funds before project closure are key indicators used by donors to evaluate their project performance. For EPAP II, achieving these targets called for an uninterrupted flow of projects in the ECL pipeline. For the PMU, insufficient loan applications would sign the death warrant of the credit line and rule out any possibility of continuing with the EPAP

series. Feeding the pipeline is therefore not only one of the PMU's core missions, but also a condition for its existence. As regards the three participating banks, financing applications submitted by companies is a source of commercial benefits, whether in terms of satisfying their customers' needs, adding new customers to their portfolio, or making profits from the loans and the associated banking fees.

At first glance, ECLs use advantageous financial loan conditions as their main incentive to attract applications from eligible projects. Yet a look at EPAP II turns up more complex mechanisms. In practice, eligible applications for EPAP II loans were the result of a considerable amount of teamwork by the project managers. This work included the publication of information for businesses in the press and holding seminars for firms in the areas targeted by the EPAP II project. At these meetings, PMU and NBE managers presented the way ECLs work and used selected success stories to showcase how participating companies could benefit from EPAP II loans. In addition, the NBE trained its sales representatives to promote the credit line to its customers. Moreover, the bank and the PMU shared information on an informal basis to hone the effectiveness of this marketing exercise by refining the identification of companies likely to be interested in the ECL.

Most importantly, the EPAP II pipeline was fuelled by tightening the environmental constraints on businesses. In 2009, the Egyptian authorities introduced stricter environmental standards at the World Bank's encouragement, and controls are on the increase as a result of the capacity building for the Egyptian Environmental Affairs Agency, to which the EPAP I and II projects have directly contributed. Prospects of fines and threats of facility closure for non-compliance helped create the problem that the credit line was offering to solve in the form of attractive financial and technical resources. This interplay of constraints and incentives was also found when environmental inspectors from the EEAA directly advised non-compliant companies to consider an EPAP II loan to bring their facilities up to standard. Participating banks also fed the project pipeline by convincing polluting clients that applying for an EPAP II loan would lift environmental fines, provide access to free,

technical support and give them a 20% bonus for investments that would have to be made sooner or later anyway. The ECL hence prompted, sped up or scaled up, depending on the case, business decisions to invest in pollution abatement.

This configuration generated a large number of eligible applications for the credit line totalling some USD 250 million in 2013, which is more than the credit line could fund. The system's effectiveness can be seen in the way the actors involved were able to rebuild the project pipeline following the sudden withdrawal of over half of the applicant projects in 2008-2009 in the midst of a world economic and financial crisis. The fact that the Egyptian revolution had no significant impact on the EPAP II pipeline provides yet another example of its resilience: although the closure of the participating banks for a few weeks in 2011 caused minor delays, the number of projects in the pipeline continued to grow in the wake of the Arab Spring despite Egypt's difficult economic and socio-political context.

II. Implementing the selected investment projects

Once the investment project applications had been selected by the banks and the PMU in keeping with a formal priority ranking system,[3] they followed a standard course of implementation.

The design and implementation of the pollution abatement projects funded by EPAP II reveal the PMU's pivotal role. The PMU's environmental experts, supported by a proficient, involved technical assistant, helped companies design projects with high environmental returns. PMU members also supervised progress during the implementation of the investment projects on the ground to

[3] Thirteen parameters are used to rank the projects by type of pollution targeted and planned reduction volumes, the investment's ratio of economic cost to environmental impacts, the productivity gains generated, the project's level of innovation and the time needed to implement the project.

the extent that some project managers in the companies described them as the equivalent of excellent consultants or even employees. This project implementation support extended to the sometimes difficult management of the companies' relations with other EPAP stakeholders. Such is the case, for example, with the World Bank, whose international competitive bidding procedures often proved problematic for businesses and considerably slowed down project implementation. It is also the case with the banks, which did not always appear to meet the firms' needs and caused hold-ups with the payment of suppliers. The assistance given by the PMU to companies to solve these problems helped change the relationship between these companies and the EEAA from mutual distrust to close collaboration. Environmental authorities were no longer seen as a source of expensive obligations to be sidestepped by means of fabricated data and symbolic environmental investments. With EPAP, they became a spur and a support for companies to make substantial environmental progress on affordable, if not beneficial terms.

III. Managing the implementation of the environmental credit line

ECL operation also calls for the entire system to be steered and managed mainly by the donors, the PMU and the apex bank, i.e. the NBE. Within this three-sided set-up, the donors' role as co-financers gave them prerogatives and a right of oversight over the entire project. The NBE and the PMU had to report to them. The donors, who have significant influence over the Egyptian environmental authorities, could call for adjustments to the system on the basis of these reports. The donors could also decide on the financing of projects that did not meet the pre-established eligibility criteria. In practice, however, the PMU's involvement and efficiency in the management of the ECL proved such that donors managed the project remotely and went along with the PMU's proposals to fund specific projects outside the formal scope of EPAP II.

The only significant problematic aspect in the management of the ECL was the pace of the gradual disbursement of the funds allocated to the intermediary banks by the donors. Disbursement arrangements were different from one donor to the next. The EIB and AFD disbursed their loans in tranches, with each tranche paid to the NBE once it had used 70% of the previous tranche. The World Bank and JICA disbursed their loans by reimbursing the intermediary banks whenever a company had drawn on its credit to pay a supplier. Each use of the credit line by a company was reflected in the different donors' loans pro rata to the initial contribution of each donor to the ECL. The pace of EPAP II disbursements, which the donors use as a key indicator of smooth project running, very quickly fall behind the initial forecasts under the combined effect of external contingencies and factors internal to the project.

Firstly, given that the sharp drop in business investments driven by the 2008-2009 economic and financial crisis drained the "pipeline" of a good many of the projects submitted, it took time to top the pipeline back up. This had a direct knock-on effect on the flow of projects implemented and therefore on disbursements. To a lesser extent, the 2011 Egyptian revolution also made for holdups. Another factor was the appreciation of the yen and euro against the dollar, which raised the dollar value of the funds to be disbursed by closure date for the donors' loans. These funds rose from their initial value of USD 160 million to nearly USD 200 million before falling back to approximately USD 180 million in 2013. Secondly, the time taken to galvanise applications and make investments appears to have been underestimated when EPAP II was conceived, given that the disbursements made by companies tend to be concentrated around the end of investment projects when the businesses pay their suppliers. The donors' own operating procedures also contributed to the slow disbursement of funds. The World Bank's – sometimes extreme – bidding procedure requirements, whereby it had, for instance, insisted that a company produce a barely traceable 15-year-old bidding document, and the time the World Bank took to study bidding procedures and give its approval have held up a number of investment projects and had a knock-on effect on loan disbursements. Moreover, the replenishment system used by the World Bank

and JICA to disburse their loan to the NBE put them at a disadvantage compared with the other two donors, who were able to pay their last tranches before the companies had used all the funds already available.

Under pressure from their hierarchy, which was keeping a particularly close eye on the pace of disbursement, EPAP II project managers working for the donors urged the NBE and the PMU to speed things up while seeking room for manoeuvre by, for example, auditing the NBE. Yet given that the NBE perceived itself as the only Egyptian bank able to manage ECLs such as EPAP II (making it indispensable in the event of the continuation of the EPAP series), the bank remained fairly impervious to this pressure. The PMU reacted by continuing to try to free up the flow of investment execution by helping companies lift the obstacles encountered and, where necessary, calling on the EEAA inspection department to put pressure on those companies deemed too slow.

Nevertheless, these moves had limited effects since the PMU had little influence over either the external contingencies or the operating procedures of the donors behind the holdups. For the donors, the option of selecting investment projects based on disbursement implications rather than predefined environmental criteria was not only too illegitimate to be explicitly considered, but also almost impossible because of the formalised project selection criteria. Moreover, the identification and selection process was controlled mainly by the PMU, a actor dedicated to environmental concerns. Hence the donors end up having to handle disbursement delays themselves. The World Bank, for example, agreed to raise the ceiling below which projects are exempt from international competitive bidding procedures from USD 5 to 8 million and provided an expert to help businesses that were struggling with these procedures. Donors' project coordinators also managed to negotiate an extension on the closure dates for EPAP II loans. Lastly, the donors agreed amongst themselves to disburse the most distressed donors' loans first, despite the initial rule of drawdown pro rata to their initial contributions.

Development assistance and green finance: analysis of the environmental potential of an ECL

With respect to the pollution abatement rates obtained to date, EPAP II has not just reached, but topped the initial goal of a 50% reduction in the pollution targeted. For example, by the end of the implementation of the past and ongoing investments in 2014, the participating companies were expected to have reduced their pollution by a total of approximately 90% for airborne dust and sulphur dioxide (SO_2) and, with respect to industrial wastewater, by approximately 95% for biochemical oxygen demand and 70% for chemical oxygen demand. What were the drivers and mechanisms underlying this environmental success? What are the system's limitations? And what lessons can be learnt from the case of EPAP II to improve our understanding of the relevance of ECLs as an instrument to promote and develop green finance?

I. A smart involvement of stakeholders orchestrated by an "environmental actor"

It goes without saying that an ECL requires the participation of the different actors to produce environmental results. Specifically, EPAP II managed to rally the relevant players in accordance with their strategic interests and their own operating logics. Such is the case with the banks, which saw the ECL as a strategic resource for their commercial development: EPAP II would create new business investment projects for which only participating banks could provide associated banking services. In addition to this captive market and the injection of new customers, EPAP II contributed, in the case of the NBE, to an international development strategy, doing business with donors to make for new skills and credibility on the international financial markets for example. Likewise, EPAP II used an efficient mechanism to enlist targeted firms: firstly, EPAP II played a role in making environmental non- compliance increasingly expensive

for companies and, secondly, the ECL offered participating businesses financial and technical resources designed to solve this new problem. Lastly, the system's flexibility (e.g. financing environmentally promising projects outside the initial scope of EPAP II) and the PMU's commitment to help companies carry out projects on time combined to solve the donors' disbursement problem that threatened the smooth running of the credit line.

The financial nature of the interests and strategies driving the behaviour of banks, businesses and donors could have, in some respects, thwarted the ECL's environmental aim. For example, participating banks explained that they could not consider hiring environmentalist experts to evaluate the environmental qualities of the investment projects funded. Without an external environmental evaluation of projects, the resulting lack of technical competencies could leave the door open for the banks' commercial interests to come into play and discriminate between investment projects based on their returns rather than their prospective environmental outcomes. Participating companies also calculated economic rather than environmental values for their proposed investment projects. As regards the donors, they were not plugged into the grassroots level and were subject to many constraints (political, financial and organisational) that could have led them to prefer investment projects that make for a satisfactory pace of disbursement.

In practice however, the fact that EPAP II was embedded in the Egyptian Environmental Affairs Agency through the Project Management Unit prevented these economic interests from steering the ECL off its environmental course. The PMU, made up mainly of environmentalists and managed by staff dedicated to the implementation of Egyptian environmental policies, in effect worked as both a central and relatively autonomous "environmental actor" (Mermet *et al.,* 2005) in the EPAP II set-up. This "environmentalist" position and related technical expertise combined with the system's formal properties (e.g. project selection system priortising environmental criteria) helped keep the credit line on a steady course to reduce industrial pollution. For example, although the PMU was trying to fluidify the implementation of the selected investment projects, it did not allow disbursement pace issues to steer its own

actions off course. Moreover, the PMU's accurate evaluations of the environmental value of investment projects made EPAP II's environmental performances visible, thereby helping donor project coordinators defend the project's legitimacy despite disbursement problems.

II. Close coordination between regulatory constraints and market incentives

The interlink between EPAP II and Egyptian environmental public policies is the second mechanism underlying the project's environmental success. This interconnection comes from the fact that donors' environmental aid has evolved in tandem with the development of environmental policies in Egypt, marked by the creation of the EEAA in 1982 (Sowers, 2013; Gomaa, 1997). Work conducted jointly by the Egyptian authorities and United Nations Environment Programme (UNEP) and World Bank experts culminated in the drafting of a first National Environmental Action Plan in 1992 designed to create an institutional framework conducive to donor intervention in this area. Bilateral and multilateral donors also worked on the terms of the 4/1994 Environment Law and the different subsequent amendments and regulatory texts. To put it plainly, in Egypt, the development of public environmental regulations has served as much the expansion of environmental aid as the aid has served the expansion of the public regulatory framework (see also Hopkins, 2011).

The EPAP I and II projects have taken this dynamic forward and are driven by it. The EPAP I credit line was put in place in 1999 at the end of a moratorium that the Egyptian authorities granted companies to comply with the regulations introduced by the 4/1994 Law. EPAP II took up this aim to provide technical and financial support for the enforcement of Egyptian environmental regulations. The EPAP projects also made a direct contribution to building the capacities of the environmental regulator. In return, they benefited from the presence of a stronger regulator as the use of penalties imposed on industries by the EEAA inspection department played a key role in the building of the ECL project

pipeline. Whereas the World Bank presents the EPAP credit lines as a showcase of the environmental effectiveness of “market tools”, the interlink between these ECLs and the binding environmental public policies suggests that there is more to it than that. Rather than a straightforward “market tool” to promote the expansion of green finance, EPAP II is a successful specimen of “smart regulation” mechanisms combining a range of instruments (information, incentive, constraint, etc.) and associating an array of public and private players to achieve environmental policy goals in concrete situations (Gunningham, 2009).

III. The credit line makes small contributions to the development of green finance

The dominant role that public policies and the environmental authorities play in the EPAP II project raises the question as to where the development of “green finance” stands in the ECL. Although the use of banking intermediaries in project implementation is obvious, to what extent does EPAP II foster the emergence of a “green” financial market that will encourage industrial pollution abatement investments beyond the project’s given timeline? New economic sociology posits that markets can be considered as concrete, institutionalized social arenas in which buyers and sellers in competition observe each other and vie for the benefits of scarce trade opportunities (François, 2008; Steiner, 2005; Beckert, 2009). In this perspective, the emergence of a market calls for a number of conditions, including sufficient participants for competitive relations, a relatively stable institutional envi- ronment in which probabilistic calculations can be made about the future, as well as “judgement and trust devices” (Karpik, 2007) which enable participants to agree on the nature and qualities of the good or service traded, to evaluate the probable utility of this good or service, and to set a monetary value for the good or service that is acceptable to the two parties.

The EPAP II project contributes to the gradual development of such conditions in a number of respects. By broadcasting information such as success stories in industrial settings and creating learning dynamics in banks, EPAP II raises the relevant players' awareness of the potential gains of financing and making investments in pollution abatement. On an institutional level, EPAP II contributes, along with other environmental aid projects, to the development of an environmental regulatory framework. This framework helps businesses make cost-benefit calculations to guide an investment strategy for pollution abatement. Institutional stabilization is also necessary for banks, which can anticipate probable growth in demand for loans to finance pollution abatement investments. To a lesser extent, EPAP II contributes to the development of judgement devices with the introduction of an environmental policy at the NBE, which defines a list of principles that sales representatives should use to evaluate the environmental risks entailed in loan applications. Although this policy currently has few effects, it paves the way for new, more sophisticated tools able to identify new commercial opportunities by incorporating environmental parameters into risk management.

Nevertheless, given that the ECL is highly dependent on the financial and technical resources provided by the donors as part of environmental aid, the good environmental performances of the EPAP II project provide little indication of the environmental potential of non-aided green financial markets. Financially speaking, the 20% bonus is a powerful incentive for companies to conduct pollution abatement projects. Yet without the donors' help, the banks would not be able to offer such a benefit. In an environment where foreign currency is scarce and therefore expensive, the banks need the donors' foreign currency loans to help companies finance at reasonable cost the new, cleaner technologies offered by foreign suppliers. In addition to this, the ECL's environmental outcomes are highly dependent on technical assistance, which is itself dependent on the EPAP II project. In conjunction with the inspection department, the PMU is one of the main recruiters of businesses to fuel the project pipeline. The PMU and the consultants funded by EPAP II also provide valuable technical expertise for the design and implementation of the

investment projects. These dependencies therefore point to the fact that the EPAP II project does not make enough of a contribution to building the conditions for the emergence of an industrial pollution abatement financing market that would generate similar environmental performances.

It would therefore be judicious to consider concrete ways of ramping up the environmental impacts of the ECL beyond the projects' limited timeframes. Given the exploratory nature of the EPAP II study, it is hard to make operational proposals that can be extended to other ECLs, as their properties and deployment conditions may well differ from the Egyptian case. Nevertheless, two avenues might be worth pursuing. Firstly, an approach that treats the ECL projects as opportunities to build sustainable structures and dynamics could be incorporated into the project design as an explicit objective and be allocated dedicated organizational, technical and financial resources. In the case of EPAP II, for example, collaborative structures could be set up between environmental authorities and banks to take over from the PMU once the EPAP series comes to an end. Secondly, more ECL resources could be earmarked to develop the environmental authorities' regulatory capacities so that the tightening of constraints can to some extent offset the post-project loss of financial incentives. Such an offset would be limited by the asymmetry between positive incentives and coercive sanctions, since positive incentives transfer useful resources to businesses while coercive sanctions alone are likely to be challenged by powerful interest groups and political forces. However, regulatory sanctions have the advantage of applying to all industrial firms without being restricted to a "pilot" zone and without the risk of discouraging businesses from investing in industrial pollution abatement when they cannot gain access to incentive resources.

Conclusion

Steering the financial sector towards funding green activities is one of the major tracks of the global sustainable development project. As environmental aid grows, bilateral and multilateral donors are looking to contribute to this track with intervention tools such as environmental credit lines. These tools, developed and used by particularly influential players such as the World Bank, appear at first sight to favour incentives over constraints and involve players operating commercially in a mechanism designed to align economic development with environmental protection. How does this “market” tool actually work in concrete terms and what are the drivers and mechanisms conditioning its environmental performance? The exploratory study of the EPAP II case makes a series of analyses and proposals that could usefully inform both academic debate and the action of the practitioners at a time when few studies focus on ECLs in the literature.

Although EPAP II’s environmental outcomes make it a successful project, this success is not due simply to the financial set-up of incentive loans as suggested by the standard ECL model. Over and above the role of the financial incentives offered, EPAP II’s effectiveness derives from the pivotal role of its management unit embedded in the Egyptian environmental authorities to keep the ECL on track environmentally. EPAP II’s effectiveness is also the result of interlinking the ECL with the Egyptian public environmental policies, which are mutually reinforcing and whose objectives overlap in many ways. The EPAP II credit line is therefore more like a complex “smart regulation” system than a “market tool”.

The analysis opens the way for comparative research on other ECL cases and other market-related environmental aid instruments. These studies would establish whether the interlink between financial mechanism and regulatory constraints is an EPAP II particularity or a characteristic shared by other ECLs due, for example, to the widespread involvement of donors in the Southern countries’ environmental policies. These studies would also help establish whether ECLs and other marketbased instruments that lack this characteristic

have other mechanisms to ensure environmental effectiveness or whether they struggle as a result to achieve their environmental objectives.

The EPAP II case study also points to there being more to the role of ECLs in the development of an autonomous green banking market as a sustainable development vehicle. EPAP II may well make some contributions to the emergence of such a market by means of cognitive and organisational learning effects in banks and Egyptian industrial set-ups, support for the development of an enabling institutional framework, and the introduction of “judgement devices" needed to build economic values applicable to investments bearing environmental value. Yet EPAP II’s environmental performances remain highly dependent on the financial and technical resources that donors provide the project, such that its success cannot be considered to be the demonstration of the effectiveness of an up-and-coming green finance market.

This analysis ties in with Billé (2009), who points up the intrinsic limitations of an environmental strategy based on “pilot” projects with virtues that are hard to replicate and scale up. Despite sometimes visible and palpable one-off outcomes, the pilot experiments with their more or less innovative and appealing formulas struggle to steer socioeconomic development models towards ecological sustainability on a larger scale. EPAP II’s capacities to engender effective synergies between economic development and environmental improvements at project level raise the question as to how to maintain and, if possible, power up these synergies beyond the project’s limited timeframe.

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Design and layout: Elsa MURAT, AFD