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### Foreign aid and sustainable energy

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#### Abstract

Energy is linked to most of the major global challenges of the twenty-first century. Poverty eradication, climate change, ecosystem management, world health and security are all influenced by energy, its availability, cost, emissions and other impacts. Unfortunately, energy systems as currently configured are not contributing effectively to the realization of most goals agreed upon by the international community. In order for energy systems to help deliver on the promises of these goals (e.g., stabilizing greenhouse gases emissions at levels agreed upon by the United Nations Framework Convention on Climate Change, helping countries achieve universal energy access by 2030 and better energy security) they would need to be significantly transformed. Because this transformation will need to be pursued in a global and cooperative basis, foreign aid must necessarily play a major role in this effort. This paper surveys some of the challenges of foreign aid to the energy sector in a rapidly changing environment, and the changes that it has had to make to be relevant and effective. The purpose of this paper is to undertake a brief examination of the energy foreign aid landscape within this changing context in order to extract lessons learned and determine best practices.

Keywords: sustainable energy, energy systems transformation, foreign aid, international cooperation

JEL classification: AO, FO, OO, QO

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## Acronyms

DSM	demand-side management
ESCOs	energy service companies
ESMAP	Energy Sector Management Assistance Programme
ESTs	environmentally sound technologies
GEA	Global Energy Assessment
GEF	Global Environment Facility
IEA	International Energy Agency
IMF	International Monetary Fund
IRENA	International Renewable Energy Agency
MFPs	multi-function platform programmes
ODA	official development assistance
OECD-DAC	Organisation for Economic Co-operation and Development-Development Assistance Committee
PDA	private development assistance
REEP	Renewable Energy and Energy Efficiency Partnership
RETs	renewable energy technologies
SE4ALL	Sustainable Energy for All Initiative
UNDP	United Nations Development Programme
UNFCC	UN Framework Convention on Climate Change
WEO	World Energy Outlook

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# 1 Introduction

## 1.1 Methods and data

This paper is a desk review of the nature of foreign aid to the energy sector over the last two decades with an exploratory emphasis on how this aid has adjusted, or failed to adjust, to the changing needs and circumstances of developing nations. The review is by no means comprehensive. Part of the data that would be relevant for the analysis—much of it related to the growing and significant amount of aid from the emerging economies and non-governmental organizations—is not widely available. And the scarce data that are available are often not compatible with the data which are readily available from OECD-DAC<sup>1</sup> and which report on aid by the large traditional donors.

In terms of the literature review, and for the purposes of providing a view of the on-going aid, this paper focuses largely on reports by donors and international organizations themselves and their independent evaluation units, which exist in almost every one of these institutions. This is mostly in the category of ‘grey’ literature. The academic literature on foreign aid in general is massive and has been accumulated over the past three or four decades, but only a small proportion is directly focused on energy. Needless to say, a comprehensive review of the general literature on foreign aid is outside of the scope of this report.

## 1.2 Definitions

Information on foreign aid resource flows to developing countries has been recorded since the early 1960s by OECD-DAC. In 1969, this same body defined official development assistance (ODA) to mean the official and concessional part of these flows. Since then, this definition has been broadly used by the international community dealing with foreign aid. But most recently, there have been some important shifts. As will be mentioned later, aid to developing countries and to the energy sector is now crowded with many new actors that are either not counted in OECD-DAC statistics (such as that of the emerging economies) or is not ‘official’ but comes from the private sector or non-governmental organizations. Given this new reality, the original definition of OECD-DAC is outdated.

Another term that is often and increasingly used is ‘development cooperation’. The proponents of this term argue that it is important to use a term that denotes a relationship that is based on mutual benefits rather than a one-way relationship of givers and takers. The term development cooperation places the emphasis on collaboration and makes it clear that the objective is to provide resources in order to work together on development outcomes based on an open policy dialogue. With these new developments and with the entry of new and powerful actors (e.g., emerging economies), the term ‘foreign aid’, many argue, has become outdated and is no longer considered appropriate. For the sake of simplicity, however, the term ‘foreign aid’ is used in this paper and it includes all of the following: aid from public, both from OECD and from emerging economies to developing countries, private, and non-governmental organizations. The recent trend has also involved integrated approaches to foreign aid that involve a variety of stakeholders, often resulting in public-private

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<sup>1</sup> Organisation for Economic Co-operation and Development-Development Assistance Committee (OECD-DAC) is the forum of selected members of the OECD established as a platform for discussing issues on aid to developing countries. The forum includes the World Bank, the IMF and UNDP as observers.

partnerships for action in the energy sector. Again, the traditional definition of foreign aid hardly captures these new realities. Development cooperation is a more appropriate term to describe the complex web of relationships and cooperation that are required.

## **2 Background**

### **2.1 The importance of foreign aid to the energy sector**

The special excerpt publication of the *World Energy Outlook 2010* (WEO) of the International Energy Agency (OECD-IEA 2010: 3) starts with the following statement in its foreword:

It is an alarming fact that today, in the 21st century, there are still billions of people without access to electricity or clean cooking facilities. The ambitious goals that have been set to eradicate extreme poverty can never be fully realized without acknowledging and confronting this fact.

Foreign aid to the energy sector is of unquestionable importance given the poor situation of energy systems in many developing countries and the magnitude of resources that are required to transform them so that they might deliver necessary outcomes for poverty eradication and climate change. A similar message appears in the recently published *Global Energy Assessment* (GEA 2012: xiii), with some additional warnings. ‘Without question a radical transformation of the present energy system will be required over the coming decades, the authors write in the assessment’s preface, and they note that energy access, climate change, global security and other major challenges of our century are all interrelated—meaning they cannot be properly tackled if not addressed simultaneously, in an integrated manner. The messages of both of these reports, the GEA and the WEO, hold major implications for understanding foreign aid, the way that is provided and the focus and magnitude of the aid that is needed.

### **2.2 The challenges that foreign aid need to tackle**

In sounding the alarm on the magnitude of the problem and on the required scale of the response, both the WEO and the GEA also provide a message of hope. According to the GEA, the magnitude of the challenge of transforming the current energy systems to make them more responsive to the needs of the century is immense but the solutions are implementable and affordable. The types of transformations required include: making radical improvements in energy end-use efficiency, achieving greater shares of renewable energy in the final global energy mix, and introducing advanced energy systems for utilizing both fossil and biomass fuels (GEA 2012). The GEA also concludes that achieving universal access to modern energy and cleaner cooking by 2030 is possible. The levels of investments required coupled with targeted policies and subsidies amount to some US\$36 to 42 billion annually,<sup>2</sup> a small fraction of the energy investments made annually to respond to the increase in energy demand. The GEA goes on to suggest that in pursuing the transformation required for energy systems to deliver across all fronts, various ways to get there and achievable energy portfolio options do exist. However, the GEA also points out that, for a number of reasons, immediate

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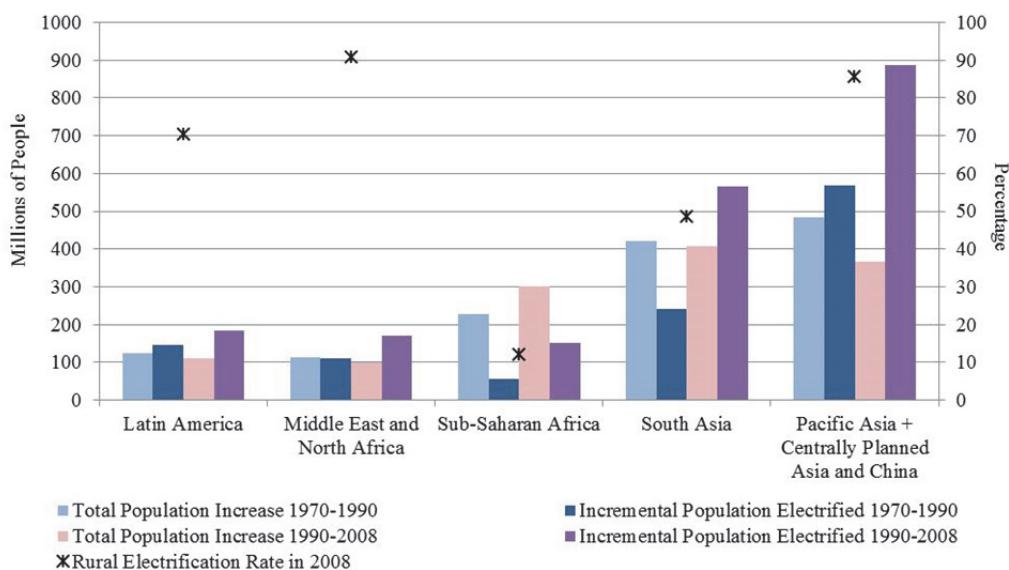
<sup>2</sup> The lower and higher figures are provided by the World Energy Outline, Special Excerpt on Energy Poverty and the Global Energy Assessment respectively.

action and early and sustained investments are required, coupled with supporting policy and institutional frameworks to support delivery and implementation. The total amount of investment required is estimated to be in the range of 2 per cent of global GDP (Stern 2007). While these figures appear large, the message is that not taking action would force us to incur greater costs in the long run.

Immediate action is required for a number of reasons, among which are: (i) to avoid ‘lock-in’ of long lifetime energy systems and infrastructure that are not compatible with sustainable development (IEA 2011); (ii) to ensure a stabilization of GHG emissions within a reasonable period of time to improve the chances of staying close to the 2° Celsius agreed to by the UNFCCC Conference of the Parties; and (iii) to improve the chances of reaching the targets of the Sustainable Energy for All (SE4ALL) initiative<sup>3</sup> of the Secretary General, which is strongly supported globally and recently endorsed at the Rio+ 20 Summit.

The magnitude of the energy challenges that developing countries face is one of the main justifications for a sustained level of foreign aid and for increasing the efforts to make this aid efficient and effective. Most developing countries will not be able to reach the targets of energy access, renewable composition or general efficiency without aid and major investments, mostly by the private sector given the order of magnitude of investments required. The biggest challenges for energy access today are in sub-Saharan Africa (SSA), where there has been slow progress in electrification and the general provision of energy (Figure 1).

Figure 1: Trends in electricity access in developing regions



Source: Based on Pachauri et al. (2012).

Both the *IEA Special Report on Energy Poverty* and the *Global Energy Assessment* make the point that without extraordinary efforts, scaled-up investments, and policy packages to

<sup>3</sup> The Sustainable Energy for All initiative ([www.sustainableenergyforall.org/](http://www.sustainableenergyforall.org/)) was launched by the UN Secretary General at the GA session of 2011. The initiative seeks to promote three goals, all to be reached by 2030: energy access for all, a doubling of energy efficiency improvements in the developing world, and a doubling of the share of renewable energy in global final energy mixes.

accompany these investments, real progress in expanding global energy access will be difficult if not impossible to achieve.

The implications and results of these studies point to the need for integrated packages of foreign aid in the following areas to help developing countries, particularly those in the less developed category where capacities are weak:

- establishment of sustainable energy baselines;
- identification of needs and opportunities;
- formulation of strategies and plans;
- preparation of investment portfolios to support efforts to scale up investments, mostly by the private sector (see figure below);
- formulation of proper policy and regulatory frameworks;
- establishment of mechanisms of coordination and promotion of linkages across sectors;
- strengthening of institutions and institutional arrangements;
- enhancement of technological and process innovation across the various sectors of the economy and building capacity to develop and deploy products of innovation;
- building up of capacities and skills at all levels (individual, institutional and systemic) to support the transformation of the energy systems; and
- forging partnerships, joint ventures and alliances, nationally, regionally, as well as internationally.

#### *Changing perspectives on energy for development and implications for foreign aid*

Energy has always been central in the global development agenda and in the headlines of the global media. What is new, as of the last few years, is the global effort to address energy and its impacts in a more coordinated way. In 1973 the so-called ‘energy crisis’ led a group of the larger world economies to experiment with a new construct of ‘global’ governance’, the G5, in order to address the impacts of that crisis. This new construct is what later led to the G7, then to the G8 (when Russia was added) and more recently to the G20 (when other large as well as emerging economies were added in an effort to become more inclusive). From that time forward, energy security has been at the centre of the global agenda.

More recently, and because of the disappointing progress made in many countries to achieve the Millennium Development Goals (MDGs), energy has gained a particular prominence. Many view the fact that energy was not tackled directly in one of the MDGs as one of the reasons countries are doing so poorly on achieving those goals. This and the persistent levels of poverty and lack of progress in the global negotiations to address climate change, have led to several bottom-up initiatives with a central focus on energy. Examples of these initiatives include the Sustainable Energy for All initiative of the UN Secretary General, which addresses both energy access and poverty as well as climate change objectives (and was described earlier in this report), the World Bank Climate Investment Funds, which most address climate change objectives, and several other bilateral initiatives of donors such as the Energy+ Initiative of the government of Norway,<sup>4</sup> which address both energy access as well as climate change objectives, and the Global Climate Change Alliance of the European Union, the UK’s International Climate Fund, and Japan’s Fast Start Finance programme, which finances a number of climate change mitigation activities.

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<sup>4</sup> Energy+ is an initiative of the government of Norway to promote access to energy and low-carbon development in developing nations.

Today, there is better science, knowledge, and greater awareness and acceptance of the central role that energy plays in issues such as individual, national and global security, food security, health, gender, equality, and employment to name just a few. All of these developments have contributed to a recent shift in perceptions on how best to tackle energy challenges (BIAC 2009). While in the past much of the emphasis of aid resources had been placed on the supply side of the equation—on creating or improving the infrastructure for electricity expansion—recent emphasis has slowly shifted to a broader narrative about energy. Clean energy for cooking and the need to reduce or eliminate the immense dependence on traditional biomass have gained more prominence, for example, as have concerns surrounding health issues connected with indoor air pollution from the use of this biomass in dirty and inefficient stoves (*New York Times* 2010; Jolly 2010). Diversification of energy sources and issues of energy security are given also much greater attention across the regions.<sup>5</sup>

### *Changing composition of actors in foreign aid in energy: dangers of fragmentation*

The landscape of foreign aid has also gone through some major changes—and in many cases a complete transformation—in the last twenty years. During this period, there has been a prominent effort by donors to make foreign aid more efficient and effective. Although this effort has been driven by OECD-DAC, the agreements that have emerged from many years of reflection and assessment and their work have also had an impact on the whole business of foreign aid in general (Juselius, Møller and Tarp 2011). The United Nations has also established a forum for discussing issues related to development cooperation and to improve coordination. Unfortunately, these processes do not include the development cooperation programmes of the emerging economies and other institutions.

The entry of new actors has made foreign aid a more complex system with a large variety of processes and procedures, motives and, in some cases, divergent vested interests. The public sector no longer has a monopoly on the business of foreign aid. Private funding, philanthropy as well as private foundations,<sup>6</sup> is significant and rising and, in some cases, larger than public funding for some sectors (e.g., climate mitigation and adaptation finance) (Buchner et al. 2012; Juergens et al. 2012). Many of these institutions and initiatives mobilize both public and private resources and promote public-private partnerships, such as the Clinton Global Initiative. The entry of new actors, both public and private, have led to some fragmentation which in turn has made coordination more difficult and management of aid by those receiving it, more challenging, costly and with heavier burdens on scarce national financial and human resources (Frot and Santiso 2008). The number of official donors alone has grown considerably; in 1960, developing countries each received, on average, aid from two donors; today, the figure is 28. And these are only the large official donors; this estimate does include the hundreds of other institutions (public, private and non-governmental) which disburse significant amounts of aid today.

In many instances, foreign direct investment is combined with capacity and institution development, blurring the lines about what is foreign aid and what is pure foreign direct investment. In the area of energy particularly, these foreign direct investments are large, some ten times the size of foreign aid (Little 2010).

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<sup>5</sup> See the reports of the Global Alliance for Clean Cookstoves for examples of this attention, available at: [www.cleancookstoves.org/resources/reports-and-research/](http://www.cleancookstoves.org/resources/reports-and-research/).

<sup>6</sup> The Gates Foundation has financed some US\$17 billion for projects on global development and health.

The disappointments with the privatization waves of the 1980s and 1990s, particularly in the energy sector, have given way to more orderly public and private partnerships. In these new partnerships, the essential roles of the public and the private sector are better recognized and accepted (Roland 2008).

### *Changing trends in foreign aid in energy*

Foreign aid to the energy sector has evolved over the years as a result of a number of factors. First, the energy needs and priorities of countries have changed. Second, foreign aid in general has changed, and foreign aid to the energy sector, a subset of this larger system, has followed this general evolution.

OECD-DAC, whose members were for a long time the main providers of foreign aid, identifies some clear growth trends in foreign aid to energy that they attribute to a broader evolution in foreign aid as a whole (OECD-DAC 2010). OECD-DAC traces the steady growth of aid to energy up to the middle of the 1980s, when the trend began to fall, up to the early years of 2000. The fall is attributed to the changes introduced to reduce or eliminate tied aid.<sup>7</sup> The ‘Helsinki package’ which resulted in the 2001 DAC Recommendation to untie aid to the least developed countries had an impact on the aid to the energy sector, mainly by reducing the presence of foreign aid in the production side of energy (i.e., in supporting large energy production projects). This led to a shift of attention from large infrastructure projects to capacity development and projects that focused on helping countries formulate policies, strategies and institutional infrastructure and governance of the energy sector. The magnitude of resources needed for these types of interventions was by definition much smaller. Thus, falling trends were seen in terms of total resources but not necessarily in the presence of donor support.

This downward trend began to change in the early years of the 2000s as climate change negotiations increased their momentum and particularly with the adoption of the Kyoto Protocol. With this formal adoption, a trend of increased support for clean energy, renewable energy and energy efficiency began in earnest. This trend has been maintained and has even accelerated during recent years. These recent trends have also been affected by the entry of the new actors in foreign aid.

The increasing priority being given by most countries to energy in the fight against poverty, health impacts, environment and security also has an impact on the foreign aid to energy trends over the recent past. The declaration of the General Assembly to make 2012 the ‘Year of Sustainable Energy for All’ and the ongoing efforts of making the decade that follows the ‘Decade of Sustainable Energy for All’ is evidence of this new global concern. These concerns have led to a greater awareness of countries on: (i) the central role that energy plays in addressing these challenges, (ii) the urgency of action both in poverty eradication where keeping up with energy demand alone is challenging and in climate change where the window of opportunity to stabilize GHG emissions to a level that will help limit global warming to less than 2° Celsius is getting significantly smaller as time passes, and (iii) the recognition that incremental changes and business as usual will not help address the challenges of our century adequately (Johansson et al. 2012).

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<sup>7</sup> ‘Tied’ aid refers to the type of aid which is directly linked to an obligation to purchase goods and services in the country providing the foreign aid.



### 3 Literature review

#### 3.1 History and evolution of foreign aid

##### *Foreign aid*

The academic literature on foreign aid is massive, but it focuses mostly on aid in general rather than on aid to specific sectors. It is not within the scope of this paper to review that larger literature but only the portion of it that is relevant to the energy sector. It is useful, however, to provide a brief summary of the issues that are more commonly found in the broader literature, as this is considered relevant background to the literature review that is more directly related to the energy sector.

The literature on aid has a long history and one that is as old as the history of foreign aid itself. This history dates back to the days immediately after Second World War with the reconstruction efforts designed to address the war impacts on Europe and the decision to establish mechanisms that would help avoid a repeat of the Great Depression of the 1930s. Prior to that, aid efforts had focused on military aid and defence and were of a political nature. But immediately after WWII, with the creation of the Bretton Woods institutions and the Marshall Plan (also known as the European Recovery Programme), the era of government-to-government assistance and concessional loans for the purposes of reconstruction and development began (ENAN n.d.). The expansion of ‘aid for development’ to developing countries started at that time.

Foreign aid gained further prominence when Harry Truman (1949) publicly announced in his inauguration speech that foreign aid would be an important component of United States’ foreign policy. An article by the prominent US political scientist, Hans Morgenthau, then at the University of Chicago, highlighted some of the controversies of the time, mostly related to the concerns that people had about foreign aid being linked to foreign policy (Morgenthau, 1962). Not surprisingly, much of that early literature was in fact influenced by the question of the political nature of foreign aid. In his article, Morgenthau labelled all types of foreign aid as political. The only aid considered to be not political was humanitarian assistance.

Since these early days, there have been equal camps of supporters and detractors of foreign aid, as is certainly the case today. Polarization regarding perspectives on the purpose and usefulness of aid has influenced the literature of the last few decades. Prominent critics of foreign aid, such as Bauer (1972), Easterly (2001, 2006; Easterly, Levine and Roodman 2004) and Friedman (1958) in his earlier days, argue that aid has contributed to bigger and less efficient governments, larger bureaucracies, enrichment of the elites, and considerable waste of money. Those who are more supportive of aid accept some of its failures but argue that the blame for failure lies on both sides of the aid flow, the donors as well as the recipients, but that aid nevertheless has been a positive influence in developing countries. Some of those in this group include Sachs et al. (2004), Stiglitz (2002) and Stern (2002).

The issues that come up most frequently as measures and indicators of success or failure of foreign aid include the impact of foreign aid on savings and growth, as in literature by Boone (1994), Burnside and Dollar (2000). Radelet, Clemens and Bhavnani (2006) efficiently summarize the most populous camps of the debate on aid and growth as: (i) those who believe that aid has no effect on growth but possibly instead contributes to undermining it; (ii) those who believe that aid has a positive effect on growth across countries on average, and (iii) those who think that aid has a conditional relationship with growth, where it is only

helpful under certain circumstances. The literature on these topics is large, on-going, and very relevant to the topic of energy foreign aid.

Aid's effectiveness in the fight against poverty and for enhancing countries' chances of reaching the MDGs is another important strand of the debate. Radelet (2004) focuses on how donors can improve aid effectiveness in helping countries achieve the MDGs. The three recommendations that he provides apply to all aid, including aid in the energy area. They include: making aid more goal and results oriented, being less selective and including countries with weak governance and institutions and design programmes to help them make improvements, and tailoring the way that aid is disbursed according to the conditions of countries.

### *Foreign aid and energy*

Some of the best and most up-to-date information on foreign aid and energy from traditional donors comes from the bilateral, multilateral and international institutions involved in this work. Their reports on case studies and evaluation units provide rich background on what works and what can or should be replicated in this arena. Foreign aid in the energy sector is most often provided to specific subsectors. The list of these subsectors that is most commonly used by OECD-DAC includes:

- energy policy and administrative management;
- power generation/non-renewable sources;
- power generation/renewable sources;
- electrical transmission/distribution;
- gas distribution;
- oil-fired power plants;
- gas-fired power plants;
- coal-fired power plants;
- nuclear power plants;
- hydro-electric power plants;
- geothermal energy;
- solar energy;
- wind power;
- ocean power;
- biomass; and
- energy education/training/research.

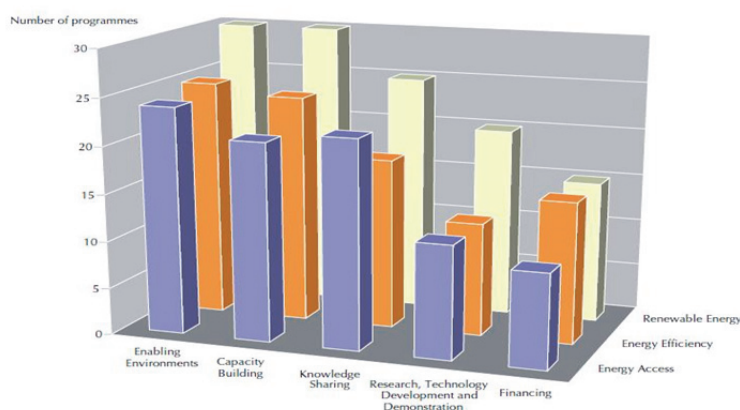
Information and data on energy projects by multilateral financial institutions<sup>8</sup> are generally provided only in aggregate sums. The Global Environment Facility (GEF) is one of the few exceptions. Most of the literature that exists on the activities of these institutions is provided by the institutions themselves, typically on their websites. There are independent efforts to track information on funding for climate change activities (where the energy sector is often a principal beneficiary), but these are not independently evaluated for their accuracy.<sup>9</sup>

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<sup>8</sup> Multilateral institutions in this reference include the World Bank and the regional development banks: African Development Bank, Asian Development Bank and the Inter-American Development Bank.

<sup>9</sup> One example of such independent information source is [www.climatefundsupdate.org](http://www.climatefundsupdate.org), which regularly tracks climate change financing.

Figure 2: A breakdown of foreign aid assistance to the energy section by number of aid programmes



Source: UN Energy (2010).<sup>10</sup>

Both bilateral as well as multilateral institutions have independent evaluation units. All have independent departments that carry out evaluations on an on-going basis and their reports are publicly available. These evaluations are both global and national and focus on specific aspects of their aid programmes. Literature on these evaluations is comprehensive and provides a great source not only for learning about each donor’s policies and strategies on aid but also as a compendium of lessons learned. The volume of these reports has increased in the last two decades along with the growth of evaluation activities and focus on aid effectiveness. The 23 members of OECD-DAC and seven multilateral development banks produce some 600 evaluation reports a year (OECD 2010).

The UN Energy report of 2010 makes reference to 130 reports issued by UN Energy members during the period of 2008-09. Most of these are reports that are designed to contribute to the knowledge base and to share on the experiences of dealing with the complexities of energy systems in developing countries. They also provide a good knowledge base on lessons learned and best practices.

One rich source of knowledge on lessons learned and best practices in the energy sector are those of the Energy Sector Management Assistance Programme (ESMAP)<sup>11</sup> hosted at the World Bank. ESMAP was established in 1983 to help countries strengthen their institutional capacity and their planning and policy formulation in the area of energy and through ‘upstream’ programmes or programmes addressing overall strategies and policies for the sector. It is funded by 13 official bilateral donors and is funded by a trust fund managed by the World Bank. Their website lists over 700 publications of material published or supported by ESMAP and include technical reports, ESMAP’s Knowledge Series (knowledge tools to guide decision-making about climate change mitigation and low-carbon growth, policy notes, briefing notes, and other reports). Similarly, the World Bank through its Open Knowledge Repository offers hundreds, if not thousands, of specialized reports on almost every aspect of the energy spectrum. Many of these are free of charge and available to be downloaded at anyone’s convenience.

<sup>10</sup> The UN Energy website ([www.un-energy.org/](http://www.un-energy.org/)) provides a full table with a list of activities by agency in each of these areas.

<sup>11</sup> ESMAP ([www.esmap.org](http://www.esmap.org)) has operated in over 100 countries through more than 800 activities covering a broad range of energy issues.

The reports and publications of the United Nations Development Programme (UNDP) cover climate change finance (institutional issues and leveraging mechanism) and energy access and rural electrification. The UNDP ([www.undp.org](http://www.undp.org)) also publishes a number of case studies, mostly in the area of energy access, which provide rich information about what works and other lessons born of experience. Other UN Agencies publish reports in their areas of specialization: UNIDO<sup>12</sup> reports on industrial energy efficiency, FAO<sup>13</sup> in energy and agriculture, IAEA<sup>14</sup> in nuclear energy, and others in their respective fields and their linkages to energy, as for example health and energy by the World Health Organization.

Similar rich libraries of publications are provided by each of the regional development banks. These offer a wealth of reports and publication with a regional focus. Other intergovernmental organizations such as the International Energy Agency (IEA) occasionally publish specialized reports in addition to its annual publication the *World Energy Outlook*. A new entrant into the field of energy organizations is IRENA (the International Renewable Energy Agency) with headquarters in Abu Dhabi and offices in Bonn, Germany and Vienna, Austria (IRENA n.d.).

There are also non-governmental organizations and networks specializing in specific areas of the energy sector that publish reports, case studies and briefs useful to energy practitioners. The Renewable Energy and Energy Efficiency Partnership (REEP) publishes case studies and compendia of best practices and serves as a web-based resource hub for practitioners in both renewable energy as well as energy efficiency sectors. Other institutions, such as the International Chamber of Commerce, the World Energy Council and the World Business Council on Sustainable Development issue publications of case studies on policies and regulations, energy efficiency, renewable energy development and specific sectoral reports. These reports are often produced by both practitioners and academics so they combine the rigor of academic method with practical information from on-the-ground work; they are rich with lessons learned and best practices.

### **3.2 Who gives foreign aid to energy and in what areas?**

Most of the literature that is readily available deals with foreign aid by the traditional donors and data that are mostly gathered and kept by OECD-DAC. Despite the growing diversity and entry of many new actors, the literature and data on these are incomplete, often not reliable nor readily available and, when available, not comparable to OECD-DAC data.

#### *Aid by OECD-DAC*

OECD-DAC keeps track of aid flows and their destination by sector (Figure 3). As can be seen in the following Table 1 and figures, a large portion of ODA from OECD went to power generation and transmission and to power plants. The special report of WEO on energy poverty points out that less attention and resources are allocated to areas such as clean cooking facilities despite the fact that in-door air pollution resulting from incomplete combustion of dirty fuels is projected to cause some 1.5 million premature deaths a year in 2030 if the situation continues (OECD/IEA 2010).

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<sup>12</sup> United Nations Industrial Development Organization.

<sup>13</sup> Food and Agriculture Organization of the United Nations.

<sup>14</sup> International Atomic Energy Agency.

Figure 3: Subsectoral breakdown of aid to energy

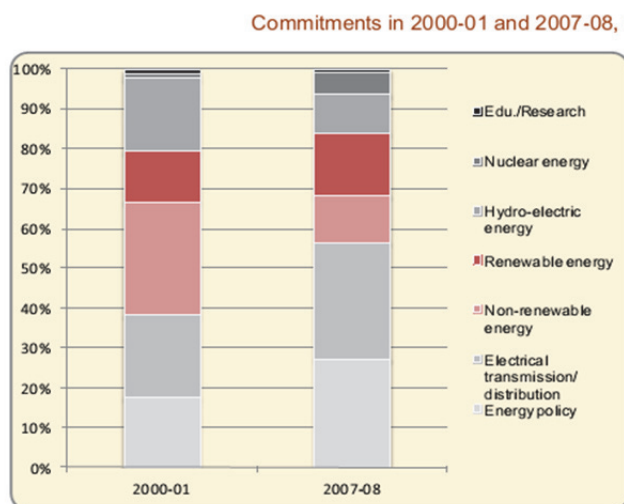
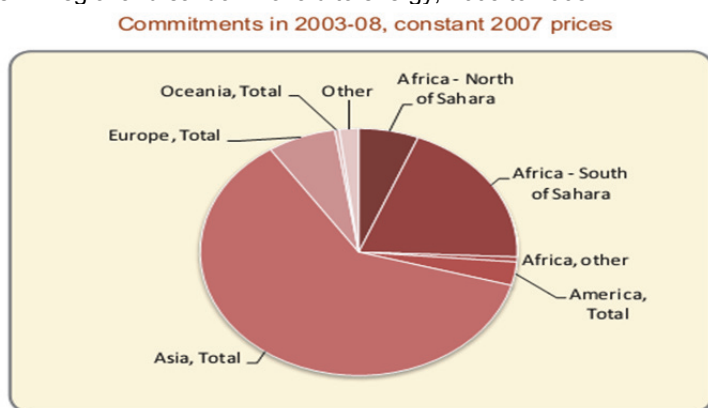


Figure 3 highlights that the electrical transmission/distribution and the energy policy sub-sectors both account for more than half of the resources allocated by donors in 2007-08.

During the last decade, donors shifted their resources from non-renewable to renewable sources of energy.

Source: OECD-DAC (2010); © OECD-DAC.

Figure 4: Regional breakdown of aid to energy, 2003 to 2008



Source: OECD-DAC (2010); © OECD-DAC.

Table 1: ODA in energy by sector: trends over 2006–10 (constant prices, 2011 US\$ millions)

Time Period	2005	2006	2007	2008	2009	2010	2011
<b>Sector(s)</b>							
Energy policy and management	577.7	1016.5	1988.8	2200.2	1019.7	1733.2	1468.7
Power generation/non-renewable sources	574.7	896.8	914.4	441.7	612.9	761.5	921.3
Power generation/renewable sources	416.7	324.3	398.0	732.3	1222.6	1882.1	2121.3
Electrical transmission/ distribution	1855.8	1895.8	2172.3	3123.4	3150.1	4331.9	2533.4
Gas distribution	4.2	0.6	48.7	164.1	10.7	2.7	17.2
Oil-fired power plants	20.1	20.6	54.7	441.3	106.1	7.6	84.3
Gas-fired power plants	688.5	3.9	215.1	205.1	37.7	853.8	84.8
Coal-fired power plants	236.3	344.8	0.7	81.4	401.2	0.2	1235.8
Nuclear power plants	36.5	142.8	127.8	294.5	379.1	551.8	206.2
Hydro-electric power plants	590.2	961.3	1376.5	452.0	237.2	743.5	510.0
Geothermal energy	284.3	14.0	8.3	2.6	45.7	721.2	397.3
Solar energy	80.1	62.8	27.7	176.6	347.7	260.4	103.5
Wind power	151.6	109.4	155.6	315.5	222.4	1056.7	8.1
Ocean power	..	0.5	..	0.0	0.1	0.1	..
Biomass	18.0	24.2	37.3	105.0	138.5	56.8	25.6
Energy education/training	20.8	19.4	17.5	56.2	21.7	33.3	19.6
Energy research	6.9	18.2	2.4	31.0	19.8	5.3	6.6

Source: OECD (n.d.).

Table 2: ODA to the energy sector by donor

Annual average commitments and disbursements, shares in total sector-allocable aid, constant 2007 prices

	Commitments, USD million			% of Donor Total			Disbursements, USD million	
	2003-04	2005-06	2007-08	2003-04	2005-06	2007-08	2005-06	2007-08
Australia	0	8	21	0	1	1	5	13
Austria	1	7	9	1	3	2	5	9
Belgium	11	5	30	1	1	3	3	5
Canada	16	15	10	1	1	0	13	9
Denmark	45	50	45	4	4	5	43	49
Finland	17	37	6	5	8	1	4	9
France	103	106	108	2	2	2	94	126
Germany	313	564	844	7	10	12	242	465
Greece	0	0	1	0	0	0	0	1
Ireland	0	0	0	0	0	0	0	0
Italy	50	194	27	8	24	3	100	76
Japan	1829	1092	1428	26	13	13	756	1108
Luxembourg	0	1	2	0	0	1	1	2
Netherlands	70	66	139	3	2	4	43	80
New Zealand	1	2	1	1	1	0	1	1
Norway	68	74	177	5	4	8	115	219
Portugal	1	1	0	1	0	0	1	0
Spain	80	42	261	6	3	9	52	73
Sweden	56	45	59	4	2	4	46	51
Switzerland	22	19	19	3	3	2	21	14
United Kingdom	181	137	45	5	3	1	76	50
United States	1598	1212	1413	10	7	7	1555	1060
<b>Total DAC countries</b>	<b>4463</b>	<b>3676</b>	<b>4642</b>	<b>9</b>	<b>6</b>	<b>6</b>	<b>3175</b>	<b>3420</b>
AiDF	71	55	198	5	4	14	41	40
AsDF	92	38	75	5	3	5	..	..
EC	165	507	567	2	5	5	152	321
IDA	791	715	1448	7	8	12	473	879
IDB Sp.Fund	..	19	23	..	4	8	..	..
UNECE*	..	..	1	..	..	14	..	1
UNDP	0.4	1	1	0	0	0	1	1
GEF*	..	..	16	..	..	12	..	..
<b>Total Multilateral</b>	<b>1119</b>	<b>1335</b>	<b>2328</b>	<b>5</b>	<b>6</b>	<b>9</b>	<b>..</b>	<b>..</b>
<b>Total</b>	<b>5582</b>	<b>5011</b>	<b>6971</b>	<b>8</b>	<b>6</b>	<b>7</b>	<b>..</b>	<b>..</b>

Notes:

\* 2007-08 data refers only to 2008 data.

**General budget support**, once integrated in developing countries' domestic budgets, will contribute to the development of the energy sector, but this contribution is not specified and not taken into account in the above figures.

**Sector-allocable aid**: in order to better reflect the sectoral focus of donors' programmes, when calculating the share of aid to energy in total bilateral aid (column "% of Donor Total"), contributions not susceptible to allocation by sector (general budget support, actions relating to debt, humanitarian aid, administrative costs and other internal transactions in the donor country) are excluded from the denominator.

**Korea** became a DAC member with effect from 1 January 2010. It is not included in the figures for this brochure, but will be integrated as from the next edition. Aid to energy by Korea amounted to **USD 142 million in 2007-08**, which represented 11% of its total bilateral sector allocable aid.

Source: OECD-DAC (2010); © OECD-DAC.

### *Aid by emerging economies*

Some of the emerging economies, particularly China, have become major foreign aid players, mostly delivering in Africa. Their relationships are broad and cover foreign direct investment, trade and aid. Information and data on aid from these new actors are difficult to obtain for several reasons. One reason is there are currently no formal mechanisms or standard formats for regular reporting on aid from these actors. Connected to this issue are allegations of lack of transparency from donor countries (Woods 2008). And, in addition, the relationships with the countries benefiting are often combined into packages that include multiple financial components—investment, trade and aid—which make it difficult to identify where one component begins and another ends.

An example of this synergy is illustrated by the Chinese aid-trade-FDI package signed in 2007 and 2008 with the Government of the Democratic Republic of the Congo. This package emerged as a new path to exploit Congo's extensive mineral deposits after an in-depth review of some 61 mining contracts awarded in previous years. Consisting of two large and related investment deals, the two large loans were securitized by providing China with access to cobalt and copper reserves. The loans in turn were tied to an investment package that involved the exploitation of mineral resources by a joint venture company China-Democratic Republic of the Congo. In addition to the investments, China is committed to providing support to investments in water, energy, education, transport, and health, the key development areas of the Democratic Republic of the Congo.



This is a good illustration of China's strategic approach to integrate trade, FDI and aid, but it is also evident in some other donors and emerging economies. In the case of China, the strategy is driven by the need to continue to supply materials to support its growing economy and increasing demand for resources, but is also likely to be promoted by the desire to establish closer relations with an important continent ally.

The most active emerging development partners in Africa are Brazil, China, India, Malaysia, Russian Federation, Republic of Korea, and Turkey. The fact that oil and gas comprise a large bulk of the exports from Africa to some emerging economies (Brazil, India and China) points to the importance and, perhaps, the increasing presence of energy aid from these countries to Africa. Table 3 and Figure 5 a glimpse at the magnitude of these trade relationships.

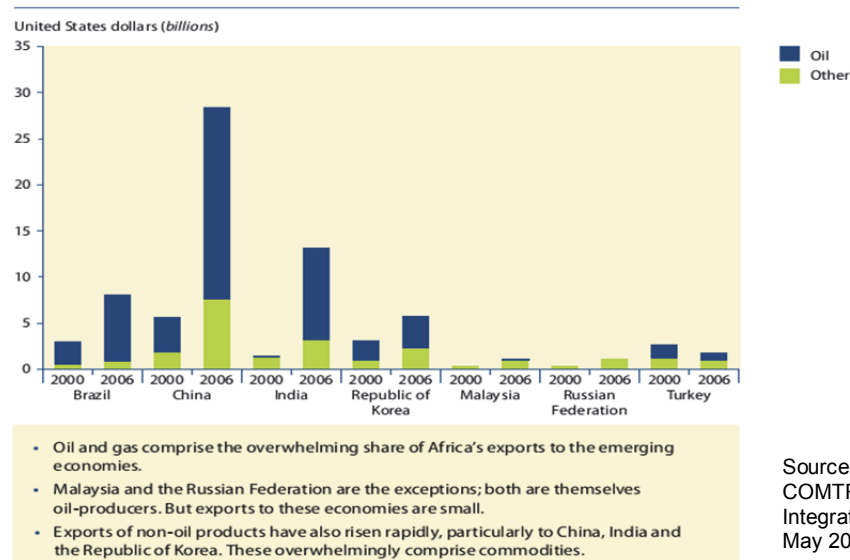
Table 3: Africa's trade with newly emerging economies, 1995–2006 (billions of US\$)

	Brazil	China	India	Malaysia	Russian Federation	Republic of Korea	Turkey	Total, emerging countries
<b>1995</b>								
Total trade	-0.1	-1.0	0.3	-0.4	0.0	-0.8	0.3	-1.7
Non-oil trade	-1.1	-1.3	-0.5	-0.4	0.0	-1.8	-0.7	-5.7
<b>2000</b>								
Total trade	1.6	0.5	-0.3	-0.4	-0.7	-0.1	1.4	1.9
Non-oil trade	-0.8	-3.1	-0.5	-0.4	-0.6	-2.2	-0.1	-7.7
<b>2006</b>								
Total trade	0.6	2.2	4.5	-1.1	-2.0	-4.2	2.8	2.8
Non-oil trade	-5.9	-18.8	-3.0	-1.1	-1.0	-7.2	1.9	-35.1

- In aggregate, Africa's trade with the newly emerging economies was in balance in 2006, a similar picture to that which prevailed in 1990 and in 2000.
- If oil is excluded, then Africa's trade balance with the emerging economies is in deficit, with a major increase in this deficit between 1990 and 2006.

Source: Calculated from UN-COMTRADE, accessed via World Integrated Trade Solution (WITS), July 2008.

Figure 5: Oil and gas in Africa's exports to emerging economies (billions of US\$)



- Oil and gas comprise the overwhelming share of Africa's exports to the emerging economies.
- Malaysia and the Russian Federation are the exceptions; both are themselves oil-producers. But exports to these economies are small.
- Exports of non-oil products have also risen rapidly, particularly to China, India and the Republic of Korea. These overwhelmingly comprise commodities.

Source: Calculated from UN-COMTRADE, accessed via World Integrated Trade Solution (WITS), May 2008.

From the data available, it is evident that aid from emerging economies is still small but growing. Compared to the overall aid provided by OECD-DAC countries (see Table 1), these

figures are small. However, the increasing growth of relationships of these economies with developing countries is most likely bound to push the levels of aid provided to larger shares. It is also possible that these shares are probably larger than what is being captured in data provided in current reports, mostly because the packaging of aid, trade and investment veils the independent levels of each. The box on China below describes the challenges of clearly identifying the aid component from the other two other frequent components in the China–Africa relationship.

All of the emerging economies, with the exception of India, are signatories of the Paris Declaration on Aid Effectiveness<sup>15</sup> discussed later in this report. Because of the lack of data or proper monitoring of their activities, it is difficult to assess how the aid provided by these countries measure against the five principles of the Paris Declaration on aid effectiveness: ownership of aid flows, alignment of donor and recipient strategies, harmonization among aid donors, managing for results, and mutual accountability.

There is an increasing pressure on emerging economies to adhere to these five principles. There is also mounting pressure for greater transparency so that there is more coordination and alignment. There is no evidence to show that these five principles are central to the aid relationships between these countries and their recipients (UN Office of the Special Adviser on Africa 2010).

Table 4: Indian, Brazilian and Turkish aid to Africa

	Aid disbursements to Africa (millions of United States dollars)				Share of total aid inflows into Africa <sup>a</sup> (percentage)				Aid to Africa as a percentage of total country aid			
	1990	1995	2000	2006	1990	1995	2000	2006	1990	1995	2000	2006
EU 15	9 968	8 643	6 273	20 862	40	40	40	48	51	42	41	52
United States	3 529	1 847	2 107	5 805	14	8	14	13	42	33	28	27
Japan	1 069	1 615	1 226	2 621	4	7	8	6	16	16	13	36
Republic of Korea	9	15	24	48	0.04	0.07	0.16	0.11	74	21	19	13
India	...	...	1.56	4.44	...	...	0.01	0.01	...	...	1.52	1.52
Turkey	0	2	0	25	0.00	0.01	0.00	0.06	0	2	2	4
Brazil	...	...	24 <sup>b</sup>	...	...	...	0.05	...	...	...	...	27-34 <sup>c</sup>

- Aid flows from Brazil, Turkey and India to Africa are small.
- These aid flows represent a tiny fraction of aid to Africa.
- As a proportion of emerging country aid, Indian and Turkish aid to Africa represents a much smaller proportion than aid from the European Union, the United States and Japan.

Source: EU 15, United States, Japan, Korea and Turkey data all from OECD-DAC (accessed May 2008); India: calculations based on data from Price (2005) and India Ministry of Finance; Brazil: estimates based on data from Altenburg and Weikert (2007), Schläger (2007) and Stamm (2006).

<sup>a</sup> Percentage of country share as a total of all DAC official development assistance (ODA).

<sup>b</sup> The data on aid disbursements include contributions from partner organizations based on a rough estimate, i.e., official data multiplied by 10. (The factor is an estimate from official sources quoted in Schläger (2007). Brazil does not publish its development assistance data.)

<sup>c</sup> Estimates from Altenburg and Weikert (2007) and Stamm (2006).

### *Aid by private and non-governmental organizations*

Development cooperation in general is no longer the monopoly of governments. Private sector and non-governmental organizations have become increasingly important actors in development assistance and finance, including in the energy sector. Much of this assistance comes from private philanthropy, private remittances and non-governmental organizations.

<sup>15</sup> The Paris Declaration was agreed in 2005 by the OECD-DAC group of donors and is based on five principles to make aid more effective: ownership by recipient countries, alignment of aid to the recipient-developed strategies, harmonization among donors, focus on results, and mutual accountability.



Much of these flows are difficult to track and there are less data as to where this aid goes and how much of it goes to the energy sector, particularly to projects dedicated to increase energy access in rural communities, poor urban sector and energy services in general (Wood 2008). What is evident is that the size of these flows is large and growing and thus, significant in the review of foreign aid in general.

Much of the data on private sources of development assistance cover only this type of aid coming from OECD countries where most of it originates. Very little data are available from other regions. Little (2010) traces the increasing presence and influence of these new actors and concludes that international development is quietly being revolutionized by this ‘private development assistance (PDA)’. She defines PDA as ‘cross-border transfers of cash, grants, loans, in-kind contributions, or volunteer time to individuals, NGOs, and governments’ and limits PDA to refer to development aid that is: ‘(i) undertaken by private actors including individuals, foundations, corporations, private voluntary organizations, universities and colleges, or religious organizations, (ii) with promotion of economic development and humanitarian need as the objective; and (iii) at concessional financial terms where commodities and loans are concerned’. Little goes on to suggest, reasonably, that the motivations, methods and selection of areas and partners by private donors often differ from those of traditional and better understood donors. There is a lot to learn from the experiences of these new partnerships and networks as more research is done and more literature becomes available.

Non-governmental organizations per se have also become increasingly important actors. Many are involved in helping to establish codes-of-conduct in aid provided to difficult industries including the extractive industries, some of which fall in the energy sector. But many are also involved in supporting countries mainly in the area of energy access to poor sectors of the urban and rural populations. NGOs such Practical Action,<sup>16</sup> are part of an increasing number of NGOs working to define energy access for the poor and to promote the

Figure 6: OECD donor investment, philanthropic and remittance flows to developing countries,, 1991-2008



Source: OECD-DAC; © OECD-DAC.

<sup>16</sup> Practical Action, based in the UK, is one of the many development charity institutions working in the energy-for-the-poor sector.

increase of access throughout the developing world by activities that range from outreach and advocacy, to project work, capacity building, brokering partnerships and mobilizing resources, and research and publication of literature, guides and policy briefs. Their role, particularly in the energy access area, is crucial in many countries and areas of countries and local communities where the public and private sectors are not as active.

### **3.3 History of efforts to enhance impact and effectiveness**

Much of the recent literature on aid is focused on the global effort to improve ‘aid effectiveness’, namely the ability of aid to achieve its intended aims. These efforts are linked to both substance (how effective is aid in advancing the MDGs?) and processes (in building capacities and efficient governance?) (Stern et al. 2008). These efforts have been led mostly by OECD-DAC, whose efforts have influenced not only their own development cooperation programmes over the years but also those of the development community as a whole, including those of international organizations such as the World Bank and the UNDP. These efforts culminated in the Paris Declaration on Aid Effectiveness and the identification of five performance principles: ownership, alignment, harmonization, management for results, and mutual accountability.

The major changes that have emerged from these efforts include, among others,<sup>17</sup> increasing the focus on the environment after the United Nations Conference on Sustainable Development in 1992, reducing the level of tied aid as per agreements reached through the ‘Helsinki Package’, shifting to direct budget support where doing so appeared to be more appropriate for delivering on certain outcomes, changing the concept of ‘assistance to recipients’ to ‘cooperation with development partners’ with a concomitant effort to align aid to partners’ priorities, having the private sector play a greater role, promoting the global development agenda such as that of the MDGs, placing a greater focus on gender issues, linking global development to global security, and coming to a consensus on efforts to tackle global development through better and more effective aid and development cooperation, and focusing more aid to LDCs and fragile states which were considered those in most need. The United Nations has also established its own forum ‘to review progress in international development cooperation efforts and promote greater coherence among the development activities of different development partners’. Additionally, several UN agencies have undertaken reform efforts oriented to making their development cooperation more effective and relevant.

In the area of energy, there have also been activities specifically designed to coordinate and collaborate among donor groups for greater aid effectiveness. Responding to a call for greater coherence and coordination of the UN system in the energy sector at the 1992 World Summit on Sustainable Development in Johannesburg (South Africa), UN Energy was established. Initially a weak institutional set-up dedicated to sharing information, UN Energy eventually became a central mechanism for UN coordination by more than 29 UN agencies and the World Bank. In 2007, UN Energy elected the head of one of the UN agencies and reformed its work programme around three thematic clusters: energy access, renewable energy, and energy efficiency. These clusters not only developed programmes of collaboration but also led to the establishment of the Sustainable Energy for All initiative of the UN Secretary General (SE4ALL). The SE4ALL is underpinned by three interrelated goals in support of poverty eradication and climate change, each with aspirations to be reached by 2030:

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<sup>17</sup> See the OECD-DAC resources hub on aid effectiveness for more information, retrieved from, [www.oecd.org/dac/effectiveness/](http://www.oecd.org/dac/effectiveness/).

achieving universal access by all to modern energy, doubling the improvements of energy efficiency and doubling the share of renewable energy in the global final energy mix. UN Energy continues to serve as THE support to the global energy agenda and in support of greater effectiveness of UN development cooperation in the area of energy (UN Energy Knowledge Network n.d.).

The various efforts to improve aid effectiveness and donor coordination have not been as successful at addressing donor fragmentation, or the proliferation of many donors making many disjointed payments (Frot and Santiso 2010). Several authors such as Knack and Rahman (2007) have written on the impacts on donor fragmentation and report that fragmentation has a negative straining effect on government bureaucracies and on effectiveness. In a more recent paper using Kenya as a case study, Mwega (2009) examines the various effects of donor fragmentation on aid effectiveness and reports three categories of negative effects from fragmentation:

- (i) increased transaction cost related to a diverse set of rules and procedures of donor for managing their aid projects;
- (ii) a limited ability to tap economies of scale, and
- (iii) strains on the already scarce financial and human resources of countries receiving the aid.

Lancaster (1999) cites cases where lack of donor coordination lead to formulation of projects that require counterpart institution and funding that is not really there to support it. Collier (1999) argues that in a good policy environment, aid may be beneficial but only up to a point after which it creates a negative effect by its sheer size.

### **3.4 What works**

*General: making foreign aid more effective and responsive to our century's challenges*

To do full justice to the question of what works in foreign aid in the energy sector would require a massive undertaking that assesses how foreign aid has helped or contributed to eradicating poverty and tackling the main challenges of climate change (through mitigation) in each particular setting and other challenges of our century in which energy is central. Such comprehensive assessment is outside the scope of this paper. Much of the literature on foreign aid and poverty eradication is partly linked to the debate about the effects of foreign aid on the overall economic performance of countries—on growth, trade, promotion of private investment, and public sector management, to name just a few. For energy projects, these indicators of success are not as useful. One interesting study on a programme to promote energy efficiency in Mexico in the 1990s concluded that there is a need to reassess the indicators of success for foreign aid in energy and particularly for small-scale projects that promote energy access in general (Auer 2005). These are projects that are more knowledge-intensive than capital-intensive and therefore, the focus on success criteria should be on institutional determinants and capacity building of individuals, businesses and institutions that create the enabling environment for energy services to be provided.

Because energy was not part of the MDGs, there is little literature assessing how the lack of energy contributed, or not, to the performance in efforts to reach the MDGs. A publication of UNDP and World Bank- ESMAP briefly alludes to the link between lack of energy access and lack of progress on the MDGs. Their preliminary results suggest the need to do more

research in this area. And new and emerging literature is becoming available on the effects of foreign aid in helping countries achieve lower carbon economies and societies. According to the International Energy Agency, to achieve 50 per cent reduction in CO<sub>2</sub> emissions by 2050 will require investments of some US\$316 trillion, or 17 per cent over the business-as-usual scenario (Modi et al. 2008). A large portion of these investments will be required in developing countries where the capacity to attract and absorb investments is hampered by the lack of capacities to formulate policy and regulatory frameworks, as well as weak institutions and skills (Ballesteros et al. 2010). Foreign aid can and is playing an important role in helping countries build their capacities for attracting investments in the area of climate change (Adaptation Fund 2012; Buchner et al. 2012).

*Being sensitive to national and local needs and priorities*

For effectiveness and relevance, foreign aid to the energy sector would need to take into account the very different energy challenges of the various regions of the world. Some of these different challenges, taken from Fontaine et al. (2012) are summarized below:

- Europe and Central Asia: Energy security is a major concern for this region. The recent economic crisis has decreased the level of economic activity across this region, lessening the acuteness of concerns around energy security for now but this we can expect to be only temporary.
- East Asia and the Pacific: Energy access and clean cooking needs are the central concerns for this region. The need for massive scaling up of investments for ensuring universal access to modern forms of energy and clean energy for cooking will be a major challenge and one that foreign aid has been traditionally supporting.
- Latin America and the Caribbean: Electricity demand and CO<sub>2</sub> emissions are expected to increase significantly in this region between now and 2030. Are the institutions and enabling environment and mechanisms in place to attract and sustain the necessary, large amount of resources that will be required in order to put in place the adequate infrastructure to meet these demands?
- Middle East and North Africa: The region has a combination of resource-endowed countries and those that are dependent on foreign resources to satisfy local energy needs. Even those that are rich in hydrocarbon resources have urgent demands for economic diversification and maintenance of infrastructure. Others are still in urgent need of increased levels of energy access.
- South Asia: In South Asia, the demand for infrastructure and particularly for electricity is growing exponentially. Half of the population still has no access to electricity and most countries require an urgent built-up of infrastructure to increase the levels of energy to satisfy high economic growth. This region also has a high ratio of their populations dependent on traditional biomass for its basic energy needs.
- sub-Saharan Africa: The energy challenges in this region are some of the most urgent and complex, combining low rates of energy access, low levels of capacity and skills, poor reliability of existing systems, and high costs. The urgency of the energy challenge here is directly related to the region's capacity and prospects for development and economic growth.

*Illustrative cases: Helping countries achieve energy systems transformation with well-timed strategic foreign aid intervention: the case of Brazil's ethanol programme*

Today, Brazil is the largest producer of sugar cane-based ethanol and the second largest producer of ethanol worldwide (second only to the United States, which produces corn-based ethanol) (*Ethanol Producers Magazine* 2010). Ethanol sources, naturally, contribute a critical percentage of the fuel used for transportation within Brazil - approximately 40 per cent in 2006 (Sandalow 2006). The history of the Brazilian ethanol programme contains many lessons for countries aiming to transform their energy systems as Brazil did, dramatically and in the course of a few decades. The most important lesson learned is that consistent and continuous government policy is critical to engineer and sustain a system transformation.

The Brazilian ethanol programme also offers lessons on the possible strategic use of foreign aid. In the early stages of the industry, when Brazil needed to develop markets by maintaining a competitive edge over petroleum, it turned to the World Bank for support in funding and technical assistance. With a major commitment to research and development for the sector which it considered essential, Brazil built a number of centres of excellence surrounding ethanol technology. To support this effort, Brazil turned to a number of UN institutions, including the UNDP, UNESCO and others. For market development, including the internationalization of its domestic industry, Brazil turned to the Inter-American Development Bank.

Brazil is now itself a foreign aid provider, with international cooperation programmes comprised of a mix of foreign direct investment, technical assistance and commercial and research joint ventures in several countries that include Angola, Mozambique, Ghana, Zimbabwe, Cuba, Sudan and Senegal (Schelesinger 2012). Well-targeted foreign aid arriving at a critical time of need, technical support for institution-building and market development, and support across various sectors critical to the industry made a big difference for Brazilian ethanol. In retrospect, all these factors did not work as part of a coordinated plan of support by the international community but rather because of the *national* commitment and investments on the part of the Brazilian government.

*Dealing with market barriers through well-designed policy and institutional interventions: the GEF approach to promoting energy efficiency and renewable energy deployment*

Operational programmes 5 and 6 of the GEF focus on helping countries remove 'barriers to large-scale application, implementation, and dissemination of least-economic cost energy-efficient technologies (whether commercially established or recently developed)' (GEF n.d. [a]: 5-1) and remove 'barriers to the use of commercial or near-commercial renewable energy technologies (RETs), reduce any additional implementation costs for RETs that result from a lack of practical experience, initial low volume markets, or from the dispersed nature of applications, such that economically profitable 'win-win' transactions and activities increase the deployment of RETs' (GEF, n.d. [b]: 6-1). The support of the GEF ranges from removing institutional and capacity-related barriers, helping establish ESCOs (energy service companies), as in the case of Tunisia, helping develop viable and sustainable markets for renewable energy technologies through the formulation of appropriate policy and regulatory frameworks, supporting demonstration projects to show the viability of the introduction of renewable energy in remote areas, as in the case of Uganda, and promoting lifestyle changes, as in the case of a Manila project that promotes the use of bicycles as an alternative mode of transportation (GEF, n.d. [c]). GEF support is aimed at addressing five potential barriers to efficient market-driven dissemination of environmentally sound technologies (ESTs) in

developing countries: policy frameworks and the essential role that governments must play in setting policies that are conducive to the adoption of ESTs, mature technologies and the need to ensure that they are robust and operational making them easier to transfer, awareness and information and the need to have all stakeholders and particularly market participants aware of the technologies, their costs, uses and markets, business and delivery models with businesses and institutions able to deliver and service those markets, and finally, availability of finance for technology dissemination as one of several prerequisites (GEF 2008).

*Promoting widespread adoption of renewable energy to provide difficult-to-reach pockets of population with energy access: China's success through a comprehensive capacity-building programme*

China has been one of most successful developing countries at increasing the rates of energy access for its population. Despite its outstanding success, there are still large pockets of its population that lack energy access: as of 2009, approximately 8 million people in China lacked access to electricity. Much of the success of access expansion in China has resulted from a strong commitment on the part of the government, policies and measures to support this commitment, and large amounts of domestic investment. But, as is always the case, reaching the last remaining pockets of low access proved the most difficult. Helping bring energy to these remaining populations is the area in which foreign aid has been helpful, even in a country with the size and resources of China.

A project co-financed by the GEF, the governments of the Netherlands, Australia, and the China was initiated in 1999 (ending in 2008) with the aim of promoting the adoption of renewable energy technologies in China. The project utilized a mix of comprehensive capacity-building measures (which targeted not only key public but also private organizations), support in the formulation of new policies and regulatory measures (such as policies on biogas, wind and village power sectors as well as the Renewable Energy Law of 2005), overall technical assistance, and co-financing support of demonstration projects. The overall funding available for the project was approximately US\$25 million, a relatively small amount of money in relation to the magnitude of the challenge and the size of the country. Nevertheless the project achieved some transformative results. It helped to build capacities in the renewable energy industries and it helped leverage several government programs in support of energy for the poor. And its demonstration projects of market-based systems helped transform the village-power sector. The multifaceted programmatic approach to the problem helped achieve impressive results in a relatively short period of time (UNDP 2011).

*Energy system changes that achieve universal energy access: the success of Vietnam that combined high political commitment and sound policy frameworks with well-targeted foreign aid*

The case of Vietnam's success in increasing access to energy through its rural electrification programme provides valuable lessons. In 1975, Vietnam's rate of electrification among poor households in the country was about 2.5 per cent. In 2009, the rate was 96 per cent despite its very low level of average national income. Well-targeted international assistance and foreign aid played a big role but not the main role. It is true that many international institutions provided much foreign aid and these included:

- Asian Development Bank and the World Bank (some of it together with the GEF) supporting the electrification of many communes throughout the country, helping in the construction and rehabilitation of small hydropower facilities and distribution networks, and supporting grid extension, roads upgrade and loss reduction;

- UNDP and the Swedish International Development Cooperation Agency supporting the acceleration of electrification in rural and mountainous areas;
- France targeting the electrification of a number of communes, among others (ADB 2011); and
- Assistance has been provided in infrastructure development, IFC provided support for small photovoltaics<sup>18</sup> businesses (Reiche, Covarrubias and Martinot 2000).

Many factors contributed to Vietnam’s success in increasing electricity access in a relatively short period of time, including local conditions (ample hydroelectric resources), local customs (which put on premium on electrification and willingness to pay), multiple funding sources and technical assistance from various international foreign aid sources, consistent and persistent policies within a good policy, institutional and regulatory framework context, and a strong political commitment.

### 3.5 What could work

*Some illustrative cases: market transformation for energy efficiency or demand side management (DSM)*

Several foreign aid programmes support market transformation strategies that facilitate the adoption of energy efficient products, services and/or practices. In carrying out an evaluation of market transformation projects by the GEF, Birner and Martinot (2003) list a number of principles on which these programmes rest: (i) interventions are targeted to specifically identified market barriers, (ii) entire markets are changed permanently so the benefits are sustained over time, (iii) new products and services or practices appear in the existing markets, (iv) private capital and knowhow and competitive market forces push energy efficiency gains, and (v) partnerships between public, private, NGO consumers and other stakeholders come in to influence market structure and function.

The menu of policies and measures available for these interventions is broad and varied. They range from fiscal incentives to public finance and regulations, some of them are price-driven, such as fixed payment and premium payment feed-in-tariffs,<sup>19</sup> or quality-driven such as green energy procurement or green labelling. The most effective foreign aid is that which provides support, when needed, to the entire spectrum of the policy framework for market transformation.

That being said, evidence also shows that DSM can be an effective tool and, moreover, that foreign aid can assist in making it successful. The origins of the concept of market transformation came from utility demand-side-management programmes in the US and Sweden. These programmes showed that some of the DSM efforts were creating permanent market transformation, leading many to focus on achieving broader objectives from such transformations. This in turn has led to some bias or less attraction on DSM projects because of their more limited objectives. Evidence suggests, however, that DSM can often also lead to market transformation in the short and medium term. In a post-implementation impact assessment of energy efficiency projects, the World Bank/GEF found DSM to be a useful

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<sup>18</sup> A method of generating electrical power from solar radiation.

<sup>19</sup> Feed-in-tariffs are mechanisms that provide renewable energy generators with a fixed long-term price for power and allow them guaranteed access to the electricity grid.

complementary measure to the longer-term intervention of market transformation. This conclusion was drawn from the analyses of various large energy efficiency programmes supported by the GEF in Poland, Mexico, Thailand, and Jamaica (World Bank/GEF 2006). This evaluation indicated that DSM alone can be quite effective but foreign aid can assist by focusing on helping countries identify those projects where DSM can make long lasting effects on market transformation. Such foreign aid programmes should be accompanied, whenever necessary, with capacity development, education and outreach programmes and solid monitoring and evaluation to provide feedback for necessary adjustments along the way.

*Combining finance and capacity building schemes to expand access to energy services: the case of the use of microfinance in the Philippines*

Despite its economic growth in recent years, the Philippines has a large number of people living below the poverty line (some 35 per cent in 2009) and some 25 per cent without access to electricity. Some 66 per cent of its power is generated by fossil fuels and the rest by hydropower and geothermal-based energy. A project initiated in 2006 has the aim of promoting renewable energy nationwide through a micro-finance project that aspires to reach households and community organizations in remote and off-grid areas in the Philippines. While it is too early to gauge the large-scale impact of the programme, the model of small-scale financing, multi-stake holder implementation and engagement, and community involvement is showing promise for large scale adoption of renewable energy technologies. The lessons learned thus far have been that the sustainability of the model depends very much on the capacity of the suppliers of renewable energy technologies, the capacity of the microfinance institutions to reach large numbers of clients in remote areas and the ability to revolve the fund to allow new loans to be granted. A close review of the project to date revealed a number of important factors for expanding energy access through micro-financing for households and community-level renewable energy technologies. In all of these, foreign aid has played an important role and they include support in the following areas: the establishment of an enabling policy environment, market-based approached in development and delivery of energy products combined with capacity development and product development, establishment of adequate, accessible and appropriate financing windows, adequate and accessible knowledge support, and finally capacity development for micro finance institutions in technology, financing, marketing and risk management (UNDP 2012).

*Enhancing integration and collaboration among stakeholders through integrated packages that include, among others, foreign aid: the ambitious model of 'Sustainable Energy for All' to transform foreign aid to energy*

Sustainable Energy for All (SE4ALL), a new initiative of the UN Secretary General described earlier in this report, promotes the worldwide achievement of universal access to modern energy, doubling the improvements of energy efficiency and doubling the contribution of renewable energy in the global share of final energy mix. It is overseen by an advisory board and co-chaired by the UN Secretary General and the President of the World Bank. In a very short period of time (roughly one year) it has been able to gather global support. SE4ALL's novel approach consists of creating a global platform to promote public-private-partnerships in energy. It brings together international organizations, the donor community, the private sector, and non-government and governmental actors to work together in designing strategies and action plans that can fulfil the three target goals. These entities also collaborate on specific foreign aid interventions 'on the ground' to help countries individually contribute to the attainment of the global goal.



SE4ALL interventions will combine foreign aid, foreign direct investment and policy dialogue to promote development outcomes to be reached through programmes of action that promote synergies among the three goals, seek joint approaches that bring several sectors together into action, and involve stakeholders in an inclusive manner. SE4ALL is in its initial stages. The first stage has consisted of developing rapid assessment to establish baselines on the three goals and identify opportunities for action to promote progress on the goals. Although given its infancy, it does not yet have a track record given its infancy, SE4ALL is included in this report because of its high ambition and innovative approach. The most significant message from this project is that a large number of stakeholders ranging from governments, international organizations, businesses, and civil society organizations can—and have agreed to—work together in a large partnership to address world energy issues with the purpose of achieving wide-ranging outcomes in employment, health, environment, security, climate change, and other important objectives. If successful, SE4ALL may transform the way that foreign aid is provided to the energy sector.

#### *Direct budget support versus traditional support*

Direct budget support—direct assistance to government budgets, often earmarked for particular purposes—has gained more prominence in recent years as a assistance tool, particularly in efforts to support poverty reduction/eradication strategies where increasing the level of energy access is often a main pillar. Under direct budget support the recipient country has the responsibility ‘to spend using its own financial management procurement and accountability systems’, through either general budget support or earmarked funds for specific sector support (UK DFID 2004: 3).

The advantage that some see in this type of approach is that funding to projects is more predictable, aligned with the budgetary cycle of the recipient countries, and transferred with lower transaction costs. Some donors, such as the United Kingdom and Norway, are strong advocates of this approach. Some argue that it helps to build ownership and capacities given that most funds are tied to rigorous accountability mechanisms, procedures for monitoring performance and programmes to build capacity in the area of management of public funds (Goody 2009). The critics of direct budget support argue that the weakness of institutions in many developing countries may result in fund mismanagement. But these arguments are more about not investing enough on capacity development in foreign aid than they are about criticisms of the recipient countries themselves. Those that promote direct budget assistance are more interested in assessing the conditions for budget support to work effectively. These include (Norad 2002):

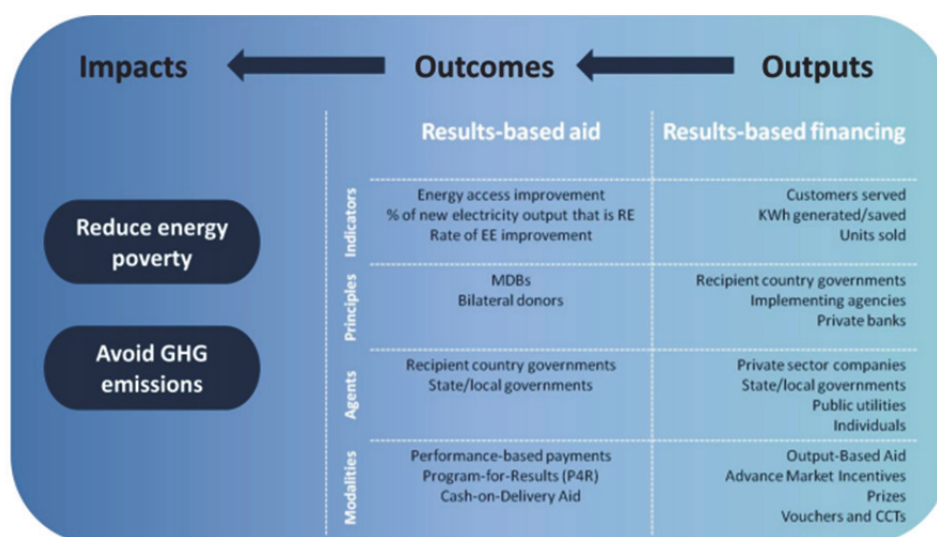
- Government strategies that cover relatively long periods of time with targets and goals.
- Good and credible links between these strategies and the government budget (for example: do the energy access strategies have sufficient and credible budgets allocated to make these happen?).
- Good efforts in establishing capacities, both institutional and at the individual level, to assign responsibilities with accountability measures.
- Adequate counterpart efforts to raise funds, either through taxes or other measures, to increase tax revenue for the implementation of the strategy.
- Strong coordination mechanism among sectors and donors.

### 3.6 What is scalable?

#### *Performance-based financing versus traditional financial assistance*

Performance or results-based financing (including for and with technical assistance) has been most commonly used in the transport and health sectors and there is expansive literature on the use and the experiences gained by practitioners in those fields over the years (Canavan, Toonen and Elovainio 2008). More recently, there has been an increasing interest to use this tool in the energy sector. Additionally, there is also more acceptance of performance-based financing as the ‘conditionalities’ components are linked to objective indicators designed to enhance performance and thus positive project outcomes. The most recent example of such efforts is the International Energy Initiative, or Energy+, a partnership launched by the Norwegian government in late 2011.<sup>20</sup> There is increasing interest on the part of the World Bank and other donors to use results-based financing. The Scaling-up Renewable Energy Programme, which is part of the Climate Investment Funds managed by the World Bank, is also encouraging the use of this approach. The figure below illustrates how this approach could be helpful in the energy sector and the funding possibilities.

Figure 6: Results-based funding possibilities for the energy sector



#### *Results-based aid*

Source: Reproduced with permission from ESMAP (n.d.).

From general experience with results-based aid in other sectors, and particular reviews by the World Bank’s ESMAP, some lessons can be drawn indicating that this type of aid programming offers several possible benefits such as clear objectives and indicators (which are crucial for interested investors), guarantee of longer-term support rather than project-based and project-bound timelines, increasing local ownership as it encourages recipients to seek appropriate and local solutions, and capacity development outcomes as the requirements of local monitoring and management are more demanding. ESMAP review, however, cautions that this approach is not always adequate or appropriate, particularly with projects offering high risk (ESMAP n.d.).

<sup>20</sup> The aims of E+ are to support efforts to achieve universal sustainable energy access and the reduction of greenhouse gas emissions in developing countries.

### *Energy supply versus energy services – the case of the multi-function platforms*

The recent shift—from focusing only on supply (transformers and transmission lines) when addressing energy needs to a vision that also considers the services that energy provides—has enormous implications for foreign aid to energy. As discussed earlier in this paper, in the past, much of the foreign aid to the energy sector was dedicated to building infrastructure and creating the possibilities for access to the grid by the population. This was justified given the dearth of infrastructure. But as these new facilities have been gradually built and improved over the decades, attention has now shifted to whether the energy that is being ‘supplied’ or produced is really getting to the whole population at a price that is affordable, and for the purposes for which the population requires it. Issues such as health, productive activities for employment and livelihood and agricultural production (with linkages to food security), direct lighting, heating, cooling, cooking, water pumping, refrigeration, communications, not to mention issues of gender and equity, are now part and parcel of the discussion and focus of foreign aid to the energy sector.

The new focus on energy services has led to a rich body of foreign aid literature that focuses on how to enhance the impacts of aid through a variety of instruments, including microfinance to help poor businesses operate, build assets, stabilize consumption, and shield themselves against crises (Morris et al. 2007). Another modality has focused on foreign aid that promotes not only the provision of and access to energy but also extending foreign aid to ensure that the energy reaching communities actually ends up promoting productive uses. An example of such a programme is the multi-function platform programmes (MFPs) now active in many West African countries. Created in Mali in 1994 (the result of a collaboration between the government of Mali and the UNDP), support for MFPs has grown in recent years to include a large number of donors, such as the Gates Foundation, with new projects initiated across West African countries. MFPs combine technical support with social and organizational support to seek solutions that go beyond simply supplying energy. An example of such a programme would be one that supplies a community with a small diesel engine (in many places now being substituted by biofuels) mounted on a chassis with interchangeable attachments that can be used for many tasks including milling, grinding, water pumping, electricity generation, battery charging, and communications; energy paired with production in one project.

The success of MFPs supports the notion that the simple supply of energy is not enough to declare ‘success’. The uses of that energy are equally important to consider and, in places, to be provided. In the case of the MFPs, such uses are typically productive ones that engage the community and provide employment, particularly to women, in the area of agro-processing and promoting economic and social development.

Understandably, MFPs have been the subject of many evaluations to measure their full impact. Results have largely been positive. A recent article by Nygaard (2010) in *Energy Policy* presents a particularly nuanced assessment of MFPS, one that should be useful for those wanting to replicate the model. In his conclusion, Nygaard argues that the very features that attract most donors to the MFP (e.g., its multiplicity of technical functions, ideal and pre-conceived organizational set-ups and local fuel production) at the same time are allowing a multiplication of criteria of success. This, the author argues, is veiling some shortcomings being detected in areas that are critical to the philosophy of the MFPs, such as environmental aspects, the degree of multi-functionality, vulnerability of the system and other important features. Should single purpose implements be necessarily more successful than complex and ambitious programmes such as the MFPs? As in every foreign aid case, the answer probably

lies in both avoiding standardized solutions and the need to test what works for a particular environment before it is scaled-up.

### **3.7 What is transferable**

*Blended mechanisms (loan-grants-technical assistance) versus stand-alone technical assistance or finance*

Blending facilities are new financial instruments established by the European Union for the purposes of leveraging funding and effectiveness of financial support to developing countries. Since their establishment in 2007, several loan grant technical blending facilities have been established, several of which make large investments in the energy sector (e.g. ITFA, Infrastructure Trust Fund for Africa, which funds many energy projects in the region, operates in 47 countries in Africa and works in collaboration with many other bilateral and financial institutions including the World Bank and the African Development Bank) (Ferrer and Behrens 2011). Blending loan, grant and technical assistance is not new in development cooperation. What is new is the broadening of the practice to the EU and involving several institutions in a coordinated manner (UK DFID 2011). There are several advantages to this type of mechanism as opposed to stand-alone technical assistance or finance. In the energy sector particularly, mixes of technical assistance, finance and, often, targeted subsidies, as in the case of some energy access projects, is the most effective course.

Some of the advantages of blending facilities or mechanisms include:

- possibility of leveraging larger amount of resources as these pools attract investors and donors to participate in programmes and projects that are well embedded in national development strategies and plans;
- greater ownership and responsibility by the recipient country;
- greater donor coordination rather than fragmentation;
- more possibility for integrated and sectoral approaches and alignment with national strategies; and
- possibilities for capacity development.

These new mechanisms, as applied broadly by large groups of donors from the EU, are new but are bound to have a growing influence on foreign aid that would need to be watched for lessons and good practices. What is evident, especially in some regions such as Africa (the ITF) is that it has a considerable portion of its resources going to the energy sector (Ferrer and Behrens 2011).

## **4 Discussion**

The previous section provided samples of the many new or expanding approaches and foreign aid interventions being delivered now to many developing countries. There are many more. Those discussed are a sample but are nevertheless illustrative of some of the most common programmes in operation. Additionally, these few were selected because of the lessons they offer on how foreign aid can or should interact with energy systems; they are indicative of the types of lessons that are becoming available. A number of common issues and themes emerge from these could prove helpful in the efforts to improve the performance

of foreign aid to energy in developing countries. The following is a brief summary of these common issues.

#### **4.1 Foreign aid in support of transformative rather than incremental change**

Given the centrality of energy, the urgency for timely action, and the need for transformative change, incremental changes of the energy system will not be sufficient to succeed in addressing the challenges of our century adequately. Can foreign aid help countries pursue more radical transformation? Is foreign aid today already helping do so? The evidence indicates that, for the most part, foreign aid is project-focused rather than programme or system-oriented. This, coupled with the fragmentation of donors, does not contribute to the ultimate type of action that is required for a transformation of the global energy system. That being said, it is evident that foreign aid in energy has indeed helped many countries in many respects. However, those which have achieved impressive transformations, such as Vietnam, did not succeed solely because of foreign aid but rather because well-targeted foreign aid was combined with national persistence, political commitment, and coordination with helpful domestic policies and regulatory frameworks. Similarly in the case of China, where foreign aid played a less important role, transformation arrived from a combination of great political commitment, specific sector reforms, targeted programmes for electrification, clean cooking and renewable energy, and generous funding. Through these means China was able to expand energy access to hundreds of millions of its population, with a now seemingly attainable goal of reaching almost universal access by 2015 (China 2012).

#### **4.2 Foreign aid that promotes integration rather than fragmentation**

The literature suggests that the most effective strategies for addressing the challenges of today are those that promote integrated approaches to energy system design (Global Energy Assessment 2012) Approaches that allow energy policies to be coordinated with policies in other key sectors such as industry, buildings, urbanization, transport, food security, and climate change, among others are the most effective. As new demands emerge in the energy sector that require more integrated approaches and an integrated energy system strategy involving many stakeholders, the fragmented approaches that often prevail in foreign aid will not contribute to helping countries implement strategies that cut across sectors (as is urgently needed) nor will it promote policy dialogue (which evidence suggests has more effect). But fragmentation also works perversely in other ways. It strains human and financial resources of recipient countries as they seek to satisfy the procedures and demands of each donor. It often leads to duplication or, worse, to certain areas of importance being left unattended as countries are busy managing the fragmented aid that they receive. Partly to address problems of fragmentation, but also to ensure that received aid is fully mainstreamed and in line with national priorities, some countries are creating national institutions to help manage donor support and funding in the area of climate change and energy (Gomez-Echeverri 2010). These new institutions provide best practices for emulation by other countries interested to ensure that their foreign aid is fully integrated into their development strategies, needs and priorities.

#### **4.3 Programme rather than project-based approaches to foreign aid**

Evidence shows that much of the foreign aid on energy is project-based which, in turn, leads to discreet and punctual action in the energy sector rather than systems-oriented action, which evidence indicates would be the most effective. There have been many efforts to shift away

from the project-based approaches. To be truly effective, energy strategies, policies, measures and programmes would ideally need to be coordinated with policies with other key sectors in the economy such as agriculture, health, transport, industry, and buildings, to name just a few. Fragmented project-based foreign aid does not lend itself easily to this type of coordination and is not strong on project long-term sustainability and country ownership.

Design of programme-based approaches, rather than project-based, can more easily be aligned with the strategies of recipient countries. Such approaches can also support sectoral strategies that many countries already have in place and that can be more appropriately supported through sector-wide approaches. Programme-based approaches can also lend themselves more easily to policy dialogue and support to policies with targeted goals and results, linked to a budget framework.

#### **4.4 Foreign aid in support of technology development and innovation rather than equipment supply**

Achieving high science and technology capacities are fundamental for countries to advance on economic development goals. And, furthermore, technological development, innovation and transfer are vital to the energy transformation that is required for addressing the challenges of our century. Technological development, in its whole spectrum, is therefore necessary for developing countries as they endeavour to make transformations of their energy systems. Ideally, to be effective, foreign aid would need to address the many stages of the innovation process that include starting from research through to incubation, demonstration, market creation (at times, niche markets), and ultimately, widespread diffusion stages (Grubler et al. 2012).

Unfortunately, very little foreign aid has gone to long-term support for innovation and technological development (Naudé 2011). The foreign aid that is most effective is that which would support countries over a long period of time in the various stages of the complex system of energy technology innovation. Unfortunately also, many foreign aid projects in the past, with large equipment components without much support for technology development or transfer have failed because of a lack of attention to this complex system of innovation and technological development but instead have focused on only part of this complex system.

#### **4.5 Foreign aid in support of public finance mechanisms to mobilize, catalyse, and leverage private investment rather than stand-alone project funding**

Previous sections of this report have referred to the immense amount of investment resources which will be required to finance the development, deployment, diffusion and transfer of clean technologies in developing countries, mostly for renewable energy and energy efficiency. It has also been mentioned that a large portion of these resources will need to come from the private sector. Does foreign aid have a role in this large-scale financing operation? Foreign aid has traditionally played an important role in providing loan financing for large infrastructure projects and for sector reforms and technology development in important sectors. There is no doubt that these will continue to be of importance as they fill a gap of financing needs in a number of countries. But foreign aid can also effectively help countries set up or strengthen what are referred to as Public finance mechanisms that can play crucial roles in leveraging financing for energy projects and which appear in the list below (McLean et al. 2008). These include:

- credit lines to local commercial financial institutions for both senior and mezzanine debt;
- guarantees to share with local CFIs the commercial credit risks;
- debt financing of projects by entities other than CFIs;
- private equity funds investing risk capital in technology innovations;
- carbon finance facilities to monetize the advanced sale of emissions reduction to finance project investment costs;
- grants and contingent grants to share project development costs
- loan softening programmes to mobilize domestic sources of capital;
- inducement prizes to stimulate R&D or technology development; and
- technical assistance to build the capacity of all actors along the financing chain.

By supporting the establishment and strengthening of these mechanisms, foreign aid can help promote investments in clean technologies, particularly those that are in the later stages of the technology innovation pathway but are still facing significant market barriers. Foreign aid can support the strengthening of the management of the private investment flows to bring down market barriers, bridge gaps and share risks with the private sector (McLean et al. 2008). Foreign aid can help countries assess these market barriers, target the market segments with the greatest economic prospects, take a more programmatic approach to financing, and define roles and responsibilities to the various actors.

## **5 Conclusion**

The importance of foreign aid to the energy sector is linked to the all-encompassing importance of energy in every aspect of modern life and economic activity. It is also linked to the immense and growing energy needs of developing countries—and the quality of the services that that energy can provide.

The nature of foreign aid to the energy sector has been changing over the last few years along with greater changes in the needs and priorities of developing countries. Many factors have contributed to these changes and they include, among others, technological changes that have made it easier to reach more pockets of the population in a more affordable and reliable way, better knowledge and science (and more acceptance of this science) about the link between energy and other pressing issues like climate change, health and national security, more flexible mechanisms for delivering aid that combine technical assistance, trade and investments, and lastly, but equally important, the large increase and diversification of donors that now include many emerging economies and non-government actors.

The most complete data on foreign aid have been collected and reported by OECD-DAC. The group of donors that are participants to this group regularly report in standard and compatible formats and this information is regularly collected and reported further. Such systematic and historic data collection and reporting allow for the examination of trends occurring over the last thirty years. These recorded trends include the performance of donors in the quantity of aid provided, to which sectors they provided, and, more recently, on the effectiveness of this aid assessed on criteria agreed upon by this group of traditional donors. The same cannot be

said about the data provided by non-traditional donors, such as the emerging economies and non-government actors. In this category of donors, there is less transparency, and when data is available, it is not always comparable to that which is reported by OECD-DAC.

Over the more recent past, traditional donors have made great efforts to improve the performance and effectiveness of the foreign aid that they provide. The Paris Declaration and the Accra High Level Forum on Aid Effectiveness constitute efforts by traditional donor to make foreign aid more effective and more in line with the interests and needs of developing countries. The effects of their efforts have spilled over into international organizations, namely the UN and the World Bank, which in turn have introduced measures to make their own foreign aid more effective and coordinated. But these efforts are not always matched by the small but growing group of emerging donors who are expected to continue growing significantly in the foreseeable future.

Assessing the level of effectiveness improvements over the years is difficult given the relative scarcity of academic literature on the subject. Much of the literature that does exist focuses on effects at the macro level and aggregate outcomes of growth and poverty eradication. The evidence that exists on concrete interventions with specific technologies targeted to achieve concrete goals and objectives is scarce. This paper therefore relied on evaluation reports of donors' independent evaluation units. Based on these reports, a brief sample was provided about what appears to work, what could work, what is scalable, and what is transferable. The most salient feature that emerges from this survey is that the success of foreign aid is closely linked to how robust the enabling environment (i.e., the policy and regulatory frameworks) is in the receiving countries. This is so much so that there are efforts by many donors to concentrate their aid only in those countries where there is good governance and strong policy-making capacity. Reasonably, this has met some resistance because, as the argument goes, by concentrating aid in strong countries, donors would only exacerbate the existing problems in a large majority of developing countries throughout the world, namely weak governance capacities and management skills. We must be careful not to penalize the states most requiring assistance. There is an argument to be made, instead, on the need to invest more heavily on capacity development programmes across the board in conjunction with aid.

Most saliently, success of foreign aid is closely linked to how well that aid is aligned to the needs and priorities of the receiving countries. Work to align aid with domestic goals has made foreign aid more complex and, consequently, higher in transaction costs. But ultimately such shifts are necessary to make aid more effective (if not necessarily efficient). Efforts to coordinate foreign aid have not always been successful. One worrying concern that is highlighted by this report is the increase of actors in the foreign aid sector and, along with them, a new proliferation of donors, programmes, funds and projects. Although more funds and projects offer the potential for greater effect, this proliferation and fragmentation has placed higher burdens on developing countries.

This report repeatedly alludes to the need for a full transformation of the global energy system—and the importance of foreign aid in helping countries achieve this transformation. The need for the former is irrefutable and the need for the latter should be recognized as such as well. Importantly, this report also emphasizes that this transformation cannot be achieved in a piecemeal manner but rather must occur through integrated approaches designed to address systemic failures and deficiencies. This in turn reveals a number of certain requirements in order for foreign aid to be effective. Aid that promotes coordination across



sectors has a better chance of success than aid that is scattered and project-based. Aid that is focused on achieving concrete goals that can be monitored and measured has a better chance for success and in achieving buy-in from a large and diverse group of stakeholders. The Sustainable Energy for All initiative of the UN Secretary General is a good example of what such an effort can look like. By bringing a large number of countries on-board early, to support very concrete goals, a campaign like this one can enlist the broad support of stakeholders who have space and means to clearly declare which goals and with which actions they are committed to contribute. With consistent coordinated efforts like this, we will be better equipped to address the large problems facing the world today and realize the ambitious goals of our time.

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