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NOTE

from:	President of the Economic and Financial Committee
to:	President of the Council (Ecofin)
Subject:	Report on International financing mechanisms for supporting climate policies

Delegations will find attached a report on International financing mechanisms for supporting climate policies, as prepared by the Economic Policy Committee and the Economic and Financial Committee.

Encl.:

Report on International financing mechanisms for supporting climate policies

This report has been drafted by the joint EFC/EPC working group on the economic and financial aspects of climate change.[1] It provides an economic assessment of options currently being considered in international negotiations which could provide efficient, effective and equitable mechanisms to deliver financing for mitigation actions, building on the principles developed by the EFC-SCIMF Subcommittee in 2008[2] and specifying practical findings. As such, this interim report should be seen as a background document for the June 2009 ECOFIN Council based on ongoing discussions in the group on selected issues. It does not specify concrete EU negotiating positions for the UNFCCC process, which will need to take into account additional considerations and a broader set of issues, but aims to provide a constructive contribution to developing these positions from a finance perspective. The group's work will continue after June.

Executive summary

- Realising a global vision compatible with the 2°C target will require very substantial mitigation effort in all countries. Along with developed countries taking the lead by setting ambitious and binding emission reduction targets, and developing countries committing to mitigation policies and actions, agreement on scaling up financial flows to support increased developing country efforts on mitigation and adaptation will be a key element of a Copenhagen agreement.

[1] The joint working group was established in April 2009 with a temporary mandate to merge and reinforce the previous work streams of SCIMF and EPC groups.

[2] "Common ECOFIN messages on the international financial architecture of climate change", ECFIN/EFCEPC/54991, 26 September 2008.

- Analysis indicates that between half and two-thirds of least cost abatement options up to 2020 or 2030 are in developing countries.[3] Regardless of reductions in developed countries, unchecked emission growth in developing countries would result in rising global emissions well beyond 2020. Effectively addressing climate change requires substantial abatement also in developing countries.

Key challenges in international financing for mitigation

- Abatement will entail additional investments for low-carbon technologies which to large extent will be recouped through lower expenditures for energy. For policy choices and support mechanisms the most relevant figure is therefore the additional cost to mitigate GHG emissions. Commission analysis, based on a gradual approach, points to such additional costs in developing countries by 2020 of close to 100 bn. euro per annum for mitigation, including deforestation and agriculture, with further costs for adaptation.
- Financing to cover additional costs to mitigate GHGs in developing countries will need to come from developing countries' own contributions (both public and private finance), international public finance and the carbon market. The private sector will need to be the main source of finance, driven by appropriate policies and regulation. The purpose of international mitigation financing is to underpin substantial emission abatement on top of own efforts thus leveraging and catalysing national own efforts. It would need to be scaled up gradually, starting shortly after the Copenhagen agreement.
- Support for mitigation can be delivered as public finance or through international carbon markets based on offsetting stricter emission targets for developed countries, such as included in EU's ambitious mitigation targets. A substantial leveraging of support through national own action in developing countries is indispensable.

[3] European Commission Communication, "Towards a comprehensive climate change agreement in Copenhagen", 28 January 2009.

- There is a strong need for capacity building in developing countries to increase the supply of programmes and products for the carbon market, to increase the efficiency of the verification of additionality and foster competition between sellers. This would better align international offset prices with actual abatement costs. Without this, buying very large amounts of offsets would significantly raise costs as imperfections in the market create substantial rents.
- Reflecting the scale of efforts needed, support channelled through carbon markets as well as public finance needs to move to higher levels of aggregation, including by working with sectors or national programmes. Any public financing support should be delivered and used in an effective, efficient and fair manner, which ensures value for money and delivers real and large emissions cuts alongside appropriate nationally defined actions to ensure that developing economies are climate resilient.
- Support will also be needed to build capacity in less prosperous developing countries to improve the necessary investment-enabling policy environment and to support the collection of inventory GHG data and development of low-carbon climate-resilient plans before 2013.

Ensuring efficient and effective governance, delivery and financing

- Developing countries are expected to undertake substantial nationally appropriate policies and actions to limit their emissions, supported by developed countries in line with the principles enshrined in the UNFCCC. Comprehensive low carbon development strategies (LCDS) should be the basis for the contribution of developing countries to the global mitigation effort and a pathway to access to support mechanisms. These strategies could identify national autonomous actions and those requiring international support. They should also integrate longer-term perspectives in terms of emissions pathways and related mitigation policies, including setting up emissions trading in key sectors. Such strategies should be appropriately differentiated according to mainly countries' capability and level of development and their abatement potential.

- An equitable and efficient global system to review, assess and verify these strategies will need to be created. LCDSs verified by a high-level international body could facilitate access to support mechanisms and could, within a broader context, be accepted by all relevant multilateral, regional and bilateral institutions as recommended entry criteria for support. Accountability and ownership would gain from having balanced representation between developed and developing countries in this process.
- An international system is needed to measure, report and verify (MRV) action. Current discussions focus on proposals for establishing an international registry system for action that would cover all mitigation action, including own efforts, supported action, and activities directly driven by the carbon market as well as the point of departure, for example current policies.
- To ensure the right balance and provide predictability a system to MRV international support is needed. This could include verification of the amount delivered, the purpose of activities and the efficiency of implementation.
- Support should be allocated based on the mitigation efficiency of programs, taking into account fairness criteria such as the level of income and an equitable distribution of support. Competition between programmes and projects in applying for support would likely increase the efficiency of allocated support and spur the ambition of programmes.
- International climate change governance should as far as possible build on existing and reformed institutions and mechanisms of the global financial architecture.

In more advanced developing countries and appropriate sectors, the current system of project-based offsets should move towards sectoral crediting mechanisms (based on a no-lose target) or sectoral trading. This can avoid some of the baseline problems affecting current CDM and allow efforts at much larger scale. No-lose targets and sectoral caps (defined below the business-as-usual trend) give developing countries opportunity to take own actions whilst also receiving support through the international carbon market. Reformed project-based offsets should continue to exist, but increasingly be concentrated on the poorest countries with insufficient capacity for more comprehensive programmes and on areas where other crediting mechanisms are not feasible.

Financing for adaptation

- Efficient adaptation is in the immediate interest of all affected countries, but many of the most vulnerable countries are relatively poor developing countries. Climate change should be fully integrated across all areas of development cooperation to ensure that development assistance promotes climate resilient and low-carbon development.
- Adaptation support should be focused on the poorest as well as the most vulnerable countries in the context of the global climate policy framework. It should be aligned closely with development strategies, taking on board the lessons of aid effectiveness. Its delivery should to the greatest extent possible be ensured by existing institutions and use the most effective channels, including those facilitating simple and/or direct access.

Financing for technology diffusion and deployment

- In the short and medium term most technologies needed for mitigation and adaptation already exist, but are not used where their diffusion is not underpinned by appropriate policies, including regulation and pricing and access to financing.
- The most important contribution that international cooperation can make to help technology implementation in the short and medium term is facilitating private capital and developing financing mechanisms for support of low-carbon actions, and technology should be seen as an integrated part of these efforts. In addition, public support and investments is needed for research, including joint global research cooperation efforts for cutting-edge technologies.

Sources for public financing and the EU contribution

- The main principles of sourcing of international public finance for developing country action should be ability to pay, emission levels and universal participation. A global key for sharing of financial contributions should be pursued according to these principles and in close relation to effective and efficient governance, delivery and implementation of such financing and also noting that financing could potentially be complemented by funding resulting from a global instruments addressing international aviation and maritime transport.
- In the end, all public support is paid for by tax payers and the choice of distribution keys will not affect basic needs for accountability, sound fiscal management, efficiency and effectiveness in spending.
- The European Council has affirmed that in the context of an international and comprehensive agreement, the EU stands ready to contribute its fair share of financing for climate action in developing countries, including through public support and offset credits linked to EU's ambitious mitigation targets. The EU should push for an equitable global contribution key based on ability to pay and responsibility for emission levels. These principles should also be the basis for contributions from individual EU Member States.

I. Scale of the challenge

The climate challenge is very large and requires strong efforts in all countries. In line with the Bali action plan and as being negotiated within the framework of the UNFCCC developed countries are expected to set targets with absolute emission reduction commitments. Developing countries, in particular the more advanced economies, are expected to undertake substantial nationally appropriate policies and actions to limit their emissions, supported by developed countries. According to the principles enshrined in the UN framework convention, these climate policies and actions are to be underpinned by provision of financial resources. Support is also expected for capacity building, technology development and transfer as well as adaptation to those changes in the climate which are unavoidable.

A global vision, consistent with an objective to ensure that global average temperature does not increase more than 2°C above pre-industrial levels, requires a peaking of global emissions within the next ten years and a reduction in 2050 by at least 50% compared to 1990 levels. This is a very large challenge, and according to the IPCC it will require a 25-40% cut in emissions from developed countries compared to 1990 levels by 2020 and 80-95% by 2050, together with substantial deviation from baseline in developing countries as a group. Recent scientific analysis indicates that developing countries, as a group, will need to limit the increase in their GHG emissions with 15-30% below baseline by 2020. Average global per capita emissions need to be reduced from 6-7 tons annually at present to around 2 tons annually by 2050. This implies that CO2-efficiency improvements need to accelerate from around 1-2 per cent annually to 5 per cent or more annually. So far the data shows no sign of improvements of the underlying moderate trend towards higher CO2-efficiency.

Achieving these improvements will entail additional costs. The size of these costs will depend on the efficiency of measures undertaken, in particular pricing, regulation and international cooperation. A significant proportion of potential investment projects that reduce emissions and save energy are economically profitable even in the absence of climate effects and thus implying negative costs and their implementation will yield economic gains in addition to climate benefits. Moreover, reducing emissions will also provide additional benefits such as increasing energy security where countries rely on imported fossil fuels, reducing local air pollution and improving the terms-of-trade in energy importing countries as compared to a scenario with continued high growth in global demand for fossil fuels.

Existing estimates of the global costs of tackling climate change are lower than the costs of inaction, assuming that swift action is taken to capture the lowest cost abatement opportunities available internationally.

Significant mitigation efforts are needed by all countries and in all sectors. Analysis indicates that between half and two-thirds of least cost abatement options are in developing countries.[4] This partly reflects that developing countries use energy less efficiently and are not to the same extent as developed countries locked-in to long-lived capital equipment (like power stations and buildings). There is also a large proportion of low cost mitigation potential in the forestry and agriculture sectors in the developing world.

Even if developed countries were to become emission neutral (which is not realistic), unchecked emission growth in developing countries would more than offset this and result in rising global emissions. Thus effectively addressing climate change requires substantial abatement also in developing countries. Reflecting the principles enshrined in the UN framework convention and the Bali Action Plan, climate actions in developing countries are to be underpinned by provision of financial resources. The more developing countries are able and willing to take action, the greater will be their demand for financial support. Such action would also help alleviating concerns for carbon leakage from other countries.

[4] Project Catalyst based on McKinsey and Company analysis; European Commission Communication, "Towards a comprehensive climate change agreement in Copenhagen, 28 January 2009

In spite of significant differences in assumptions and timescales, existing estimates suggest substantial financial needs. As regards additional investment outlays, private and public, in developing countries estimates can be found in the range of 100 to 200 bn. euro per annum in 2020/30.[5] Much investment in developing countries may require appropriate policy choices and regulation to attract private capital. Given the insufficiencies of financial markets and institutions in developing countries, capacity-building, technical assistance, and policy reinforcement will be crucial. In this regard, the multilateral institutions and bilateral actors will all have an important role in providing support for capacity-building and investments

Investment outlays will to a large extent be recouped by lower expenditure for energy and reduced fuel use after their installation. The most relevant figure for policies and public support mechanisms is therefore not the total investment outlays, but the additional cost to mitigate CO2 as compared to (more) profitable investment. Estimates of additional costs in developing countries vary from about 60 to 100 bn. euro in 2020.[6]

[5] Circa €100 bn pa in 2020 from European Commission Communication, “Towards a comprehensive climate change agreement in Copenhagen”, 28 January 2009; circa €200 bn pa in 2030 from UNFCCC Secretariat, "Report on the analysis of existing and potential investment and financial flows relevant to the development of an effective and appropriate international response to climate change", Dialogue working paper 8, 2007.

[6] Project Catalyst based on McKinsey and Company analysis. European Commission Communication “Towards a comprehensive climate change agreement in Copenhagen”, 28 January 2009. The Commission analysis, based on a gradual approach, points to additional costs in developing countries in 2020 close to 100 bn. euro. Estimated additional costs in developing countries include 71 bn. euro in energy and industry sectors. Estimated additional costs are 18 bn. euro for forestry and 5 bn. euro for agriculture, where the bulks of global mitigation efforts will be concentrated in developing countries.

Estimates of additional costs and investments required to mitigate emissions are inherently subject to considerable uncertainty, and are sensitive to the assumptions made in the baseline scenario including future world market prices of fossil fuels, economic growth, population changes and clean technology developments. Nor do they fully reflect co-benefits. In addition they are often presented as net figures hiding larger costs in some sectors in part being offset by savings in other sectors and their distribution will vary across countries. They are therefore only rough indications of the scale of additional costs invoked and to be shared at a global and aggregate level and under the assumption of efficient policies. In addition to addressing the mitigation challenge, funding is also needed for adaptation, cf. section IV.

The estimates for additional costs (and investment), public and private, to effectively mitigate emissions in developing countries are high compared to the current level of development assistance, which in 2008 amounted to approximately 120 bn. US$. On the other hand the figures are not bigger than other costs linked to climate change issues, such as the annual subsidies provided for fossil fuel use by developing countries– estimated at more than 300 bn. US$ - and similar subsidies in developed countries in an order magnitude of 150 bn. US$, both representing a negative carbon price. Producer support for agriculture, a different area, by OECD countries amount to more than 250 bn. US$.[7]

However, raising money for sharing the estimated costs would not by itself reduce emissions and ensure developments towards a global vision for avoiding dangerous climate change. Real emission cuts requires that money and support is effectively governed and channelled towards explicit mitigating activities and action, which is also backed by comprehensive national governance and strategies. Much of the needed investment in developing countries will require appropriate policies and regulation to attract private capital.

[7] World Bank, Robert B. Zoellick, presentation at informal Ministerial Meeting, “Bali-brunch”, 26. April 2009.

The EU has made a strong commitment and expects an ambitious and comprehensive global Copenhagen agreement with other developed countries committing themselves to comparable emission reductions and developing countries contributing adequately according to their responsibilities and respective capabilities.

Currently there are 3 key particularly contentious and overarching areas in the international negotiations:

- Developed countries absolute emission reduction commitments. The discussions focus on long-term goals, and targets for 2020, and the comparability of efforts between countries (including potential enlargement of the Annex I list).
- Mitigation strategies and actions of other countries. The discussions focus on how to measure, report and verify (MRV) efforts to reduce emissions in countries without absolute emission reduction commitments, the nature of actions and the link to financial support.
- Developed countries' financing obligations are intended to help developing countries go beyond what they can do unilaterally in terms of both mitigation and adaptation. The discussions have focussed on how to ensure efficiency of such support, sources of financing, and the design of a global governance framework supporting cost-effective implementation.

The negotiations also cover a very wide range of other issues, including specific sectors (such as forestry) and mobilisation of private capital. Most of these other issues are not discussed in this report. Nor is the issue of emission reduction commitments for developed countries.

At the current stage an increasing number of developed and in particular developing countries are announcing substantial low-carbon strategies and/or selected intensity targets, targets for renewable energy and other policies and measures.

II. Possible solutions for implementing financing for mitigation in developing countries

Financing for mitigation effort in developing countries will need to come from developing countries' own contributions (both public and private), international public finance and the carbon market. The international financing will primarily come from the private sector. In addition, domestic and international public support will be needed to strengthen institutional capacity in developing countries and to support mitigation efforts.

The purpose of international financing is to enable substantial emission cuts in developing countries as compared to a reference path and on top of own efforts thus leveraging and catalysing national own efforts. Any public financing support should be delivered and used in an effective, efficient and fair manner to ensure real and large emissions cuts and value for money.

Attracting private financing

As a point of departure private financing is attracted only when an investment provides a risk-adjusted return which is as favourable as the risk-adjusted return from other investments. In this context, the role of national and international policy settings include the following:

- Many profitable investment opportunities already exist, but are not exploited due to excessive risks and barriers in access to capital, including international financial markets. Weaknesses in the general business environment and institutions also increase the risks of investment in developing countries. Removing such barriers and reducing the risks will be important. In developing countries international financial institutions (notably the multilateral development banks, the GEF, UN agencies) and bilateral actors have a large potential role in channelling capital to investments and not least in helping build capacity to develop the necessary investment-enabling policy environment.
- National policies are key drivers in motivating private capital, including the pricing of fossil fuel products, regulation and standards and ensuring metering systems enabling individual users to monitor, pay and adjust their prioritisation of use and potential alternatives according to marginal costs of using energy.

- International support for development includes large-scale investments in energy systems and infrastructures, which after their installation will be decisive not only for access to energy but also for future emissions in fast growing economies. Integrating sustainable climate and environmental concerns into such support may substantially help attract private capital for mitigation purposes.
- Additional private capital can be mobilised to the extent that institutional investors as well as sovereign wealth funds set and implement principles of climate concerns in their allocation of investment, though they should only be expected to do so on a significant scale if such investments offer an adequate return.

Developing broad, deep and liquid national carbon markets is among the most important drivers of efficiency in achieving emission reduction objectives by setting binding emission targets and letting the market determine a price of carbon inducing corresponding private investment and research in energy efficiency and renewable energy. Linking regional and national carbon markets, when emission targets and market design are sufficiently comparable, can further enhance efficiency. At the current stage such carbon markets are being built up in developed countries with national emission targets. The international financial architecture should provide incentives for all countries to move toward binding emissions targets and participate in the global carbon market.

Many of the challenges for support mechanisms arise from the absence of overall binding national emission targets in developing countries and in part from lack of capacity to monitor emissions. Such targets would facilitate comprehensive linking of domestic carbon markets, avoid problems of relying on baselines and having verification and could leave the prioritisation of efforts to the principle of subsidiarity. There are however valid reasons, including statistical measurement problems and uncertainties about underlying future emission trends in fast growing economies, why such overall binding national targets are not likely to be set in the short and medium term.[8]

[8] In cases where future growth is unexpectedly strong absolute targets would have a more stringent impact than anticipated. In cases where growth turns out lower than expected countries may on the other hand easily overachieve criteria for international support, thereby leading to rents through support payments.

The efficiency of global efforts, and individual countries taking action, would gain from an increasing number of also current developing countries over the short and medium term engaging in setting sectoral emission targets, engaging in sectoral trading while in the longer term moving towards national emission targets, develop national carbon markets and linking with other carbon markets.

Linking of carbon markets is currently not a primary issue in climate negotiations, but may be agreed bilaterally at a later stage. Such linking will make global emission cuts less costly and provide for deeper commitments by allowing mutual exchange of the cheapest abatement opportunities and smooth price volatility. In principle, the larger the initial gap between carbon prices and marginal abatement costs between the regions, the greater the gain from linking. Such prices depend however fundamentally on the stringency of emission targets set in the regions, thereby implying a potentially substantial income transfer from regions with strict targets to regions with less stringent targets. When linking, the negotiation and setting of emission targets hence also becomes an issue of economic redistribution which is why comparability in ambitions in setting targets is important.

Challenges in implementing support for mitigation in developing countries

Direct financing support for mitigation in developing countries can be delivered through two channels:

- Through the access to the international carbon markets primarily by the private sector invoked by setting stricter emission targets in developed countries.
- Through direct public support contributing to cover additional costs for developing countries' own efforts and investment.

Allowing offsets (like the CDM[9]) is an extension of the scope of carbon markets in developed countries implying issues of a different nature as offsets originate in countries without national emission targets. Such efforts can help to build domestic capacity for the introduction of fully-fledged carbon markets in the form of emission trading systems in developing countries. Offsets like CDM can be bought by both the private and public sector in developed countries. One basic challenge is to establish a credible baseline for benchmarking the environmental integrity of efforts. A further key challenge is to move to a higher level of aggregation and thus allow handling of efforts at scale, as well as introducing an element of own effort for developing countries when accessing international carbon markets.

Compared to operating with public support delivering support through carbon market offsets requires stricter emission targets for developed countries. This reflects that the credits acquired are offsetting emission cuts that would otherwise have taken place in developed countries. The overall level of support therefore implies an initial trade off between public support and the strictness of emission targets in developed countries.

In this context the creation of a sectoral crediting mechanism based on "something done" baselines is necessary to overcome the downsides of pure offsetting mechanisms based on "nothing done" baselines. Pure offsetting mechanisms (like the current CDM) could create some adverse incentives in developing countries to maintain a business as usual baseline and avoid introducing domestic policy measures (including cap and trade systems), as access to offset markets can create large revenues. At a project level adverse incentives also exist to plan for CO2-intensive benchmark constructions to attract more CDM-financing. Existing CDM monitoring procedures must continue to be improved to reduce adverse incentives and ensure that credits always are only issued for actions that effectively go accordingly beyond what would otherwise occur.

[9] CDM – Clean Development Mechanism – allows governments and companies in emission trading system in developed countries with binding emission targets to buy offsets in developing countries, currently on a project by project basis. A UN control body approves the projects, in particular their contribution to cutting emissions as compared to a baseline (i.e. checking additionality). CDM is not intended to reduce overall emissions, but substitute part of the commitments made by developed countries with a reduction in a developing country thereby reducing overall costs and as a side-effect help diffusion of technologies.

Table 1 highlights some strengths and weaknesses of support through offset based carbon market financing and public support. The main relative advantages of offset based carbon market financing are the incentives provided for private companies instead of government and the contribution to prepare for target based carbon markets in developing countries in the longer term. The main disadvantage is the rents (or windfall gains) generated by applying a price of reduction driven by marginal abatement cost (MAC) in developed countries[10] to pay for the (often much smaller) cost of reductions in developing countries. In addition to the problems of avoiding too high baselines for benchmarking the additionality of projects, such rents are increased by a shortage of supply due to bottlenecks in the verification process, lack of capacity to making projects eligible for support and a lack of competition between projects based on their ambition. In addition the estimated amount of abatement opportunities in developing countries with negative or low costs is very large as compared to the amount of potential offsets from developed countries. Prices in carbon markets and the actual abatement costs in developing countries can therefore not be expected to be aligned easily.

Rents in developing countries from offset mechanisms however also raise the attractiveness and support component (including for appropriate own reductions that do not generate offsets) of having access to such mechanisms and within the framework of a comprehensive global system they may therefore leverage ambitious own efforts in low carbon strategies.

In both cases there are substantial challenges in ensuring the environmental integrity of support. Delivering emission cuts at a very large scale will require that public support does not replace private efforts, but rather complements it, enabling and leveraging private capital flows. The overarching challenges for support are to add to and leverage substantial own efforts and to work towards a system with competition for support based on the effectiveness of emission reductions taking into account the need to ensure fair and equitable access to support.

[10] While there is clearly a relationship between secondary CERS and the EUA price for example, but there is also still a price discount and primary CERs prices do tend to better reflect MACs in host countries

Table 1. Pros and cons of public support vs. support through offset based carbon markets

	Strength	Weakness
Offset mechanisms initiating private support	Transferring support implicitly through the carbon market can be administratively simpler and avoids institutional decision making on support. Can be a way of preparing a transition towards national targets and domestic cap and trade systems. Encourages the involvement of the private sector in mitigation actions in developing countries	The price of support generates potentially large rents in developing countries. Difficult to ensure additional emission cuts and avoid incentives to report CO2-intensive baselines (impacting negatively on environmental integrity).
Public support	Support can be targeted better according to costs of actions in developing countries, thereby limiting rents. Can to larger extent combine support with an interest in the achieved environmental outcome.	Requires considerable international administration and cooperation. Raises the political visibility of support and may require explicit budgetary allocation.

Challenges in delivering support

The five main challenges in delivering support, of which the first three are mainly related to offset based credit financing and the last two mainly to public support mechanisms, are as follows:

1) The size of the environmental and economic challenge.

As an example according to some estimates[11] mitigation action in 2020 in developing countries would need to be 10-15 Gt. as compared to a baseline. The cost of buying 10 Gt. is 100 bn. € for each 10 € per ton of carbon thus buying up 10-15 Gt. driven by marginal abatement cost and market price in developed countries, potentially 30-50 €/ton, would be prohibitively expensive and imply very large rents, as the average cost of abatement in developing countries are much smaller. It is therefore indispensible that a substantial proportion of low cost measures in developing countries must happen through own and autonomous action, possibly with some international public support.

2) The size of the administrative challenge.

As an example, the present CDM involves about €6bn. in annual transfers, whilst the CIF[12] covers 4 bn. € of investment 2009-12. The present levels of CDM and public support are far from the scale of efforts needed, and it will be impossible to manage very large scale support on a project by project basis. Therefore substantial reform is needed in the way support is channelled, mainly by moving to higher levels of aggregation and a programmatic approach, including by working with sectors or national programmes and in addressing problems related to institutional capacity. In addition administration of the verification process should be streamlined and worked out more efficiently.

[11] Project Catalyst. Commission analysis, based on a gradual approach, supposes somewhat lower mitigation in developing countries.

[12] CIF – Climate Investment Fund – is a temporary initiative managed by the World Bank and established by a group of countries to support emission cuts in developing countries. The funding of resources is provided by a group of developed countries and support is provided subject to a low carbon strategy approved by a board having parity between the number of developed and developing countries respectively.

3) The environmental integrity of support.

Support mechanisms should be constructed to ensure additional mitigation effects. Project based support makes it difficult to avoid supporting emission reductions that would have occurred anyway as well as to avoid leakage of emissions to similar activities elsewhere in the same sector and the same country immediately or at a later stage, since the permanence of impact can be difficult to ensure. In addition, the validation of the environmental effectiveness of projects relies exclusively on the UN administration unit, as neither seller nor buyer has other incentives to ensure that the monetary transaction is actually cutting overall emissions. A more general challenge regarding both the environmental and economic efficiency of support is to cope with perverse incentives to set particularly CO2-intensive baselines to qualify for larger support.

4) Underdeveloped and fragmented governance, allocation and implementation.

Sustainable development and climate concerns are insufficiently integrated in current development assistance frameworks and such assistance is provided for by a very large number of bilateral and multilateral institutions. Except from the few existing specialists on climate (GEF, CTF, SCCF) and some bilateral actors, explicit support for mitigation policies is currently very limited. Support is currently working more on a pilot project basis instead of being allocated systematically to maximise its impact. As much as possible support should be implemented building on existing institutions and take into account their comparative advantages to avoid a proliferation of administrative work.

5) Measureable, reportable and verifiable (MRV) action as well as support.

In most countries emissions data is currently neither robust nor comprehensive. There is no comprehensive international system for reporting, exchanging information and reviewing current climate related policies as well as strategies and action for mitigation. Whilst policy changes are relatively easy to register, the effect of policy changes, particularly mitigation achieved and associated cost, is much harder to measure, report and verify in a consistent manner across countries. Current discussions focus on proposals for establishing an international registry system for action and make a distinction between so-called autonomous NAMAs (nationally appropriate mitigation actions) and supported NAMAs. To ensure the right balance, also a system to measure, report and verify international support is needed, cf. chapter V later.

Possible solutions for challenges in delivering support for developing countries

Any framework to support NAMAs in developing countries will have to operate across three distinct levels of effort:

1. Own – or autonomous – efforts, through national measures, sectoral reform and economy-wide policies, including pricing and regulation. In particular own efforts can be expected to include profitable investments and where effort implies negative costs.
2. Supported own effort, where international financing co-share additional costs of effort as compared to profitable investments.
3. International carbon market support enacted by setting emission targets in developed countries, while recognising offsets and a new sector crediting mechanism in developed country carbon markets.

Ensuring the right balance of the three levels of effort is at the heart of any solution and is key to ensuring sufficient incentives in developing countries to enhance mitigation actions. On the one hand support, in particular for the poorer countries, is perceived as economically necessary and fair, and it provides an incentive to strengthen efforts. On the other hand, support can only work effectively when delivered and assessed in close connection to own efforts, and when leveraging and catalysing substantial own efforts in parallel with directly supported actions.

Ideally the three levels of support would have a division of labour ranking from own efforts covering negative and low cost abatement opportunities up to a point reflecting countries' respective capabilities and supported efforts covering efforts with moderate additional costs, including capacity building for establishing policy frameworks and off-sets buying up larger cost programmes and projects (to limit rents). This may be very difficult to implement and achieve in practice and leveraging of international support may therefore have to work through policy cooperation. Options for leveraging support and catalysing own efforts include:

- Option 1: Provide support and access to offset markets subject to comprehensive overall national strategies including appropriately substantive and ambitious autonomous action (including e.g. by no-lose targets).
- Option 2: Include direct leveraging at a programmatic or project level, such as requiring verified emission reductions in developing countries of 2 or 3 tons to allow an offset of 1 ton CO2 in a developed country.

Among the main elements needed to ensure effective outcomes would be:

1) Specification of national low-carbon development strategies (LCDS) by developing countries.

All countries would be expected to undertake measurable, verifiable and reportable (MRV) mitigation actions, including national autonomous effort, based on dynamic assessment of individual levels of abatement potential and development. A way forward would be for these countries to formulate low-carbon development strategies (LCDS) to identify nationally appropriate mitigation actions, including those actions for which support is requested. They should also integrate longer-term perspectives in terms of emission pathways.

Minimum requirements may include: (i) internationally harmonised GHG inventory data for key emitting sectors, (ii) existence of a national mitigation strategy consistent with development plans, (iii) demonstration of potential of the strategy to reduce emissions over the medium and long-term (compatible with a 2050 perspective), and (iv) the ability to maximise leverage and crowding in private finance towards GHG friendly investments over time. Within the context of the LCDS, policies and regulation directly encouraging increased use of fossil fuels would be expected to be phased out over the medium term. Also a periodic review to ensure appropriate adjustment and update of strategies over time would be needed.

Low carbon development strategies should include nationally appropriate mitigation action (NAMAs) and actions requiring support, including from offset crediting, and could identify barriers to implementing action, technology needs and outcomes foreseen in terms of emission reductions for longer term time horizons.

2) Allocation of support by international institutions to efforts specified at national, sector or project level.

Low carbon development strategies should play a central role in an efficient allocation of support, subject to fairness-criteria such as the level of income and taking into account regional balance. Both public and private financing should be performance-based in a way that provides incentives for additional efforts. An important share of support will be needed for capacity building including how to design programmes, making projects eligible for support and fostering competition between programmes and projects.

Competition between programmes and projects in applying for support would likely substantially increase the efficiency of support allocation and spur the ambition of programmes. It would also ensure efficiency and effectiveness of emission cuts as the guiding principles and incentive for all included in governance.

As for efficiency and effective outcomes, both public support and support generated through offset crediting could for example gain from being allocated, on the basis of rewarding performance, for example through reverse auctioning mechanisms. In such a case offset crediting would compare to buying shares in intermediary institutions, which allocates support based on such competition. Further analysis is required on the effectiveness and feasibility of implementing such an approach.

Support could be delivered by a flexible composition of institutions, taking into account the need to ensure efficiency. Relatively few and primarily multilateral institutions would simplify administration and increase the scope for effective competition for support and the potential of existing institutions should be carefully assessed before considering the creation of new bodies. Moreover, where necessary, existing institutions and mechanisms should be reformed and made more effective, efficient and equitable. A wider set of multilateral and bilateral institutions should in any case build on an international system to measure, report and verify support in compatibility with agreed criteria. Enhancing synergies and coordination between the various institutions involved will also be important.

3) Devising a governance system for reviewing and validating low carbon strategies.

Comprehensive low carbon strategies covering key emitting sectors should be reviewed, assessed and verified by a high level international body. This could facilitate access to support mechanisms and could within a broader context be accepted by all relevant international institutions as recommendation for support. Strategies could cover both own efforts autonomously financed and efforts dependent on international support. The level of ambition in the strategies proposed by developing countries would need to be in line with their common but differentiated responsibilities and respective capabilities. Accountability and ownership would gain from having a balanced representation between developed and developing countries when recognising strategies.

Governance should build on existing institutions with an overall framework under the UNFCCC. There is a need for a comprehensive oversight of needs, actions and support. The efficiency of implementing support should primarily be ensured at the programme- and project level by the financial institutions.

4) Establishing a system to measure, report and verify (MRV) action.

Such action can be grouped as (i) national emission targets in GHG levels or other forms (e.g. emission intensity or reduction), (ii) sectoral emission targets (in levels or other forms), and (iii) policies and measures to foster sources of domestic or foreign investment in low-carbon technologies and practices. Policies and measures can cover a broad range of potential initiatives, including e.g. renewable energy targets and measures, carbon taxes, energy efficiency standards and other forms of regulation, but can also include specific efforts at project level. The registry should cover changes being pursued as well as the point of departure, for example current policies. The registry should cover all action, including autonomous actions, supported action and activities directly driven by the carbon market.

5) Moving increasingly towards a programmatic/sectoral approach for support.

Public support as well as emissions trading units being bought by private companies in developed countries should underpin comprehensive sectoral low-carbon strategies. This would allow for larger administrative simplicity and scale and help measuring and verifying the environmental integrity of support by better enabling credible baselines and limiting substitution of emissions to related activities. Policies and support delivered at sector level imply, as compared to single projects, larger discretion for the developing country on how to implement and ensure the committed emission reductions.

Mitigation in developing countries would need to move towards being policy-driven, under which low-carbon behaviour in a specific sector or field is triggered by implementation of policies creating low-carbon incentive structures. Providing support to policy-driven mitigation can entail support to governments embarking on low-carbon polices and/or seeking to support the entities affected by such low-carbon policies. Delivery mechanisms for support would need to appropriately reflect this.[13]

[13] When providing support through new sectoral crediting mechanisms a combination of advanced payment and payment on actual delivery of certified emission reductions may be needed to spur ambitious planning and at the same time provide the right incentives. Supplementary systems of insurance against unexpected failure to deliver may have to be further developed.

In more advanced developing countries and appropriate sectors, the current system of project-based offsets should move towards sectoral crediting mechanisms (based on a no-lose target) or sectoral trading. This can avoid some of the baseline problems affecting current CDM and allow efforts at much larger scale. Sectoral trading based on allowances with binding caps may be relevant for some advanced developing countries and countries that are in transition towards national caps.

No-lose targets and sectoral caps are to be defined below the business-as-usual trend at an ambitious level, taking into account national circumstances, the specifics of the sector and the potential for efficiency and innovation. Hence sectoral crediting and sectoral trading give developing countries opportunity to take own actions whilst also receiving support through the international carbon market. Workable and efficient frameworks for delivering support for a sectoral crediting mechanism still need to be developed and pilot projects are urgently needed (e.g. those planned under the World Bank's Carbon Partnership Facility).

In moving gradually towards programmatic and sectoral approaches, project-based offsets should continue to exist, but increasingly be concentrated on the poorest countries with insufficient capacity for more comprehensive programmes and on areas where other crediting mechanisms are not feasible.

6) Undertake the scaling up of financing support and extension of institutions within an incremental approach.

The scale of required international cooperation in mitigating climate change is too large and the absorptive capacity of developing countries too limited for it to become fully operationalised in the short to medium term. Rather, support and improved institutions will need to be phased in gradually and adjusted in line with experience. The case for international financing will strengthen in conjunction with evidence of substantial impact in terms of emissions cuts. Allocation mechanisms can be improved to the extent impacts assessments can clarify what works best.

For a global agreement there is also an immediate need to provide capacity building support for the collection of inventory GHG data and development of low-carbon development strategies in order to have these strategies in place as soon as possible. Capacity building support would be primarily targeted toward LDCs. International public support would hence need to be delivered in a number of steps starting swiftly after a deal is reached in Copenhagen and subsequently scaled up over time.

It may, for example, play a key role in meeting some of the short-term 2009-13 financing needs of developing countries, specifically to support the development of low carbon development strategies and adaptation plans.

Public support will also be needed to finance mitigation actions in sectors such as where it might be difficult to devise and implement effective market-based incentives, such as forestry. Deforestation represents almost 20 per cent of global emissions and avoiding it represents an important mitigation potential at low cost. The deforestation issue will however be extremely challenging due to reporting problems, problems of leakage, risks of adverse incentives and non permanence of the reductions of emissions. The integration of the deforestation issue in the international carbon market should remain a mid-term objective subject to finding solutions to these challenges. The implementation of mechanisms for avoiding deforestation would need strong capacity building support at any early stage, and some additional public incentives might be required for the preservation of existing stocks.

III. Diffusion and deployment of technology for mitigation

Technology for energy savings and renewable energy is unlikely to solve the climate problem alone given the abundance of fossil fuels and the capacity, including by other technologies, to invent and use energy-consuming equipment in case of low energy prices. But technology is indispensable for addressing the climate challenge as changes in behaviour, habits and lifestyles in the medium and longer run cannot realistically be expected to contribute more than a limited share of emission reductions needed.

In the short and medium term most technologies needed already exist, but are not used where their diffusion is not underpinned by appropriate policies, including regulation and pricing and access to financing. Implementing some of the existing technologies also entails additional costs. Spurring productivity increases in the production of existing technologies, thereby lowering their price, is important, including by scaling up markets and ensuring strong competition between producers.

At the international level diffusion of existing technologies is at the heart of deliveries by mobilising and leveraging private financing as well as for financing through public support and the carbon market, cf. section II above. Facilitating private capital and developing financing mechanisms is the most important contribution international cooperation can make to help technology implementation in the short and medium term and technology should be seen as an integrated part of these efforts. In addition, public financing and investments will be required to accelerate research, development and demonstration of advanced clean technologies, including joint global cooperation efforts.

A number of additional and specific international issues are also important as regards technology:

- Creating centres of excellence or public-private partnerships within the context of international cooperation to develop and making broadly available cutting edge technologies which do not exist currently or only on an experimental basis, such as CCS and other clean coal technologies and efficient storing of electrical energy. In such cases where a real breakthrough is needed, joint international public research may be decisive and may be an efficient way of ensuring the basis for prompt diffusion of such technologies without patenting costs. Such efforts should be supported. International cooperation may also be needed to drive down costs of existing low-carbon technologies.
- Intellectual property rights (IPR) may to some extent and in the short term raise the costs of important, but simpler and gradually developing technologies. Such IPR are however necessary to maintain the incentives for future innovation. Free and open access to buy and use the relevant products will be crucial in realising their mitigation potential. However, international cooperation to facilitate easier obtainment of licensing can be considered, including helping to promote stronger competition between producers.
- Reducing trade barriers and barriers to foreign direct investments are helpful to improve economic development in all products and services, but as regards climate related technologies such barriers are also harmful from the global climate perspective, reinforcing the case for their elimination.
- Labelling and standardising the energy efficiency of products can be important in helping consumers and investors in making decisions being at the same time climate friendly and economically helpful in the longer term. The effect of such labelling is stronger when developed and being accepted internationally.
- Technology related capacity building for operation and maintenance of low-carbon technologies and modification of technologies to local conditions may be needed to increase innovative capacity and absorptive capacity in developing countries. This can be further strengthened by enhanced action on generation and diffusion of technology information (e.g. by technology information panel of the UNFCCC) or demonstration of existing climate technologies, particularly in least developed countries with no previous experience of such technologies.

IV. Adaptation

All countries will need to adapt to the adverse effects of inevitable climate change, and adaptation is fundamentally different from mitigation as the direct benefits of adaptation action are local or regional, while the benefits of mitigation actions are shared globally.

Adaptation is more closely related to development than mitigation, and in order to be effective, adapting to climate change impacts will require responses that are tailored to the particular impacts on and circumstances of the country or region affected, and measures should be implemented at the local, regional or national level. The transfer and deployment of the relevant technologies are also key to enhanced action on adaptation.

Efficient adaptation is in the immediate interest of all affected countries, but many of the most vulnerable countries are relatively poor developing countries, including Least Developed Countries (LDCs) and Small Island Developing States (SIDS). International support for adaptation, in particular to the poorest and the most vulnerable countries, should therefore be stepped up. In any case, support for adaptation will need to be delivered within existing development cooperation efforts. At the same time support for adaptation may also help leverage mitigation efforts if countries can gain access to additional adaptation support within the overall framework of global climate change mitigation arrangements.

The precise cost of adaptation in developing countries is very difficult to estimate, due to uncertainty about the precise scope of global warming, its specific regional and local impact, the inherent difficulties in separating events due to global warming from other causes and man-made environment change and the close interlinkages with development. While recognising these uncertainties, rough estimates are that adaptation costs in all developing countries could range between €23-54 billion per year in 2030.[14]

[14] UNFCCC Secretariat estimate cited in European Commission Communication, 28 January 2009.

Adaptation support should be focused on the poorest as well as the most vulnerable countries, and its provision should be in synergy with other development cooperation and be aligned closely with development strategies and efforts towards the achievement of the Millennium Development Goals, taking on board the lessons of aid effectiveness. Its delivery should to the greatest extent possible, be ensured by existing institutions and use the most effective channels, including those facilitating simple and/or direct access where possible.

There are synergies between adaptation and mitigation efforts that should be exploited as a matter of priority. For example sustainable forest management will support livelihoods, while also reducing deforestation and the risk of flooding and landslides. Similar synergies can be found in the energy and agriculture sectors. All countries should commit to preparing and implementing strategies to exploit these synergies and integrate adaptation in all development planning. In the long run, greater mitigation efforts will mean less adaptation assistance is required.

As regards the implementation of enhanced action on adaptation, challenges are in a number of respects similar to those on mitigation. They include, for example: scaling up of financial resources, capacity building, improving the knowledge and information base, development of climate resilient development strategies, and the transfer and deployment of technologies for adaptation. Efforts are also ongoing for all countries to put in place enabling environments which ensure a country-driven, long-term (flexible over time), effective and internationally and nationally transparent process allowing for mutual accountability and laying the foundation for continuous improvement.

A comprehensive framework for adaptation will be needed to ensure effective actions on the ground. It should provide flexibility to tailor responses to countries needs by mobilising the necessary support for capacity development, technical and financial resources as well as the knowledge and information bases countries need in order to understand climate change impacts and responses.

V. Sources of financing

The need for international public financing, complemented by funding provided through access to offset credits generated by stricter emission targets in developed economies, has triggered a debate on sources for such funding and international burden sharing. In the end, all public support is paid for by tax payers and the choice of distribution keys will not affect basic needs for accountability, sound fiscal management, efficiency and effectiveness in spending. In addition, financing support will only be politically sustainable with effective and efficient delivery channels, that over time demonstrate real and substantial contributions to mitigating greenhouse gas emissions, and that efficiently support adaptation to underpin broader economic development.

The case for specific funding mechanisms arise from the need to have a fair international burden sharing, to help incentivise national mitigation action at the margin, a political need for stability and predictability in financing, and to provide predictability or assurance that support is also delivered in practice when in developing countries planning action on the basis of prospects for such support.

One overarching question regarding funding mechanisms is the need to measure, report and verify (MRV) international financing, in parallel with the need to MRV the actions implemented by developing countries relying on such support, cf. section II. In principle, a simple system would have all public support channelled through a single unit, for example under the UNFCCC. In practice such a centralised system would present political challenges and would also be particularly difficult to align with support channelled through offset mechanisms.

Therefore a global system to MRV support channelled through a variety of multilateral and bilateral mechanisms is to be recommended, including verification of the amount delivered, the purpose of activities and the efficiency of implementation. Such a system could work within the framework of globally agreed assessed contributions and/or funding contingent on specific activities.

Another overarching question is the principles of sourcing of international finance for developing country action, which should be:

- **Ability to pay**: Contributions should be based on some measure of wealth such as GDP, GNI, etc potentially exempting countries with wealth per capita below a certain threshold
- **Responsibility for emissions (reduction potential)**: Emission levels should be taken into account to reflect a country's relative responsibility and mitigation potential for the global problem and to help incentivising action on potential for national mitigation efforts.
- **Universal participation** (except from poorest countries): Since climate is a global public good, contributions should be assessed from as many countries as possible , thereby also contributing to enhancing capacity, ownership and governance of the global system and be in line with developments of the global economy.

In addition, supplementary principles should include the need for sourcing to be dynamic and flexible over time reflecting the development and composition of the world economy, be adjustable to changes in needs and financial objectives, act as an incentive to reduce emissions, and be enforceable.

Of the proposals for sources of public finance tabled at the international climate change negotiations, the two that have received the most attention to date are:

- a contributory approach (by Mexico), under which countries agree to annually contribute according to a formula to be agreed based on criteria such as GDP and emission levels; and,
- an auctioning proposal (by Norway) under which a small percentage of national emission allowances – Assigned Amount Units (AAUs) – should be held back and auctioned to raise finance for developing country mitigation (or adaptation) actions.

The Mexican proposal is designed for a global fund, but may work also as a framework for a variety of multilateral and bilateral funds, subject to MRV. It would provide an element of predictability to the extent that contributions from each country would be fixed and known once an agreement is reached. This would allow long-term planning of investments and effective disbursement of funds. There is however at the current time, no compliance mechanism associated with this proposal.

The Norwegian proposal implies withholding emission rights from countries and selling them on the carbon market and is thus only indirectly based on public resources. The management of such resources should nevertheless be based on the same criteria as for all public expenditures, particularly accountability, sound fiscal management, and efficiency and effectiveness in spending. The implicit transfer through withholding AAUs may be seen as an advantage in terms of ring-fencing the contribution as compared to allocating money directly through national budgetary processes. The criteria concentrate on emission levels. Ability to pay is taken implicitly into account, although very broadly, by concentrating on countries with national emission targets. The Norwegian proposal does not deliver universal coverage and ownership as it is designed for countries with binding national emission targets. In addition revenues generated from selling emission rights are likely to be volatile and therefore not stable.

The two proposals may be coexist in some form, and there may be other proposals to be considered.

There is also continued emphasis on the importance of revenue sources from addressing international aviation and maritime transport either due to a levy or their incorporation into carbon trading systems[15]. Such activities are truly international in nature and their emissions are today enjoying preferential treatment as compared to other modes of transportation. Addressing them offer therefore potentially important environmental benefits, but compliance requires strong international systems and coordination. Revenue from such sectors would also imply contributions from all countries considerably involved in the international movement of persons or goods.

To an essential extent public funding for mitigation and adaptation efforts in developing countries is countable as Official Development Assistance (ODA). It is therefore important that existing development policy principles and criteria are applied to the implementation of these efforts.

Overall a global contribution key for financing climate related action in developing countries should be pursued in close relation to effective and efficient governance, delivery and implementation of such financing. This can be achieved through several approaches including by relying on or adjusting existing proposals.

[15] Paragraph 36 in Environment Council conclusions from 2 March 2009.

Contributions from the EU

The European Council has affirmed that, in the context of an international and comprehensive agreement, the EU stands ready to contribute its fair share of international support including through public support and offset credits linked to EU's ambitious mitigation targets.

The EU should push for an equitable global contribution key based on ability to pay and responsibility for emission levels. These principles should also be the basis for contributions from individual EU Member States. A joint EU contribution could be provided either on the basis of an intergovernmental agreement by the Council (as the agreement of the Spring European Council to increase IMF resources by €75bn), or come from the Community budget. The latter would, if applied before 2013 require an inter-institutional agreement, involving the Council, the Commission, and the European Parliament, in the context of the Community budgetary procedures. In this regard, the timing of finance and financial obligations is important, as some finance is required now, up to and beyond 2012 according to the Bali Action Plan.