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Programmes of Activities – First Experiences with the programmatic CDM

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Deutsche Zusammenfassung

Die Einführung der *Programmes of Activities* (PoA) als neue Durchführungsmodalität unter dem Clean Development Mechanism (CDM) hatte zum Ziel, kleine und geografisch stark verteilte Emissionsquellen besser zu erreichen, die unter dem konventionellen CDM aufgrund zu hoher Transaktionskosten nur schwer erschlossen werden können. Weiterhin wurde durch die Erweiterung eine ausgewogenere sektorale und geografische Verteilung des CDM angestrebt, der sich bisher vor allem auf große Industrieanlagen in Schwellenländern konzentriert.

Vor diesem Hintergrund untersucht das vorliegende Policy Brief den derzeitigen Stand des programmatischen CDM (pCDM) anhand der Analyse der PoA-Pipeline sowie durch die Untersuchung der PDDs bereits registrierter Programme und jener PoAs, deren Registrierungsdokumente zur öffentlichen Kommentierung auf der Seite des UNFCCC einsehbar sind. Die Ergebnisse deuten darauf hin, dass die mit der Einführung von PoAs verbundenen Erwartungen bisher nur teilweise erfüllt werden konnten.

Positive Entwicklungen sind in Hinblick auf die sektorale und die regionalen Verteilung von Programmes of Activities festzustellen, welche deutlich ausgewogener ist als bei herkömmlichen CDM-Projekten. Insbesondere der große Anteil von PoAs zur Steigerung der Energieeffizienz auf Verbraucherseite sowie die vergleichsweise hohe afrikanische Beteiligung zeigen das Potential, welches dieser Projekttypus zur Abmilderung der bekannten Schwachstellen des CDM besitzt. So ist auch die Beteiligung der am wenigsten entwickelten Länder (Least Developed Countries - LDCs) im Vergleich zu herkömmlichen CDM-Projekten um ein vielfaches höher, während die Dominanz der großen Schwellenländer weitaus geringer ausfällt. Die Durchführung von PoAs stellt somit eine bedeutende Möglichkeit zur Ausweitung der eigenen CDM-Aktivitäten für Länder unterschiedlichster Entwicklungsgrade dar.

Diesen großen Potentialen steht die weiterhin nur sehr begrenzte Anzahl von PoAs gegenüber, die auch vier Jahre nach Verabschiedung der PoA-Regeln nur einen Bruchteil des gesamten CDM ausmachen. So stehen den derzeit über 3000 registrierten CDM-Projekten lediglich 12 genehmigte PoAs gegenüber. Gleichermaßen bleiben die Programme bei der Kombination verschiedener Maßnahmen unter einem PoA bisher weit hinter den Möglichkeiten zurück und ein solches Programm konnte noch nicht registriert werden.

Der Blick auf die jüngsten Entwicklungen deutet allerdings darauf hin, dass die Anfangsschwierigkeiten allmählich überwunden sein könnten: So verdoppelte sich im laufenden Jahr die Zahl der beantragten PoAs,. Weiterhin zeigt sich, dass verschiedene Programme eine Kombination von Methoden anstreben. Diese Erfahrungen sowie die Tatsache, dass die vielfältigen Ausgestaltungsmöglichkeiten von den Programmträgern aktiv genutzt werden, lassen auf eine weitere Ausweitung von PoAs in Zukunft hoffen.

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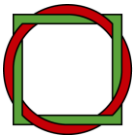


1 Introduction

In 2011, the Clean Development Mechanism (CDM) presents an impressive record: With over 3000 projects registered and more than 700 million Certified Emission Reductions (CERs) issued the CDM can be regarded as a widely accepted climate instrument.

Despite these achievements, the experiences gained with the offsetting mechanism also disclosed serious shortcomings: In particular, its high transaction costs still represent a significant barrier often impeding project implementation, particularly if small emission sources are to be addressed. While the project-by-project approach seems well suited for targeting emissions stemming from single large facilities, reaching small and dispersed emission sources is much more challenging under the conventional CDM modalities. These circumstances have benefited project development in specific sectors such as energy industry, where large emission sources can be easily reached. With large industrial plants being predominantly existent in emerging economies such as China, India and Brazil, these countries host the vast majority of CDM projects while less developed regions could not benefit accordingly.

In order to scale-up greenhouse gas mitigation actions by tapping micro emission sources and to address the unbalanced sectoral and geographic distribution of projects, the Parties to the Kyoto Protocol decided to expand the project-based approach by introducing the concept of Programme of Activities (PoA). PoAs allow several single programme activities (CPAs) to be registered under one single programme. By establishing these two levels (the programme level and the programme activities level) PoAs do not only hold the potential to significantly reduce transaction costs but also give high flexibility to project proponents, as single activities can also be added to the programme at a later stage after registration.

Four years after the Executive Board (EB) established the rules for PoA implementation, this policy brief analyses the current PoA pipeline. Main characteristics of the programmes are examined in order to find evidence on whether the expectations attached to the introduction of the programmatic CDM could actually be met. Hence, the sectoral and geographical distribution of the programmes as well as the amount of CERs these PoAs are expected to generate are being examined and compared to the projects of the overall CDM pipeline. Looking at the PoAs host countries, the paper attempts to answer the question whether PoAs are mainly being implemented in LDCs or if also emerging economies can benefit from the mechanism. In the view of the ongoing discussion about mitigation actions implemented by governments of developing countries, we will then take a closer look at the role of public entities in the development and implementation of registered PoAs and look at the organizational structure of the programmes.

In order to answer these questions two different methodological approaches are applied. The analysis of the general characteristics is based on information provided by the UNFCCC website and the UNEP Risoe pipeline. For a more in depth evaluation of the PoAs the respective Programme of Activities design documents (PoA-DDs) were used. These were available for 12 registered programmes and those 18 PoAs at validation, whose PDDs are currently open for comments at the UNFCCC website. These represent around 25% of all PoAs from the pipeline.

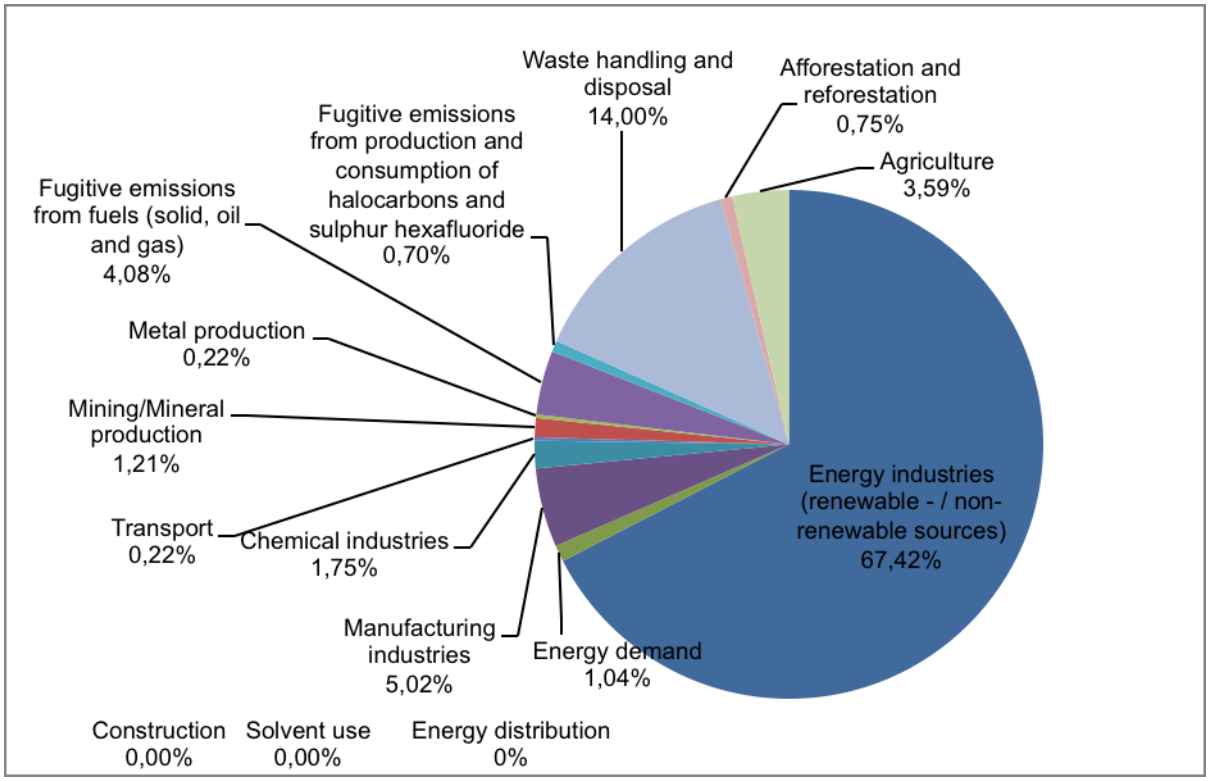
2 Characteristics and Design Properties of PoAs

In July 2009 the CDM Executive Board registered the first Programme of Activities: the Mexican Compact Fluorescent Light Programme "Cuidemos México". Since then, 11 additional programmes have been registered. As of October 2011, the overall PoA pipeline comprises 136 programmes inw total: one requesting registration, 12 registered, and 123 at validation. In the first nine months of 2011, 66 programmes have been submitted for registration. This is a drastic rise when compared to the year totals of 31 in 2009 and 32 in 2010 (UNEP Risoe 2011).

2.1 Sectoral Distribution

The CDM is commonly criticised for having failed to reach all sectors equally. As can be seen from Figure 1, some sectors have benefitted largely from the CDM, such as renewable and non-renewable energy industries. This sector alone accounts for more than 66% of all projects registered (including PoAs). Other sectors have hardly been touched by the mechanism. This is particularly true for transport and energy demand projects whose share lies at only 0,22% and 1,04% respectively. This underrepresentation in the CDM is alarming, since the transport sector accounts for around 13% of the global anthropogenic greenhouse gas emissions (IPCC 2007), and energy efficiency is widely held to be the most important building block for reducing emissions.

Figure 1: Distribution of registered CDM projects by sectoral scope

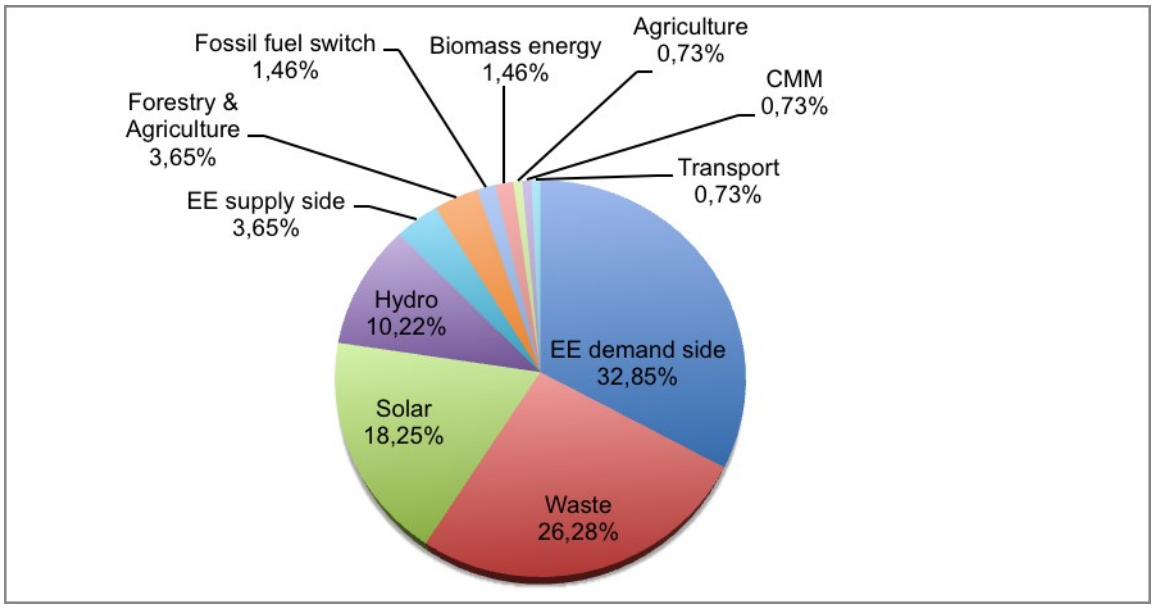


Source: UNFCCC Website (2011a)

PoAs were introduced with the expectation that this sectoral imbalance could be reduced. A look at the registered programmes shows that four out of 12 PoAs are intended to reduce greenhouse gas emissions in the field of energy industries (Honduras, India (Biomass), South Africa and Tunisia). Four programmes address energy demand, with three of them aiming at substituting conventional incandescent light bulbs with compact fluorescent lamps (Mexico, India (CFL), Bangladesh) and one with the purpose of disseminating efficient cooking stoves (Bangladesh). Other sectors with one programme each are agriculture (Brazil), energy distribution (China), waste handling and disposal (Uganda) and transport (Egypt).

This broad sectoral distribution is also reflected by the PoAs of the overall pipeline, where almost 40% of the programmes are aiming to improve energy efficiency. The share of demand side energy efficiency programmes is extraordinarily high, with more than 30% of the programmes addressing this sector. In Africa, the share of energy efficiency PoAs is even beyond 50% (Torii 2011). This large fraction is equal to the amount of renewable energy programmes, which is also around 30%. As can be seen from Figure 2, one quarter of the programmes are being implemented in the waste sector, while the remaining PoAs are distributed among six other sectors.

Figure 2: Sectoral distribution of the PoAs currently in the pipeline



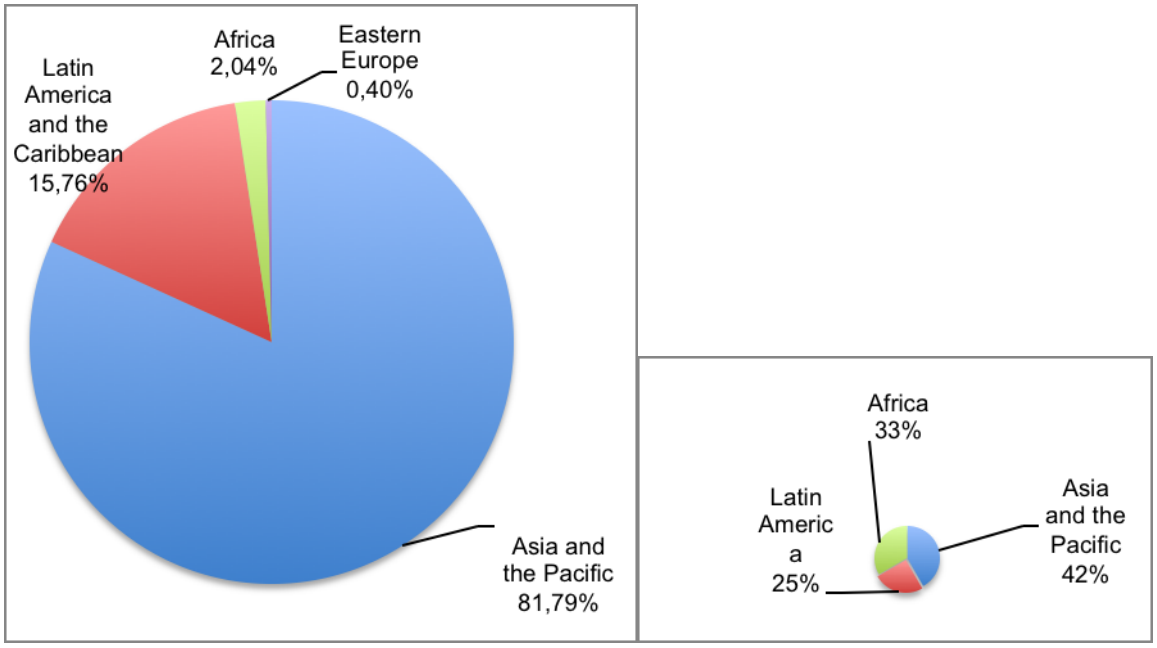
Source: UNEP Risoe (2011)

2.2 Regional Distribution and PoA Boundaries

Analogous to the hopes regarding sectoral distribution, Programmes of Activities were also expected to offer major advantages for LDCs and other underrepresented countries. These expectations were also linked to the possibility to develop regional PoAs, which operate across national borders allowing countries to share costs and use existing capacities jointly. With four PoAs located in Africa (South Africa, Tunisia, Uganda and Egypt), three in Latin America (Mexico, Brazil, Honduras) and five in Asia (two each in India and Bangla-

desh and one in China) the 12 programmes registered so far feature a quite balanced distribution. This distribution is in contrast to the conventional CDM, where more than 80% of all projects are being implemented in the Asian and Pacific region and only approximately 2% on the African continent (see Figure 3).

Figure 3: Regional distribution of registered CDM projects (total: 3521) and registered PoAs (total: 12)

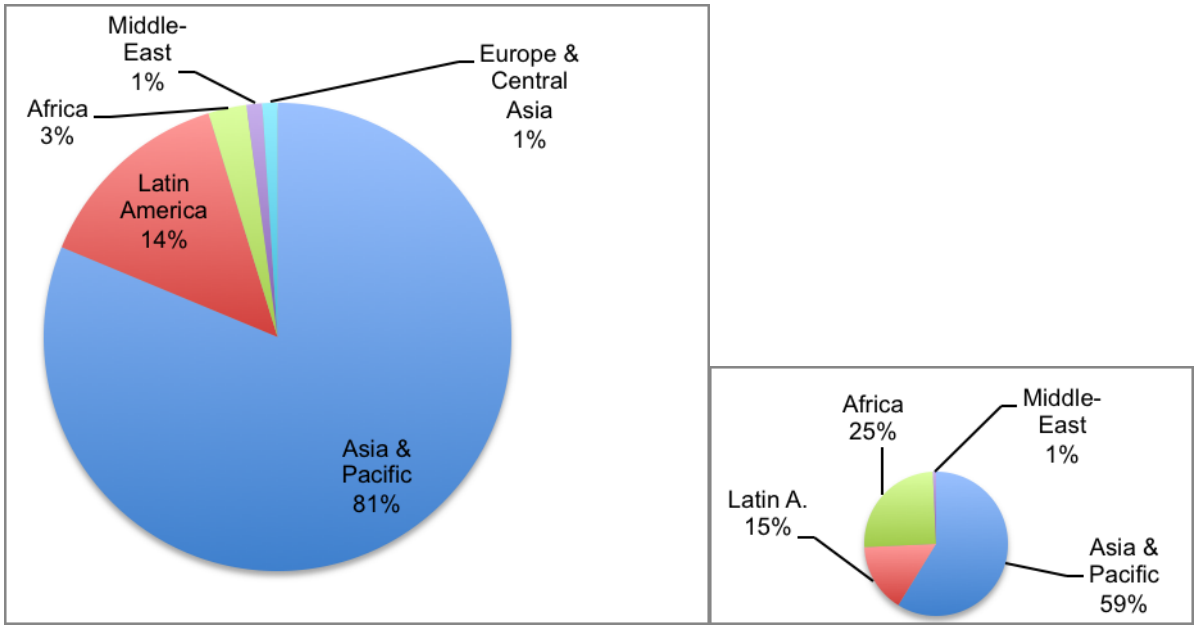


Source: UNFCCC Website (2011b)

When Programmes of Activities not yet registered are incorporated into the analysis and compared to the project distribution of the overall CDM pipeline, the differences in regional distribution become less pronounced but are still evident. As Figure 4 shows, the African participation in the PoA pipeline is still much higher than in the overall CDM pipeline (lying at 23% compared to 2,6%). Nonetheless, countries from Asia and the Pacific are also dominating the PoA pipeline, albeit not as clearly as in the case of the CDM (60% of PoAs compared to 81% of the CDM projects).

With regard to the role of Least Developed Countries, the results deliver a clear picture. From the twelve PoAs registered by October 2011, three programmes are being implemented in LDCs, two of them in Bangladesh and one in Uganda. This is a quite large share considering the fact that less than 1% of the registered CDM projects are hosted in LDCs. While this trend becomes less pronounced when looking at the overall PoA pipeline, where 13 out of 136 PoAs are being implemented in LDCs, the share of almost 10% is still much higher than in the conventional CDM (1,15%).

Figure 4: Regional distribution of the overall CDM pipeline (total:6930) and the PoA-pipeline (total 136)



Source: UNEP Risoe (2011)

Regarding their geographical boundaries, the 12 programmes registered confirm a clear tendency to use the host countries' national borders as programme boundaries (this is the case in 10 of 12 PoAs). The PoAs implemented in Brazil and China, in contrast, have subnational boundaries with the Chinese programme comprising 25 provinces of China and the Brazilian programme encompassing five states of Brazil.

Despite the potentially large benefits of transnational PoAs, such programmes have not been registered yet. This can be attributed to the fact that the involvement of more than one state makes PoAs much more complex, especially regarding baseline setting and demonstration of additionality (Climate Focus 2011). The involvement of more than one Designated National Authority (DNA) and the decision on where the coordinating entity should be settled makes the development of transnational PoAs even more difficult (Arens et al. 2011). Notwithstanding these challenges, there are at the moment 9 transnational PoAs at validation. The first PoA involving more than one host country is the improved cooking stoves programme ICSEA, which is intended to be implemented in six East African countries. With other five transnational PoAs on its territory, Africa is the forerunner in using the possibility of multi-country PoAs, while further two programmes of this type are being planned for Central America and one for the ASEAN region.

2.3 PoA/CPA Size and Expected Amounts of GHG Reductions

In order to evaluate the impact PoAs can have on the climate system, the amount of emission reductions expected from the programmes could serve as one first indicator. For such analysis, the very nature of PoAs represents a challenge of its own, as, in order to maintain the flexibility of the programmatic approach, there is no requirement for the programme proponent to indicate the overall size of the programme or the total number of CPAs.

Hence, the specification of the expected overall programme size in terms of emission reductions is not part of the official registration procedures and data is only available for four PoAs (Mexico, Brazil, Uganda and India (Biomass)). These four programmes display large differences regarding the expected overall size at programme level. While the larger PoAs (Mexico, Brazil and India-Biomass) are expected to deliver annual emission reductions between 400 and 600 k tCO_2e, estimated emission reductions of Uganda's programme amount to around 80 k tCO_2e per year.

These numbers are clearly lying above the average CDM project size. With the annual average of all 3492 registered CDM projects lying at 524,822 kCERs annually (UNEP Risoe 2011), the average CDM project size is around 150 kCERs/year. If the controversial HFC and N_20 projects are excluded the average project size is even lower lying at only 115 kCERs/year. Nonetheless, whether the large scale of PoAs will actually be realized and related expectations be met will ultimately depend on the number of CPAs to be included in the PoAs.

The size of the individual CPAs is another determining factor for the overall size of the PoA. At the moment however, most PoAs display only those CPAs included for registration. These first CPAs show huge differences in size: While the largest CPAs aim at reducing emissions by up to 860,784 tCO_2e/yr (Brazil - solid waste management), the smallest programme activities reduce emissions by less than 1,000 tCO_2e/yr. As can by seen in Table 3 in the Annex, this difference in size of CPAs does not automatically translate into the size of the whole PoA. By including large numbers of CPAs, PoAs with rather small individual programme activities can have large emission reduction impacts. One example is the Brazilian methane capture programme, whose initial CPA leads to annual emission reductions of only 139 tCO_2e. By including more than 1000 CPAs the programme leads to reductions of 591,418 CO_2e/yr.

2.4 Locations and Measures of CPAs

While the differentiation between programme level and programme activity level does already offer great flexibility, there are further design possibilities when developing PoAs: Hence, CPAs of one PoA can be implemented in one single or in several locations and comprise single or several measures (EB 32, Annex 38, page 1). This allows for four different types of CPAs (cf. Table 1).

Table 1: Different CPA types of registered PoAs (number of PoAs currently at validation in parenthesis)

		Measures	
		Single	Several
Locations	Single	Brazil, Honduras, Uganda (11 PoAs at validation)	-
	Several	Mexico, India (CFL), China, South Africa, Tunisia, India (biomass), Egypt, Bangladesh (CFL), Bangladesh (cooking stoves) (7 PoAs at validation)	-

Source: Own illustration

As can be seen in Table 1, the 12 registered PoAs do not display all four of these types and most CPAs implement one single measure in several locations. This is the case for the CFL-programmes being implemented in Mexico, India and Bangladesh where one CPA aims to replace up to 1 million (600,000 in the case of India, and 810,000 in Bangladesh) incandescent lighting systems. Similarly, under one CPA of the Chinese programme more than 1,000 inefficient transformers will be replaced. The Tunisian solar water heater programme aims at distributing 14,690 systems under the first CPA, while it is up to 59,000 in the case of the South African programmes first CPA. The first CPA of the cooking stove programme in Bangladesh attempts to distribute up to around 30,000 stoves. Under the first programme activity of the Egypt vehicle scrapping programme, an incentive scheme was established and 31 taxis were replaced in the greater Kairo region. Similarly, the Indian biomass project's CPAs can also include several biomass systems.

In contrast to these PoAs, the Brazilian, the Honduran and the Ugandan programmes' CPAs comprise only one single location each: One CPA of the Brazilian methane capture programme installs biodigesters and flare systems in one swine farm and the activities of one CPA of the Honduran hydroelectric PoA is also limited to the installation of one single power plant. Likewise, the Ugandan waste compost programme is designed to set up one compost plant per CPA. This picture does not change dramatically when those 18 programmes currently at validation are included into the analysis whose PDDs are currently available. All 18 programmes' CPAs aim at implementing single measures, 11 of them in single locations and seven in several locations. As can be seen from this brief analysis, the design possibilities are far from being exploited.

Notably, programmes using the possibility to combine different technologies such as renewable energy and energy efficiency measures, which has been regarded as an important strength of the programmatic approach (BMU 2010), have not yet been registered. This can be attributed to the fact that a combination of methodologies, which represents a prerequisite for combining different technologies and measures, was not possible from the outset and PoAs were limited to only one methodology. With the update of the PoA rules at the EB meetings in May 2009 and July 2010 the registration of PoAs combining different methodologies was allowed. These changes in the procedures are reflected by the overall PoA pipeline which can be analysed taking into account the starting dates of the PoA's comment periods. While no combinations of methodologies were used in the first phase after the introduction of PoAs, since September 2010 the number of PoAs with two or more methodologies is constantly rising. From one programme per month from October 2010 to August 2011 to up to seven in September 2011. Table 2 illustrates the methodological combinations and the start of the respective PoA's comment period. With the recently adopted "Standard for Application of Multiple CDM Methodologies for a Programme of Activities" EB 63 further simplified the combination of methodologies making in order to foster the development of such programmes in the future.

Table 2: The Combination of Methodologies of PoAs

Methodologies	Start of comment period of PoA
AMS-III.R.+AMS-I.E.+AMS-I.C.	02.09.10
AMS-III.R.+AMS-I.C.	28.10.10
AMS-III.AE.+AMS-I.C.	11.12.10
AMS-III.AO.+AMS-I.E.	29.01.11
AMS-I.F.+AMS-I.C.	22.02.11
AMS-II.C.+AMS-I.C.	24.03.11
AMS-III.D.+AMS-I.C.+AMS-I.F.	11.04.11
AMS-I.F.+AMS-I.D.+AMS-I.A.	12.07.11
AMS-III.D.+AMS-III.F.+AMS-I.D.	30.08.11
AMS-I.C.+AMS-I.F.	01.09.11
AMS-I.C.+AMS-III.D.	02.09.11
AMS-I.I.+AMS-III.R.	07.09.11
AMS-III.AO.+AMS-III.D.+AMS-I.C.	09.09.11
AMS-III.R.+AMS-I.I.	14.09.11
AMS-I.F.+AMS-III.D.	14.09.11
AMS-I.C.+AMS-III.D.	21.09.11

Source: UNEP Risoe (2011)

2.5 The Participation of Public and Private entities

By stating that "participation under the clean development mechanism (…) may involve private and/or public entities …" (Koyto Protocol, Article 12, paragraph 9) the signatories to the Kyoto Protocol designed the CDM clearly having public institutions' participation in mind. Nonetheless, public bodies' involvement in the conventional CDM is often limited to the supervision of activities while private entities dominate the development and implementation of the projects.

Due to its distinctive structure and potentially larger scale and scope, the programmatic CDM offers diverse opportunities for the involvement of public entities. At the programme level, governments or other public entities such as public enterprises or statuary bodies can adopt the role of the coordinating and managing entity. At the programme activity level, the programme owners furthermore have the possibility to directly implement all single CPAs themselves or to concede the CPA implementer role completely or partly to other private or public entities. The possible combinations resulting from these different options are illustrated in Table 3.

At the **programme level**, the analysis of the registered PoAs illustrates that the distribution between private and public Coordinating and Managing Entities (CME) is quite balanced: From the 12 programmes registered, six are being implemented by public entities or enterprises associated to national governments (Egypt, Uganda, Tunisia, India (CFL), Bangladesh (CFL) and China), while the other six programmes are led by private CMEs (Mexico, Honduras, South Africa, India (Biomass) Brazil, Bangladesh (cooking stoves). In contrast, the analysis of the 18 programmes under validation whose PDDs are available shows a clear dominance of private actors (15).

Table 3: Organizational structures and participation of private and public entities of registered PoAs

			PoA coordination and management	
			By Private CME	By Public CME
CPA Implementation	By CME		Brazil	Tunisia, Egypt, China
	By CME + third party	Public		
		private	South Africa	
	By third parties	Public		Uganda
		private		
	Not specified		Mexico, Honduras, Bangladesh (cook stoves), India (Biomass)	India (CFL), Bangladesh (CFL)

Source: Own illustration

The **programme activity analysis** reveals that three of the PoAs set-up by public CME are also operated by public entities at the programme activities level: Egypt, Uganda, Tunisia. Nonetheless, there are important differences among these programmes: The CMEs of the Egyptian and the Tunisian PoA are also the implementers of the CPAs, which means that the coordinating entity is operating at the programme level and at the activity level. In contrast, the CPAs of the Ugandan and the Indian programme will not be implemented by its CMEs. While subnational entities (municipalities and towns) will be responsible for the implementation of the programme activities in the case of Uganda, the Indian CFL programme does not specify whether the CPA implementer are private or public entities. As the CPA included at the moment of registration is run by private companies, we expect that this structure will also be maintained for the implementation of future CPAs (as indicated in Table 4).

Analogous to these public-owned PoAs, four private programmes (Mexico, Honduras, India (Biomass) and Bangladesh (cook stoves)) do not specify the proponents of the individual CPAs - thereby maintaining maximum flexibility for the future inclusion of CPAs. As with the Indian CFL programme, we would also expect that future CPAs be run by private companies, as this is the case for each of the first CPAs of these programmes. In contrast, the CPAs of the Brazilian methane capture programme will be implemented by the CME sharing its CPA implementer role with other entities. The general tendency not to specify the CPA managers is also existent among those 18 PoAs which are currently in the period for comments. The documents indicate that only two PoAs define their CME as the managing entity of the programme's CPAs.

At a **subordinate level**, the clear classification between public and private responsibilities is not as straightforward, since Public Private Partnerships are often used in public-owned PoAs, also if CPAs are implemented by public entities. The PoAs being implemented in Egypt and Tunisia illustrate this PPP-structure: In the Egypt vehicle scrapping programme, the Ministry of Finance coordinates the programme and is also the implementer of the single CPAs. These CPAs take the form of an incentive scheme for car owners to replace their old vehicles. For the implementation of the CPAs, the Ministry of Finance cooperates with the Government of the Interior and with several private companies such as car dealers, banks, advertising and insurance companies. The Tunisian solar water heater (SWH) programme features a similar structure: individual CPAs are being implemented by the PoA's CME, the Tunisian National Agency for Energy Conservation (ANME) acting as a coordinator between the diverse stakeholders. At CPA-level, ANME signs

contracts with individual households, while private companies certified by ANME are responsible for the supply and installation of the solar water heaters. Hence, CMEs have several possibilities to share expertise with other entities for programme implementation.

3 Conclusions

This paper undertook a first review of the PoA pipeline's current state of play. With regard to the **sectoral distribution of the programmes** the analysis revealed a quite balanced spreading: particularly the high share of demand side energy efficiency programmes indicates that there is an important trend that could work against the narrow focus of energy industries in the conventional CDM. Similar conclusions can be drawn for the **regional distribution** of PoAs. Compared to the overall CDM pipeline, PoAs feature a much more balanced spreading, including a large share of African programmes. In line with these observations, the comparatively high participation of Least Developed Countries shows that the modality is capable of lifting the small number of CDM projects in these countries to a higher level. At the same time, however, the results indicate that PoAs are by no means a "LDCs only" topic as middle-income countries are also playing an important role in using this new modality.

While no **transnational PoA** has been registered yet, the constantly rising number of such programmes in the pipeline indicates that important experiences with this programme type are being made. These experiences could further improve the regional distribution in favour of the African region, as the bundling of capacities across countries is especially important due to the often limited experience in the field of carbon management. While the analysis of the registered programmes shows that several PoAs are aiming at combating small and dispersed emission sources by multiplying one measure in several locations, the combination of measures and the application of different technologies under one PoA is not as straightforward. The rising numbers of PoAs combining different methodologies nevertheless indicates that this might dramatically change in the near future. This development might be further accelerated through specific provisions such as the standard for application of multiple methodologies, which was adopted at the CDM Executive Board's 63th meeting.

The analysis of the **organizational structure** reveals that programme proponents are actually making use of the multiple possibilities in which PoAs can be organized and that public institutions embrace the large potentials the programmatic CDM offers. The dual structure with the programmatic and the program activity level seems to be ideal for the cooperation between public and private actors. Overall, the findings of the paper confirm that even if not all design options of the programmatic CDM are being used yet, PoAs could actually make an important contribution to diminish some shortcomings of the conventional project-by-project approach.

Nonetheless, it has to be taken into account that the mere number of programmes can serve only as one first indicator for the regional or sectoral distribution, while the actual GHG emission reductions achieved by PoAs in one specific sector or country would deliver a more sound assessment. Due to the flexible nature of PoAs reliable data for such an analysis are not yet available. Similarly, the flexible structure of PoAs makes it also challenging to consider whether the programmatic approach can actually lead to a significant **scaling-up** of greenhouse gas reduction actions, as programme size will ultimately depend on the number and size of CPAs the programme will be able to include in the future.

4 Annex

Table 4: Expected emission reductions of PoAs and their initial CPAs in CO_2e/yr

PoA Host Country	Reductions of initial CPAs in t CO_2e/yr	Expected Emission reductions in CO_2e/yr	Status
Mexico	24,283	520,365	registered
Brazil (animal menure)	139	591,418	registered
China (grid replacement)	4,079	-	registered
Egypt	20	-	registered
Uganda	8,370	83,700	registered
India (CFL)	34,892	-	registered
Honduras	4,394	-	registered
India (Biomass)	5,203	400,000	registered
South Africa	76,945	-	registered
Tunisia	7,242	-	registered
Bangladesh (CFL)	17,540	-	registered
Bangladesh (cooking stoves)	50,233	-	registered
Rwanda	51,819		at validation
Guatemala, Costa Rica, Honduras, Nicaragua	5,860		at validation
Brazil (small hydro- Tucano)	13,144	-	at validation
Kenya	49,230	-	at validation
Korea	143,049	-	at validation
Kenya, Tanzania, Uganda, Zimbabwe	26,513	-	at validation
Brazil (small hydro - Omega)	13,700	-	at validation
Angola, Botswana, Democratic Republic of the Congo, Lesotho, Madagascar, Mauritius, Malawi, Mozambique, Namibia, Seychelles, Swaziland, Tanzania, South Africa, Zambia, Zimbabwe	13,200	-	at validation
South Africa (wind and solar)	423,170	-	at validation
Brazil (wind - Omega)	6,429	-	at validation
Brazil (wind)	18,041	-	at validation
China	5,280	-	at validation
Brazil (solid waste)	860,784	-	at validation
India (wind)	48,527	-	at validation
China	36,123	-	at validation
Burundi, Ethiopia, Kenya, Rwanda, Tanzania, Uganda	25,272	-	at validation
United Arab Emirates	2,435	-	at validation
Burundi, Ethiopia, Kenya, Rwanda, Tanzania, Uganda	54,436	-	at validation
Total	2189,193	1595,483	
Average	74,526	398,871	

Source: Data taken from the PDDs of registered PoAs and PoAs at validation available at the UNFCCC Website (2011d, 2011e).

Table 5: Entities Involved in PoA coordination and CPA implementation of registered PoAs

PoA	CME	CPA implementer (according to generic CPA-DD)	Implementer of first CPA
Mexico	Cool nrg Carbon Investment Pty Ltd.	Not specified	Cool nrg Mexico SRL de CV
Brazil	Instituto Sadia de Sustentabilidade (ISS)	Instituto Sadia de Sustentabilidade (ISS)	Instituto Sadia de Sustentabilidade (ISS)
China	State Grid Corporation of China (SGCC)	SGCC + subsidiary	State Grid Corporation of China (SGCC) +Subsidiary Liaoning Electric Power Company Ltd.
Egypt	Ministry of Finance	Ministry of Finance	Ministry of Finance
Uganda	National Environmental Management Authority	Town Municipality, represented by the Town Clerk	Town Municipality, Jinja, represented by the Town Clerk
India (CFL)	Bureau of Energy Efficiency (BEE)	Not specified	C-Quest Capital Malaysia Limited and 2. C-Quest Capital Green Ventures Private Limited, India
Honduras	Hidroeléctrica de Masca S.A. de C.V. (Hidromasca)	Not specified	Empresa Centroamericana de Energía S.A. de C.V. (ECAE)
India (biomass)	Thermax Sustainable Energy Solutions Ltd	Not specified	Foods And Inns Limited
South Africa	SASSA (Solar Academy of Sub Saharan Africa (Pty) Ltd.)	SASSA (in some cases sharing implementer role with another entity)	SASSA
Tunisia	Tunisian National Agency for Energy Conservation (ANME)	Tunisian National Agency for Energy Conservation (ANME)	Tunisian National Agency for Energy Conservation (ANME)
Bangladesh (cook stoves)	J.P. Morgan Ventures Energy Corporation	Not specified	Grameen Shakti
Bangladesh (CFL)	Infrastructure Development Company Limited (IDCOL)	Not specified	Dhaka Electric Supply Company Limited (DESCO)

Source: Data taken from the PDDs of registered PoAs and PoAs at validation available at the UNFCCC Website (2011d, 2011e).

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