
Original Article

Financing the Clean Development Mechanism through Debt-for-Efficiency Swaps? Case Study Evidence from a Uruguayan Wind Farm Project

Danny Cassimon^{a,*}, Martin Prowse^b and Dennis Essers^a

^aInstitute of Development Policy and Management (IOB), University of Antwerp, Antwerp, Belgium.
E-mails: danny.cassimon@uantwerpen.be; dennis.essers@uantwerpen.be

^bDepartment of Geosciences and Natural Resource Management, University of Copenhagen, Copenhagen, Denmark.
E-mail: martin.prowse@geo.ku.dk

Abstract As one of Kyoto's three flexibility mechanisms, the Clean Development Mechanism (CDM) allows the issuance of Certified Emission Reduction credits from offset projects in non-Annex I countries. As little attention has been paid to how CDM projects are financed, this article assesses whether offset schemes with public bodies should utilise debt swaps as a form of funding. Specifically, we examine whether a debt-for-efficiency swap between Uruguay and Spain within a wind power project increased project finance and generated greater development co-benefits. We assess the transaction using a simple evaluative framework: whether it delivered additional resources to the debtor country and/or government budget; whether it delivered more resources for climate change mitigation; whether it had a sizeable effect on overall debt burdens (creating 'indirect' benefits); and whether it aligned with government policy and systems (elements of the new aid approach). We find evidence that cautions against using the Spanish-Uruguayan case as a model for future debt-for-efficiency swaps.

Parmi les trois mécanismes de flexibilité du Protocole de Kyoto, le Mécanisme de Développement Propre (MDP) permet la diffusion des crédits de carbone provenant des projets compensatoires dans des pays non-Annexe I. Manque de réflexion sur les modes de financement des projets MDP, cet article vise à évaluer l'utilisation, par des bailleurs de fonds officiels comme intervention d'aide publique au développement, des opérations de conversion de la dette officielle comme mode de financement utile. Plus particulièrement, nous examinons dans quel mesure une opération de conversion de dette au bénéfice des économies d'énergie entre l'Uruguay et l'Espagne dans le secteur d'énergie éolienne, incluse dans un projet MDP, a bénéficié au financement du projet et à la disponibilité des ressources additionnelles pour le pays débiteur et pour la mitigation climatique, a créé des avantages complémentaires sur le plan du développement, et s'inscrit dans la nouvelle approche « d'alignement » de l'aide au développement aux politiques et systèmes du pays récepteur. Nos résultats mettent en garde contre l'adoption du cas espagnol-uruguayen comme modèle exemplaire pour des opérations futures de conversion de dette au bénéfice des énergies propres dans le cadre MDP.

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Introduction

In addition to an implicit technology transfer mandate, the original aims of the Clean Development Mechanism (CDM) were threefold: to facilitate mitigation efforts in non-Annex I countries; to promote sustainable development; and to reduce abatement costs for Annex I parties (UNFCCC, 1997, p. 11). Put simply, through the CDM, project developers are able to sell offset credits to companies and governments in Annex I countries that are committed to reducing greenhouse gas emissions. To ensure integrity, offsets are certified by the Executive Board of the

CDM (and sometimes further accreditation schemes) (see World Bank, 2009a). The CDM has particularly encouraged investment in renewable energy and energy efficiency (UNFCCC, 2008).

The impact and process of the CDM has been criticised on a number of grounds (see Kolshus *et al*, 2001; Olsen, 2007; Schneider, 2007; Paulsson, 2009). The first criticism is the issue of supplementarity; in other words, how far countries can reduce emissions through the CDM without domestic reductions. Under the Kyoto Protocol, there is no cap on the use of the mechanism (domestic reductions should contribute a 'significant element' of national efforts). The second criticism is the types of projects supported. For example, most Certified Emission Reductions (CERs) have been issued for the reduction of industrial gases (for example, potent hydrofluorocarbons or nitrous oxides) due to very low abatement costs. Such projects have favoured countries (such as India and China) with industries that had high emissions. The third criticism, and a further reason for the skewed spatial distribution of projects, has been the complex eight-stage project cycle. The complexity of the process has acted as an entry barrier, particularly for Least Developed Countries (LDCs).

A fourth criticism focuses on the lack of convincing project baselines, defined as 'the scenario that reasonably represents the anthropogenic emissions by sources of greenhouse gases that would occur in the absence of the proposed project activity' (UNFCCC, 2002, p. 36). It is difficult to establish this hypothetical emission trend with precision. Importantly, as CERs offset emissions in Annex I countries, if baselines are inflated the CDM could *increase* total emissions (see Paulsson, 2009). A fifth issue concerns the extent to which projects are 'additional' to actors' business-as-usual investments (Paulsson, 2009). Projects prove 'additionality' to ensure that the CDM precipitates new innovative investments, not just pre-existing investments packaged as an offset scheme (see Schneider, 2007).

A sixth criticism focuses on the extent to which the CDM creates sustainable development co-benefits. Whether this has been realised is under considerable debate (see van der Gaast *et al*, 2009). For example, Schneider (2007) argues strongly that although the CDM has facilitated low-cost mitigation projects, it has not contributed to sustainable development. A project's contribution is assessed by the host government, which may support projects that generate only limited benefits (such as a modest amount of employment; see Schneider, 2007).¹ A seventh issue concerns a lack of project finance for CDM projects in LDCs. The lag between planning, construction and revenue stream necessitates equity finance, loans or grants (see UNEP, 2007). As investments in LDCs carry additional risk premiums (due to weak governance and fragmented capital markets), a financing gap has stymied LDC participation.²

This article focuses on these last two concerns. It does so by gauging the extent to which development co-benefits and access to project finance can be improved for (partly) publicly financed CDM projects by using debt-for-efficiency swaps (in other words, the exchange of outstanding foreign debt for a commitment by the debtor government to invest in clean energy projects). It does this through analysing a recent debt swap between Uruguay and Spain to finance a wind farm project in Uruguay. This is the only case we know of where this form of finance has been utilised within the CDM, and could be seen as a possible template for future transactions.

We assess the impact of the debt swap on sustainable development and the availability of project finance by using a simple five-part framework (see Cassimon *et al*, 2011a): first, whether it delivers additional resources to the debtor country and/or government budget; second, whether it delivers more resources for climate change mitigation; third, whether it has a sizeable effect on overall debt burdens (thereby creating 'indirect' benefits); and, fourth and fifth, whether it adheres to the principles of alignment with both government policy and systems (two key elements within the new aid paradigm). The first two parts of this framework assess the contribution of the swap to project funding. For example, it may be the case that the swap generates counterpart payments

that are higher (or lower) than what could be achieved using alternative financing modalities. The further three parts of the framework evaluate the contribution of the swap to sustainable development co-benefits above other forms of finance. In other words, reducing overall debt burdens and aligning the mitigation project with broader development policy initiatives and administrative systems should lead to indirect (and in many cases intangible) advantages (through reducing external obligations and transaction costs, respectively).

The structure of the article is as follows. The second section offers a concise history of debt-for-development swaps, discusses Spain's role as an important proponent of swaps and introduces the details of the Spanish–Uruguayan swap analysed here. The third section assesses the swap in terms of the simple framework outlined above. We find that the case under consideration performs unevenly across these five domains. The fourth section concludes with a discussion of how future debt swaps could be engineered to better support the development co-benefit aims of the CDM and to improve access to project finance, and a broader outlook on the swap instrument's potential to finance climate change mitigation.

To Swap or Not to Swap – Debt's the Question

A cursory History of Debt-for-Development Swaps³

Restructuring and relieving developing countries' debt has occurred since early post-war history (see Gamarra *et al*, 2009). In the beginning, debt restructuring was dominated by short-term consolidations of debt titles owed by developing countries to their official bilateral creditors. To ensure smooth renegotiations, in 1956 the Paris Club was created, an informal and voluntary grouping of bilateral creditor nations that continues to play a key role in today's decision making on debt relief issues (see Cosio-Pascal, 2008).

Debt crises in the 1970s and 1980s also led to the restructuring of commercial debt, sometimes through bank advisory committees (such as the so-called 'London Club'). Especially after 1982, the year of Mexico's default, the secondary market for discounted debt expanded rapidly (Buckley, 1997). The abundance of bad loans traded on such markets led in 1985 to the creation of debt-for-equity conversions, a practice whereby investors redeem external debt titles (bought at a discount) with the debtor country in exchange for local currency to be used for equity investment in national companies. The great attraction of debt-for-equity was that debtor countries reduce their debt burden, while foreign investors obtain stock holdings at advantageous exchange rates (Buckley, 2011, pp. 12–13). Debt-for-equity swaps experienced a boom in the late 1980s, a time when privatisation was widely seen as a solution for inefficient state-owned enterprises. In 1990, during the Brady Plan, the combined swap volume (including debt buybacks and other exchanges) peaked at \$27 billion (Kaiser and Lambert, 1996).⁴

Conservationists borrowed debt-for-equity principles to lobby for debt-for-nature exchanges from the mid-1980s onwards.⁵ Environmental NGOs acquired discounted debt titles on the secondary market and swapped them for local currency counterpart funds supporting in-country environmental projects (or for commitments to continuously protect designated areas). Such swaps could lead to a double dividend: a reduction of developing country hard currency needs for debt servicing (sometimes financed by environmentally degrading natural resource extraction) *and* additional funds for conservation purposes (Jha and Schatan, 2001). The first debt-for-nature agreement, a deal between Conservation International and Bolivia, was signed in July 1987. It is estimated that between 1987 and 1997 about \$134 million of commercial developing country debt (purchased at an average discount of 78 per cent) was channelled through debt-for-nature

mechanisms, generating \$126 million in local currency counterpart funds (Development Finance International, 2009).

The decision of the Paris Club in 1990 to allow its creditor members to convert all official concessional claims (and part of their non-concessional titles) into counterpart funds with social or environmental objectives added to the popularity of debt-for-nature swaps. Alongside early swap proponents such as Canada, Germany and Switzerland, the United States has played a key role, first through the 1990 Enterprise for the Americas Initiative and, later, the 1998 Tropical Forest Conservation Act (TFCA), a programme for bilateral debt conversion where freed up resources are directed towards tropical forest conservation in eligible debtor countries (see Sheikh, 2010).

Despite initiatives such as the TFCA, the use of debt swaps for environmental purposes declined from the mid-1990s, partly due to the appreciation of the secondary market value of commercial debt titles (Ruiz, 2007). More importantly, the debt swap mechanism became subject to numerous critiques regarding its failure to generate additional resources for the debtor country or sectoral/public good goals, its insufficient scale and the inappropriateness of conditionalities attached to it. In response, debt relief practice (of bilateral, multilateral and, to some extent, commercial creditors) evolved into more comprehensive, larger-scale schemes such as the Heavily Indebted Poor Countries (HIPC) Initiative and its successor, the Multilateral Debt Relief Initiative (MDRI), with greater attention to policy and system alignment under the form of Poverty Reduction Strategy Paper (PRSP) conditionality.⁶

But in recent years bilateral debt swaps seem to have re-captured policymakers' attention. There has been an increase in new swap initiatives in different sectors, most notably health and education (see, for example, Filmus and Serrani, 2009).⁷ Debt-for-nature swaps have also re-emerged: the United States recently concluded deals with Peru, Indonesia and Brazil under the TFCA (see Sheikh, 2010). Other bilateral creditors, for example, Germany and France, have also conducted swaps (see Buckley, 2011). However, Spain has positioned itself as a leading proponent of debt swaps. The following subsection therefore briefly outlines Spanish debt swap policy.

Spain as a Key Proponent of Debt Swaps

Compared with smaller bilateral creditors, such as Switzerland and Belgium, which were debt-for-development swap pioneers in the 1990s but have discontinued swap programmes, Spain's debt swap activities have blossomed rather late. Between January 1999 and January 2011 Spain signed no less than 37 debt swaps with 23 low- and middle-income countries. In nominal terms, a total of approximately €923 million of debt was cancelled, while agreed counterpart payments amounted to about €491 million.⁸ Twenty-four of these swaps, representing €695 million in claims, were concluded in the latter half of this 12-year period.

Initially, Spanish debt swaps were conducted primarily with Latin American countries, both those participating in the HIPC Initiative (Honduras, Nicaragua and Bolivia) and non-participants (Costa Rica, El Salvador, Peru and Uruguay), in the areas of infrastructure, health, education and environmental conservation. In 2004, at the UN Summit for Action against Hunger and Poverty, Spanish Prime Minister Zapatero announced that Spain, beyond its HIPC commitments, envisaged being 'actively involved in debt-for-social-development swap operations, especially in the area of primary education'.⁹ Such statements translated into a series of debt-for-education swaps in 2005–2007 (see Vera, 2007). Throughout this period, Spain adopted a differentiated debt swap policy, granting a discount of 40 per cent on counterpart payments from HIPC countries while requesting full payments from non-HIPCs.

End-2006 a new law on external debt management was approved by the Spanish Congress, making Spain Europe's second nation with legislation linking debt relief to development policy

(Italy introduced a similar law in 2000) (Filmus and Serrani, 2009).¹⁰ From recent practice, it seems the adoption of Law No. 38/2006 has led to a strategic repositioning of Spain's policy on debt swaps. From 2007 onwards, with the exception of a deal with Paraguay, swaps have been concluded with HIPC countries only, many of them in sub-Saharan Africa.

The Spanish–Uruguayan Debt-for-Efficiency Swap¹¹

The case we consider here has its origins in the Debt Conversion Programme for Public Investment signed between Spain and Uruguay on 15 April 2003. The stated objectives of this programme were to assist Uruguay with its external financial situation, aggravated by Argentina's default in 2001, and, at the same time, promote development-oriented investment in Uruguay. To this end, over the period February 2003–December 2004, Spain agreed to forgive \$9.3 million of principal and interest owed by Uruguay to the *Fondo de Ayuda al Desarrollo* (FAD) (Spain's main concessional loan institution for export promotion), in exchange for a Uruguayan government guarantee to deposit an equivalent sum (in dollars) into a new counterpart fund held in Uruguay (at the same pace as the original debt service schedule). Uruguay would then use this fund to finance three specific infrastructure projects: the construction of liquid waste treatment plants in the departments of *Canelones*, *San José* and *Cerro Largo*.

In early 2005, the two countries agreed to extend the programme with a second phase of two more biannual periods. A second swap was agreed on the following terms. First, the new conversion would involve the transfer of \$10.8 million of debt service owed by Uruguay to FAD over the period July 2005–June 2007 into the same counterpart fund (again in dollars and following the original debt schedule).¹² Second, the structure, management and workings of the counterpart fund would proceed as stipulated in the original 2003 agreement. This meant that a Spanish–Uruguayan committee, consisting of representatives designated from both countries' finance ministries, would oversee the fund and select projects. The committee could also appoint observers to assist in technical matters. Once a project was selected, a technical team from Uruguay would write out the necessary specifications and launch a call for proposals. But bidding would be limited to Spanish companies or ventures employing equipment and/or services supplied by Spanish companies. The final decision on projects and their supervision rested with the committee. Third, Spain suggested directing the resources released by the swap towards sustainable development investment in Uruguay, conforming to the Kyoto Protocol (which entered into force in February 2005). Importantly, any CER credits generated by such sustainable development projects would be offered to Spain first. Uruguay formally accepted these terms on 31 May 2005. A committee meeting in Montevideo in November 2005 approved the project to benefit from the debt swap: the implementation of a 10MW grid-connected wind farm in *Sierra de los Caracoles*, *Maldonado*, Southern Uruguay.

The project was put together as a CDM project with a total estimated cost of just over \$30 million. The debt swap under scrutiny accounts for approximately one-third of this (the aforementioned \$10.8 million). The *Administración Nacional de Usinas y Trasmisiones Eléctricas* (UTE), Uruguay's state-owned national electricity company managing the wind farm, shouldered the largest part of the costs involved, \$18.9 million, and the Spanish Carbon Fund contributed another €0.7 million.¹³

In mid-2007, the public tender resulted in *Eduinter*, a Spanish infrastructure and service company specialised in renewable energy, being awarded the project. *Eduinter* committed to supply five wind-turbine generators with a capacity of 2MW each from *Vestas* (a Danish manufacturer). The first *V-80* wind turbine went into operation in November 2008 and by mid-January 2009 all turbines were supplying electricity to the grid.

After UTE and the World Bank signed a letter of intent for the potential purchase of CERs in January 2009, the annual emission reduction was estimated at 25 554 tonnes of carbon dioxide equivalents (tCO₂e). This corresponds to the generation of 178 878 CERs during the first 7-year crediting period of 2010–2016.¹⁴ The project validation report amends the estimated emission reductions to 25 350 tCO₂e per annum and postpones the crediting period to 2012–2019. This report was submitted to the CDM Executive Board on 24th May 2012 and the project was registered 4 days later.

At first glance, the debt swap instrument appears as a win-win scenario. Uruguay reduces its debt burden and frees up resources for environmental spending, whereas Spain sees an increase in the value of remaining Uruguayan debt claims, improves its environmental credentials, promotes Spanish investment and guarantees a supply of CERs to meet its Kyoto commitments. However, it is far from clear that this debt-for-efficiency swap only has beneficial effects.

Assessment of the Spanish–Uruguayan Debt-for-Efficiency Swap

We now assess the debt swap according to our simple five-part framework. We first provide a description of each part of the framework and then apply it to our specific case. Whenever case study evidence is unavailable or insufficient, we indicate the information necessary to test the hypotheses produced by the framework. We also highlight the specific relevance of each section to our two CDM focal points: increasing project finance and generating greater sustainable development co-benefits. Table 1 summarises the set-up and results of our evaluation. The following subsections address the parts of the framework in turn.

Delivering Additional Resources to the Debtor Country and/or Debtor Government Budget

As with any other form of debt relief, debt swaps are supposed to increase net external financial transfers to the recipient country. As the contractual debt service, typically in foreign currency, no longer has to be made, it frees up foreign currency for alternative use, and increases net international purchasing power of the recipient country (as such creating ‘external space’ that a country can use to increase its imports, or build foreign exchange reserves, without jeopardising its external debt sustainability in the longer run). Moreover, to the extent that swaps deal with public debt, they also allow the recipient country *government* to divert part of its budgetary resources, otherwise spent on debt service, to other ends such as increased spending, say on environmental issues, or just to reduce the fiscal deficit. In other words, debt swaps also create ‘fiscal space’ (Heller, 2005). However, at least four important qualifications apply, of which three pertain to both external and fiscal dimensions (and the last one usually to fiscal space only).

First, debt relief savings are only realised gradually, typically over many years or decades, depending on the contractual repayment terms and schedule of the underlying debt. The reported nominal value of the cancelled debt in a swap is therefore not necessarily a good measure of the increase in available resources at the debtor country level. The present value (PV) of future debt service payments that are forgiven (discounted at the interest rate at which the debtor country can raise these amounts on international markets) is arguably a better proxy. In particular, when debt is highly concessional, with long maturity, repayment periods and below-market interest rates, as is the case with Official Development Assistance (ODA) claims, PV gains in international purchasing power for the recipient will be appreciably lower than nominal figures suggest.

Second, only that share of debt service that would have been paid to the creditor in the absence of any debt relief will generate genuinely new resources for the debtor. Taking for granted that all

Table 1: Evaluative framework and case study results

<i>CDM's envisioned benefits</i>	<i>Potential contributions by debt swaps (cf. Cassimon et al, 2011a)</i>	<i>Main issues at stake</i>	<i>Case study evidence from Spanish–Uruguayan debt-for-efficiency swap</i>
Improved access to project finance	Additional resources at level of debtor country/ government budget	<ul style="list-style-type: none"> ● Debt relief savings materialise only gradually ● Debt service would not necessarily be paid (in full) ● Debt relief may not be additional to other donor support to debtor country 	<ul style="list-style-type: none"> ● As there is no discount on dollar counterpart payments, debt swap does not lead to additional fiscal or external space ● Possibility of partial default on debt, in absence of the swap, cannot be discarded because of Uruguayan financial crisis (cf. increase in sovereign bond spread and downgrade) ● Inconclusive about additionality of swap to other Spanish ODA
	Additional resources for climate change mitigation	<ul style="list-style-type: none"> ● Debt relief may not be additional to other donor support for climate change mitigation because of ODA accounting rules ● Debt relief may not be additional to existing debtor government budget for climate change mitigation because of fungibility 	<ul style="list-style-type: none"> ● Inconclusive about additionality of swap to other Spanish ODA for climate change mitigation, further complicated by poor use of mitigation markers ● Uruguayan government investment in clean energy was already planned before swap deal, but debt swap may have helped to close CDM wind farm project deal
Sustainable development co-benefits	Lowering of overall debt burdens	<ul style="list-style-type: none"> ● Debt overhang theory has been criticised ● Only large-scale debt relief may resolve debt overhang 	<ul style="list-style-type: none"> ● Because of financial crisis, debt overhang was likely present in Uruguay ● Small debt swap (relative to Uruguay's overall debt stock and debt service) cannot have resolved debt overhang, unlike private bond exchange
	Alignment with debtor government policy	<ul style="list-style-type: none"> ● Following new aid agenda, debt swaps are deemed more effective when aligned with debtor government climate policy and broader national development strategies 	<ul style="list-style-type: none"> ● Uruguayan key actors had considerable control and ownership over swap project ● Wind power generation featured on Uruguay's energy policy agenda, but may not have been an immediate development priority during recovery from crisis
	Alignment with debtor government systems	<ul style="list-style-type: none"> ● Following new aid agenda, debt swaps are deemed more effective when using debtor country's own institutions and systems 	<ul style="list-style-type: none"> ● Debt swap created separate counterpart fund, which did not coincide with CDM-specific structures ● Debt swap tied funds to involvement of Spanish companies, limiting competition

debt would have been fully serviced without the swap (assuming the probability of default to be zero) could be too optimistic, especially when a country is experiencing debt service problems. At the extreme, contractual debt service savings could be entirely fictitious, not creating any external or fiscal space whatsoever (as debt would not have been paid at all).¹⁵

Third, one often assumes debt swaps to be entirely additional to other forms of donor support. However, debt swaps may well crowd out other, possibly more appropriate, forms of aid since current accounting rules allow donors to treat debt relief operations as substitutes for new aid.¹⁶ Donors could hence see debt swaps as an attractive option to boost ODA figures, leading to reduced expenditures on other ODA categories. Moreover, since the nominal value of debt swap operations is typically an overestimation of the debtor's benefit (and the creditor's cost), a swap may provide fewer resources than other aid interventions, say, direct budget support. Empirical studies on earlier generations of debt relief indicate, if anything, that it has *not* been additional to other sources of donor support (for example, Ndikumana, 2004).

The fourth qualification is particular for debt relief offered through the swap modality. As explained earlier, in exchange for the cancelled debt service, the debtor is required to make counterpart payments, typically (but not necessarily) in local currency, and typically (but again not necessarily) at a discount (relative to the nominal amount of debt cancelled). In principle, the discount, if applied, should reflect the first and second qualifications raised, that is, the potential discrepancy between the nominal and the market value of the debt relieved. If not, no additional budgetary room will be freed up to the benefit of the recipient country government; on the contrary, fiscal space will be destroyed. Moreover, there may be a conflict between the *timing* of annual debt savings and that of domestic counterpart obligations. In contrast to the typically slowly maturing debt service payments, domestic counterpart payments are sometimes frontloaded, becoming due within a much shorter period of time. A poorly structured debt swap where annual domestic counterpart payments occur prior to the realisation of debt relief savings may therefore increase fiscal pressures for the government rather than relaxing them, at least in these first years. All depends on how the PVs of debt service payments and domestic counterpart payments compare. This problem can easily be avoided by matching the timing of contractual debt service cancelled with the schedule of counterpart payments.¹⁷ If counterpart payments are due in hard currency, an ill-structured swap may also reduce external space.

Given this basic reasoning, how can we assess the case under consideration here? Applying the different qualifications, we cannot but conclude that, although the swap scores well on a number of characteristics, overall, it made no dent in creating additional space, either external or fiscal. On the positive side, the debt savings are realised over a short period of 2 years, so that the PV of the debt service relieved is close to the nominal value. In addition, the timing of counterpart payments perfectly matches the original debt service schedule, avoiding negative short-term fiscal (and external) space problems. On the other hand, since the counterpart payments are due in dollars, the swap does not contribute to relieving potential foreign exchange constraints (providing external space) at the level of the recipient country.¹⁸ Moreover, the swap does *not* include a discount on counterpart payments. In other words, the country still has to generate the full contractual debt service originally due in dollars, the only difference being the transfer to the counterpart fund instead of to the original creditor.

For the case under consideration, that is, Uruguay in the period 2003–2007, this last element is crucial. Around that time the country experienced severe economic problems, largely as a result of the 2001 Argentinean crisis. Uruguay's highly dollarised banking system was, at that moment, weakly regulated and supervised. Since corporate and household sectors of the economy were heavily exposed to large and unhedged foreign currency liabilities, the withdrawal of

non-resident deposits (started by Argentinean nationals), followed by a generalised bank run, cascaded into a full-blown banking, currency and debt crisis: real GDP declined by 11 per cent in 2002; foreign exchange reserves dwindled, causing the exchange rate to lose 60 per cent of its value against the dollar; and total public debt escalated to \$10.8 billion, around 100 per cent of GDP (see IMF, 2003, 2008). With considerable debt service obligations falling due in 2003–2004, the authorities succeeded in launching a ‘voluntary’ sovereign bond debt exchange with their private (foreign currency) bondholders in April–May 2003 that lengthened maturities and reduced gross financing requirements on these bonds over the 2003–2007 period. This alleviated the most acute short-term external debt pressures.¹⁹ Aided by an IMF programme, the country was successful in overcoming the crisis and regaining economic stability around 2005, with further IMF-led adjustments until 2008.

As a result of the crisis, serious doubts were raised about the capacity and willingness of the country to service its sovereign debt.²⁰ Hence, the assumption that Uruguay would have (partly) defaulted on its official claims held by Spain in the absence of the swap under consideration cannot easily be discarded. Under such conjectures, no external or fiscal space was created by the swap; indeed, without a discount, the required counterpart payments would then have forced the Uruguayan government to use resources that were not ‘saved’ from debt service, necessitating it to cut back on other spending, or increase (external and fiscal) deficits.

Whether this particular debt swap was additional to other Spanish ODA (to Uruguay, or third countries for that matter) is, as with other aid projects, difficult to ascertain. Ideally, one needs to construct counterfactual data on what Spanish ODA would have been in the absence of the swap in question. Without these data, we rely only on the project’s validation report, which mentions that on 14 October 2009 the Spanish government signed a letter stating that its contribution to the project, by means of the debt swap, ‘would not result in a diversion of ODA’. While indicative, our assessment of additionality can only remain inconclusive as intentions do not necessarily translate into actions.

So far our analysis suggests that to increase the resources available to the swap recipient (which it can then use to finance extra mitigation projects *or* other purposes; see further) a debt swap needs to create external and fiscal space, or at least not destroy it. This means that the possibility of (partial) default on the original obligations should be properly recognised and reflected in a discount on counterpart payments. Otherwise, ‘new’ donor funds would be preferable to forgiving ‘old’ obligations, in terms of generating net transfers to the recipient.

Delivering More Resources for Climate Change Mitigation

Even if swapping debt does not necessarily lead to more resources available to the recipient country (government) overall, it is often asserted that swaps do increase resources available for development, or in the case of this debt-for-efficiency swap, for climate change mitigation. The embedded ‘earmarking’ of the counterpart payments for this specific purpose would indeed suggest so. However, the supposed increase critically depends on additionality in both donor support and government expenditure in this area, which we now discuss in turn.

First, similar to the qualifications made on debt swaps’ additionality to *overall* donor support, debt-for-efficiency swaps could substitute for other donor interventions *aimed at climate change mitigation*. Second, debt-for-efficiency swaps do not automatically result in additional resources spent on these purposes *within* recipient countries (Hansen, 1989). When confronted with a counterpart payment schedule, governments may decide to cut back on their own efforts and reduce projected budget allocations for mitigation-related spending. A certain degree of so-called

'fungibility' is innate to most aid instruments, but arguably more pronounced in the case of specifically targeted support, including debt swaps (see Feyzioglu *et al*, 1998).

So, how does our case perform in terms of these two forms of additionality? Did the freed up resources come on top of both other donor interventions and existing recipient government budget lines for clean energy investment and mitigation? Again, it is hard to gauge the degree of additionality with the information available. Only some qualified guesses can be made.

With regard to Spain, one can reasonably assume that engaging in the swap has not reduced its support for mitigation elsewhere; it seems Spain exploited the opportunity to increase its engagement (and credentials) in the sector. That said, a more formal analysis would require establishing a counterfactual, no-swap scenario. The so-called 'Rio marker' on climate change mitigation, devised by the OECD- Development Assistance Committee (DAC) to track aid in support of mitigation, should feature as an important element in such an analysis.²¹ Unfortunately, the OECD-DAC's Creditor Reporting System (CRS) database reveals that Spain did not apply mitigation markers to the 2003 and 2005 debt swaps with Uruguay. The poor use of mitigation and other 'Rio markers' extends to other donors and aid instruments, and has been shown to be non-random (see Michaelowa and Michaelowa, 2011). This complicates an assessment of trends and counterfactuals.

At first glance, additionality from the recipient government's perspective seems doubtful, as the investment in clean energy technologies was already planned before by Uruguay. However, from our communication with a senior official at the World Bank's Carbon Finance Unit, it appears that the use of a debt swap in this case acted as a 'sweetener' to clinch the project deal; without it the wind farm project may not have proceeded. In this respect, the swap does appear to have improved access to project finance. But because of the lack of a good counterfactual it remains, once again, difficult to offer stronger evidence.

At the broader level, the extent to which debt swaps could generate extra CDM project funding or simply substitute for other forms of aid also depends on donor (Annex I) countries' views on the importance of mitigation and its relation with development. In a similar vein, recipient government additionality too can only be ascertained on a case-by-case basis, as national sentiments towards mitigation vary across developing (non-Annex I) countries and may change over time.

The Effect on Overall Debt Burdens

Compared with other aid interventions, debt swaps may possess characteristics that yield effects beyond possible direct increases in resources at the country or government budget level. According to the so-called 'debt overhang' theory (Krugman, 1988), an excessive debt burden, demanding high debt service payments, may induce the government to impose punitive taxes on the most productive sectors of the economy. Such suboptimal behaviour could reduce investment, depress economic growth and lower government revenues, in turn making debt service more painful. Debt relief and debt swaps could break such cycles. The resulting process could lead to greater domestic resource mobilisation, benefiting clean energy and other investments. However, some cautionary remarks are in order.

First, not all macro-economists fully subscribe to the simple negative relation between debt size and investment/growth depicted here. Debt overhang theory has been found to be more relevant for middle-income countries than for low-income countries and invalid at very high or low levels of debt (Chauvin and Kraay, 2005; Cordella *et al*, 2005). Other critics have argued that excessive debt burdens and low growth are in themselves manifestations of some deeper, systemic problems, whether economic, institutional or political in nature.

Even if one takes the debt overhang hypothesis at face value, debt relief needs to reach a critical mass and be delivered in a harmonised manner to free a country from a high-debt/low-growth trap. Larger-scale initiatives such as the Brady deals and HIPC Initiative were implemented exactly because the need for a ‘discrete shock’ of debt relief was acknowledged (Bulow and Rogoff, 1991). Piecemeal operations, as debt-for-development swaps typically are, cannot be expected to reshuffle a country’s economic situation.²²

For our Uruguayan case, the debt overhang issue is pertinent, but it remains doubtful whether this particular swap, representing in total (combined over the two phases) just over \$20 million in nominal debt service relief over a 4-year period, was an efficient way of curing it. In fact, the swap represents only a tiny fraction of the \$10.8 billion sovereign debt stock outstanding end-2002 and the \$3.5 billion of debt service due over 2003–2007 before the private bond exchange of April–May 2003. It should be evident that this bond exchange, reducing debt service by \$1.7 billion over the same period, was far more effective in tackling debt overhang. At best, the swap contributed only slightly to this effort.

More generally, the extent to which debt swaps can have non-marginal effects on recipient countries’ debt burdens (which would give them an edge over other CDM financing instruments in bringing about sustainable development co-benefits) depends on their scale and harmonisation with broader measures to manage debt service payments.

Alignment with Government Policy and Systems

Debt relief is intuitively very similar to budget support, as both modalities free up additional room in the recipient country’s budget (or at least are meant to do so). Donors wanting to ensure that these extra funds are put to good use, such as for sustainable development purposes, have concocted different ways of controlling how resources will be spent. Over time, control mechanisms and types of conditionality attached to aid modalities have been transformed. In fact, debt relief has been at the forefront of this progression in donor–recipient relations.

Debt-for-nature swaps implemented in the 1980s and 1990s often practised what in donor jargon is called ‘micro-earmarking’, with donors dictating priority projects and trying to track the flow of resources freed up by debt service cancellation. To make oversight easier, counterpart funds were established outside regular budgets of the recipient government, together with new management structures and externally imposed procedures for planning, implementation, monitoring and evaluation, all circumventing established systems.

While micro-earmarking enhanced donors’ accountability towards domestic constituencies, the creation of parallel systems suffers from high transaction costs, prevents long-term capacity building and reduces country ownership.

That is why most debt relief, taking place within the HIPC/MDRI framework, has evolved to what one could call ‘debt-to-PRSP swaps’ (Cassimon and Vaessen, 2007, p. 24), swapping debt obligations for the debtor’s commitment to use savings for national development priorities described in its PRSP (or similar national development policy documents). Donors now seek to use their influence more indirectly, through a broader policy dialogue with ‘partners’, and leave much more to partner country systems. This new aid approach, which was consolidated in the 2005 Paris Declaration and the 2008 Accra Agenda for Action, promises more ‘policy alignment’ and ‘system alignment’ in development cooperation.²³ The former refers to focusing donor support on partner countries’ national development strategies, whereas the latter means the use of domestic institutions and public systems where effective, accountable and transparent. We now check the Uruguayan case against these two alignment principles.

Policy alignment

Here it is useful to differentiate between control and ownership over the project and coherence with Uruguay's environmental (and broader developmental) policy agenda. The bi-national committee acts as the most powerful body in the Spanish–Uruguayan debt swap; it holds executive power and oversees the process (see the second section). The composition of the committee implies that the debtor country has high-level government officials present when important decisions are made.²⁴ For example, the Uruguayan Minister of Finance does appear to have had some degree of control and ownership as he himself proposed to extend the original agreement with a second swap. Further evidence comes from the Technical Assistance Committee in which both the National Directory of Energy and Nuclear Technology of the Uruguayan Ministry of Industry, Energy and Mining and the engineering faculty of the *Universidad de la República* (UDELAR), two important Uruguayan actors, participated. This committee was, among other things, responsible for examining the economic and technical feasibility of the wind farm project (including finding a suitable location and writing out the project tender).

Turning to policy coherence, it should be noted that the *Sierra de los Caracoles* wind farm was the first wind power investment by the state-owned utility company UTE (and, by extension, the first in Uruguay overall). This is not to say, however, that wind power generation or, more generally, renewable energy was not on the Uruguayan agenda. According to official documents dating from the time the second swap was agreed on, the government's strategic priorities in the energy sector included the diversification of energy sources to reduce costs and emissions and to increase energy security.²⁵ For its energy consumption, Uruguay relies heavily on oil imports. However, most electricity generated in the country itself comes from hydropower plants. To diversify its renewable energy mix, Uruguay initially planned to install 200–300MW of wind power by 2015 (alongside investments in biomass and solar energy). These goals were recently revised upwards, to 500MW of installed wind farm capacity by 2015. The swap-financed project at *Sierra de los Caracoles* can thus, in retrospect, be seen as a first (albeit small) step towards achieving these ambitions.

Alignment with the broader development agenda of the government is less clear. When the new left-of-centre administration of Tabaré Vázquez took office in March 2005, the country was still recovering from its economic crisis. The administration's development plan, under the name of *El Gobierno de Cambio – La Transición Responsable*, covered six main areas: democracy, social programmes, production, innovation, integration and culture. It remains debatable whether, at least at the time the second phase of the debt swap agreement was signed, investing in energy efficiency and security was truly a development priority for Uruguay.

System alignment

With respect to system alignment, things look less favourable still. The ring-fencing arrangements, such as the establishment of a separate, extra-budgetary Spanish–Uruguayan counterpart fund managed by a bi-national committee, could be seen as creating a parallel 'Project Implementation Unit' (PIU).²⁶ While clearly involving Uruguayan government officials, these arrangements largely bypass *existing* government institutions and public systems. The fact that the CDM requires the Designated National Authorities (DNAs) of the host country and other partner countries to also evaluate and formally approve the planned CDM project activities adds another layer of organisational complexity (and transaction costs). For Uruguay, the DNA is the Ministry of Housing, Land Planning and Environment; in Spain it is the Climate Change Office located within the Ministry of Agriculture, Food and the Environment. As far as we know, neither of these parties was directly involved in the bi-national or technical committees set up for the debt swap.

More importantly, the swap puts into practice a pure form of ‘tied aid’ by restricting the use of freed up funds only to projects involving Spanish companies or the import of Spanish goods/services.²⁷ True, the novelty of wind energy generation in Uruguay limited the extent to which domestic companies could be involved. However, this is not to say that the bidding process for the wind farm project could not have been made more competitive, giving other non-Spanish manufacturing/construction companies, including those hailing from neighbouring countries (such as upcoming wind power giant, Brazil), a fair chance of competing. For instance, Pechak *et al* (2011) show how Spain lags behind Germany, the Netherlands, Switzerland and the United Kingdom in terms of investments in wind power within the CDM, all of which have firms who might have been able to offer more competitive pricing structures. Such restrictive procurement conditions within the swap could have further ramifications. As mentioned in the introduction, the CDM contains an implicit technology transfer mandate, the realisation of which also contributes to sustainable development co-benefits. Lema and Lema (2013) point out how this transfer overwhelmingly occurs via international trade for all countries involved in the CDM apart from India and China. Thus, tying the resources from the swap to solely Spanish firms, goods or services most likely limited the extent of technology transfer that could have been achieved.

Overall, while policy coherence between swap-financed (or other) CDM projects and broader sustainable development objectives is likely to become stronger over time, because of the growing recognition in most countries of the need to diversify energy sources and mitigate climate change (see World Bank, 2009b), it is harder to make general statements about system alignment. For every case, the structure of decision-making bodies, implementation units and the degree of protectionism within swap agreements will need to be evaluated and compared against existing government structures, including CDM-specific institutions such as the DNA.

Concluding Remarks

Our analysis suggests that the Spanish–Uruguayan swap performs unevenly across the five different criteria we have considered. Although well aligned with Uruguay’s energy policy and (allegedly) helpful in getting the country’s first public wind farm project off the ground, the swap creates no additional external and fiscal space overall, is too small to create indirect benefits and binds Uruguay to purchase goods and services solely from Spanish companies. Even though such case study evidence is, of course, extremely partial, it adds weight to the suggestion that debt-for-efficiency swaps may not be learning from the experience of debt swaps in other sectors. The evidence suggests that if such instruments are to be used more frequently in the context of the CDM, the Spanish–Uruguayan swap considered here is not a desirable template. However, we must not throw the baby out with the bathwater, for it is possible to better ‘engineer’ swaps so that they overcome the problems identified above. Again we make use of Cassimon *et al*’s (2011a) five-part framework to structure our suggestions and provide a tentative, non-exhaustive list of conditions that future swap initiatives should adhere to.

First, in order to ensure greater external and fiscal space for the recipient country (government), debt-for-efficiency swaps should target debt that would have been expected to be serviced in the absence of a swap operation; there should be a discount on counterpart payments that reflects the possibility of non-repayment of the original debt, if any, and timing differences between the old and new payment schedules. Preferably, the debt titles targeted would constitute non-concessional debt, whose relief delivers higher and quicker financial gains to the debtor.

Second, as stressed before, any freed up resources by debt-for-efficiency swaps would have to be additional to, rather than substituting for, both donor efforts in clean energy or climate-related

investment and the recipient's planned budget outlays in these areas. It remains a difficult exercise to establish counterfactual spending baselines for donors and recipients. If applied more consistently, mitigation markers could be an important input here.

Third, debt swaps should take the form of large-scale, one-off initiatives if they are to ease problems related to excessive external debt burdens. One way to achieve this would be to seek the participation of multiple (bilateral) creditors in debt swaps and pool the resulting resources into a single fund. If this is, for whatever reason, not possible or if the main purpose of a swap initiative would be to provide additional resources, rather than to improve the overall debt situation of the recipient, this should be clear from the swap agreement. All too often (less explicitly so in the Spanish–Uruguayan case), swap agreements allude to the lowering of debt burdens (which typically does not take place with such piecemeal interventions).

Fourth, debt-for-efficiency swaps should be aligned with the recipient country's energy and environmental policy. They must closely follow the recipient's own energy efficiency and environmental priorities and enable the active involvement of the relevant stakeholders (including officials and experts) at all stages of the decision-making process. The Spanish–Uruguayan swap stands as an excellent example in this respect. Alignment with broader development plans, especially in countries that have integrated environmental concerns into such plans, should also be attempted.

Fifth, wherever possible, swaps should rely on existing recipient country (government) systems for planning, implementation, and monitoring and evaluation, rather than create new, separate structures, thereby increasing prospects of capacity building and keeping down transaction costs. The fact the CDM already has its own institutional requirements, such as project approval by a DNA, makes it even more imperative for debt swap financing in the CDM to respect system alignment. Most of all, debt swaps should forego tying the use of released funds to the procurement of goods and services from a particular (donor country) provider, a practice that reminds one of the old project aid logic and is at odds with commitments made in Paris and Accra. Co-benefits could be enhanced through ensuring that, if competitive, goods and services can be purchased regionally or globally.

This brings us to the final, broader issue of the possible role of debt swaps in financing mitigation. Article 4.3 of the UNFCCC (1992) reads that the 'agreed full incremental' costs of mitigation in developing countries need to be met by finance and technology from developed countries. In this respect, the cost burden of mitigation measures falls progressively on Annex I countries, pursuant to their 'responsibility' and 'capability'. If we use the World Bank's (2010) estimate that 15 per cent of mitigation funding in developing countries is from public sources, a maximum figure for external transfers in 2030 could be between \$20.9 and \$26.3 billion per year (in constant 2005 dollars). This is considerably less than recent levels of ODA, which in 2010 reached a historic high of about \$129 billion.²⁸ So to what extent could debt swaps play a role in financing mitigation measures?

Our position on this is outlined in Cassimon *et al* (2011a), and runs as follows. As the HIPC Initiative has ensured that most bilateral and multilateral debt owed by many low-income countries will be cancelled in due course, it appears that the greatest potential for utilising debt swaps for mitigation (such as debt-for-nature or debt-for-efficiency swaps) will mainly be within lower middle-income countries. However, there is less of a convincing case for external transfers to finance mitigation in these countries, and less of a financing gap for CDM projects. Moreover, several other actors, such as the Global Fund to Fight Aids, Tuberculosis and Malaria and UNESCO, are interested in sector-specific swaps, such that there may be a limited number of appropriate and available titles to be utilised for mitigation purposes. Overall, there appears to be little potential for such instruments to finance mitigation projects and programmes.

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Notes

1. An indirect channel through which governments can judge projects to be developmental is through increasing revenues.
2. A number of initiatives have been put in place to help overcome this financing gap, for example a programmatic approach to CDM; moreover, from 2013 the EU will only purchase CERs from projects in LDCs.
3. We restrict ourselves to a discussion of debt-for-development swaps, that is, the practice of exchanging debt claims with the debtor country for development-related domestic spending (including on environmental goals). Many other forms of debt swaps exist, some of which are touched upon in the text.
4. The Brady Plan, launched in 1989, offered commercial banks with claims on (mostly Latin American) developing countries a menu of options to swap these debt titles for new bonds with lower nominal value and/or reduced interest rates or, alternatively, to retain their exposure but provide additional credit to compensate for any capital gains due to the reduced indebtedness of debtor countries. The Brady Plan resulted in deals typically involving several hundreds of millions of dollars per country (see, for example, Claessens and Diwan, 1994).
5. The idea of transplanting the debt-for-equity philosophy to environmental protection is generally ascribed to Lovejoy (1984), a former vice president of the World Wildlife Fund.
6. In 1996, the IMF and the World Bank jointly initiated the HIPC Initiative to bring debt burdens of severely indebted developing countries back to sustainable levels. Bilateral, multilateral and commercial creditors were requested to contribute in proportion to their exposure. The Enhanced HIPC Initiative in 1999 deepened relief and made debtor country participation conditional upon the preparation and implementation of a PRSP, a country-owned document describing the debtor's medium-term structural and social policy for poverty reduction. Finally, in 2005, the IMF, World Bank's International Development Association (IDA) and African Development Fund committed themselves to forgive the remaining debt owed to them by post-completion point HIPCs through the MDRI. As of end-July 2011, HIPC/MDRI debt cancellation packages have been approved for 36 countries (another 4 countries are on the waiting list), corresponding to approximately \$128 billion of relief in nominal terms (IDA and IMF, 2011).
7. For example cases and a detailed critique of such debt-for-health and debt-for-education swaps, see Cassimon *et al* (2008, 2011b).
8. These figures were calculated from data obtained through the Spanish Ministry of Economy and Finance. The reported €923 million excludes a number of debt-for-equity swaps (with Jordan, Morocco, Algeria and Equatorial Guinea) between 2000 and 2006, but includes swaps with Honduras and Nicaragua in 1999 and 2000, respectively, whereby debts were directly cancelled in full (without counterpart commitments) in the wake of Hurricane Mitch.
9. See www.segib.org/upload/discursodelpresidentedelgobierno.pdf.
10. Law No. 38/2006 of 7 December; see www.boe.es/boe/dias/2006/12/08/pdfs/A43049-43053.pdf. Article 5 (on debt conversion) refers to the need to ensure debt swap practice is consistent with agreements at the international creditor community level and to target those developing countries with the highest levels of external debt, preferably partner countries of Spain's development policy.
11. This section draws on the information we have been able to extract from project documents, including the debt swap agreement and the CDM project design document and formal letters, as well as from correspondence with some of the officials involved. All documents (mostly in Spanish) are available from the authors.

12. These FAD credits were concessional loans granted to Uruguay during 1990–1994.
13. The Spanish Carbon Fund is a public–private partnership managed by the World Bank for the Spanish government. Since 2005, the Fund has been active in purchasing emission reductions to assist Spain in fulfilling its Kyoto Protocol obligations (see wbcarbonfinance.org/Router.cfm?Page=SCF&ItemID=9714&FID=9714).
14. Crediting can be renewed for two further 7-year terms subject to Designated Operational Entity and Executive Board approval (UNFCCC, 2002, p. 37).
15. These two first qualifications give rise to the concept of the ‘economic value’ of debt (relief), that is, the PV of the debt that would have been effectively serviced in the absence of the debt relief (swap) intervention, as the most appropriate indicator to measure the value of debt relief to the recipient country (see Cassimon and Vaessen, 2007).
16. The DAC of the OECD, the most important body for measuring and publishing donor aid efforts, allows the full nominal value of debt relief to be counted for as ODA. Of course, to avoid double counting, for loans that already previously qualified as ODA and are later subject to debt swaps only the redirection of the interest component (and not the principal) is recorded as new ODA.
17. On the other hand, from the perspective of the counterpart fund management, which typically wants to make a noticeable impact by spending sizeable amounts at once, the issue becomes to bring forward as much of the available resources as possible. One way of resolving this inherent tension is for the government to issue bonds whose repayment is backed by the stream of future counterpart payments.
18. In normal times, this may not be an important issue for Uruguay relative to other countries, due to the country’s status as an offshore financial centre for the region and the resulting level of dollarisation.
19. No less than \$5 billion of foreign currency bonded debt was exchanged for new bonds, largely at par, but with extended maturities and capitalised interest payments during the first years. As such, even though the face value reduction of debt was negligible, debt service was reduced considerably, especially in the immediate aftermath of the exchange: debt service went down from \$3.5 billion to \$1.8 billion over the 2003–2007 period, closing the estimated residual external financing gap of the country (IMF, 2003, pp. 48–49). Overall, external private creditors on average took a ‘haircut’ of about 13 per cent to 26 per cent of their exposure, according to standard definitions (see Sturzenegger and Zettelmeyer, 2005).
20. As witnessed by the increase in the excess return (the so-called yield ‘spread’) of Uruguayan bonds over US government bonds on the secondary market, from about 5 per cent (500 basis points) to more than 20 per cent in the 2002–2003 period, and the downgrading of these bonds to below-investment grade. After the bond exchange, spreads and credit ratings returned to pre-crisis levels by end-2006 (see Adler and Eble, 2008 for details).
21. For more on this mitigation market, including eligibility criteria, see www.oecd.org/dac/stats/rioconventions.htm.
22. To the extent that debt swaps are framed in terms of providing additional resources rather than improving the overall debt situation of a country (as they typically are today), this argument is of less importance.
23. More information on the Paris Declaration and Accra Agenda for Action can be found at www.oecd.org/dac/effectiveness/parisdeclarationandaccraagendaforactionfullrelateddocumentation.htm.
24. When looking at other swaps, this seems less self-evident than one would expect. In a recent US–Indonesian case, Indonesian government officials were under-represented in the swap’s dominant oversight committee, because they had to make way for (international) NGOs (see Cassimon *et al*, 2011a).
25. See www.miem.gub.uy/documents/49872/0/Pol%C3%ADtica%20Energ%C3%A9tica%202030?version=1.0&t=1352835007562.
26. A PIU is defined by the OECD as a ‘dedicated management unit designed to support the implementation and administration of projects or programmes’. It is now widely accepted that too many parallel PIUs lead to a fragmentation of aid.
27. Such tying was less obvious in more recent Spanish debt swaps.
28. See www.oecd.org/dac/stats/developmentaidreachesanhistoricighin2010.htm.

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