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Minutes of Executive Board Seminar 08/2

11:55 a.m., March 24, 2008

1. Seminar on the Fiscal Implications of Climate Change

Documents: SM/08/59

Staff: Gupta and Keen (FAD)

Length: 1 hours, 2 minutes

Executive Board Attendance

J. Lipsky, Acting Chair

Executive Directors	**Alternate Executive Directors**
	I. Mannathoko (AE), Temporary
	G. Mpatswe (AF), Temporary
	C. Pereyra (AG), Temporary
R. Murray (AU)	
	O. Demirkol (BE), Temporary
	H. Mori (BR), Temporary
	J. He (CC)
	A. Umaña (CE), Temporary
	Y. Alvarez (CO), Temporary
A. Fayolle (FF)	
K. Stein (GR)	
	R. Bannerji (IN), Temporary
	V. Crispolti (IT), Temporary
	D. Kihara (JA), Temporary
	A. Mohammed (MD), Temporary
	S. El-Khouri (MI)
	M. Tanasescu (NE), Temporary
	J. Bergundhaugen (NO), Temporary
	Y. Ustyugova (RU), Temporary
A. Alazzaz (SA)	A. Al Nassar (SA)
	C. Sucharitakul (ST)
	R. Weber (SZ), Temporary
	D. Heath (UA)
	V. Pillai (UK), Temporary

L. Hubloue, Acting Secretary
J. Hellström, Assistant

Also Present
Fiscal Affairs Department: A. Cheasty, C. Cottarelli, S. Gupta, R. Hemming, B. Jones, M. Keen, V. Perry, J. Strand, T. Ter-Minassian. Middle East and Central Asian Department: D. Fanizza. Policy Development and Review Department: J. Dauphin. Research Department: N. Tamirisa. Secretary's Department: P. Ramlogan. Western Hemisphere Department: N. Wagner. Senior Advisors to Executive Directors: A. de Amorim (FF), P. Weber (FF). Advisors to Executive Directors: J. Agung (ST), J. Cocker (ST), C. Denk (GR), R. Lin (CC), R. Moveni (AU).

1. SEMINAR ON THE FISCAL IMPLICATIONS OF CLIMATE CHANGE

Mr. Rojas and Mr. Umaña submitted the following statement:

We would like to thank the staff for this important paper on the fiscal implications of climate change, which is of considerable relevance to all members and critically important for those countries that are most at risk from the impacts of global warming. In fact, many Fund members already report significant climate-related impacts to their economies in the Article IV consultations or program reviews. This is particularly true of countries in the Pacific, Caribbean, Central America, Africa and Indian subcontinent. This past year, over twenty countries reported climate-related shocks to their economies.

For example, last year, Hurricane Dean, a category 5 storm, made landfall in Mexico's Yucatan Peninsula after having impacted Dominica, Martinique, Dominican Republic, Haiti, Jamaica, Honduras and Guatemala. This storm wiped-out 20 percent of Dominica's GDP while Hurricane Felix, also in 2007, leveled over 400,000 hectares of forests, destroyed almost 100,00 hectares of crops and 10,000 homes in the Atlantic coast of Nicaragua. Similar examples can be drawn from every continent.

Given high natural variability, it is not possible to attribute any single extreme-weather event to climate change. Only after considering a long-time series is possible to decide with statistical significance whether any given event may be related to global warming. However, independent of whether events can be related to climate change or not, the reality is that the impact of hurricanes and storms, droughts and floods impose considerable shocks on almost all countries and their fiscal impact can be considerable. For a large number of countries, these shocks are likely to be persistent and for some they can be devastating, while no member of the Fund is safe from impact. This should be sufficient reason why the IMF should deal with this issue. In addition, members need advice on how to make their economies more resilient to rising extreme-weather events, a likely impact of global warming.

Climate change is a very complex problem, both at the level of understanding the science and impacts, as well as at the policy level because, as the paper states, it implies an intertemporal mismatch, is ridden with uncertainties, it may trigger irreversibilities and includes sharp asymmetries that lead to ethical dilemmas. Each of these characteristics deserves separate treatment but our focus is necessarily narrower and deals only with fiscal implications.

Global warming may lead to changes in the risk profile of many countries and to more severe shocks that reduce GDP significantly or stretch public spending to deal with emergencies. The IMF has a long-standing policy, going back to 1962, of providing emergency assistance to members adversely affected by natural disasters. To date 24 members affected by these events have received emergency assistance on 27 different occasions. In most cases the assistance has amounted to 25 percent of their respective quotas. Although no specific mention is made regarding climate change, it is likely many more members may require this type of assistance and that there are other ways in which the Fund can help members deal with climate-related risks and how to use fiscal and financial instruments to make their economies more resilient to these shocks.

Most fundamentally, climate change arises due to a market failure in recognizing the costs of greenhouse gas (GHG) emissions leading to a truly global externality. Furthermore, damage is caused by the stock of emissions, which implies that much future damage reflects past emissions. Since the stock of cumulative emissions is not easy to change due to the long lifetime of GHG's, most prominently carbon dioxide, the conclusion is that inevitably, in addition to abating GHG emissions, all countries will face the challenges of adaptation.

In order to start addressing this global externality it is necessary to introduce an appropriate signal in the price system to reflect the social costs of GHG emissions and given that carbon dioxide is the dominant gas, a "carbon tax" is the economically most efficient way to correct the problem. Although efficiency requires that the carbon price be the same for all emissions, in the real world this is not likely to be the case. Abatement costs are not equal among countries, neither is their level of development or cumulate responsibility for the problem.

The paper recognizes that carbon pricing can be implemented directly through taxation or indirectly through cap-and-trade or hybrid systems. Under some conditions tax and cap-and-trade systems can be equivalent. It is likely that countries may chose different systems and this need to be a barrier to progress if countries can be encouraged to act early and adopt "no regrets", robust policies that lead to reducing the carbon intensity of the economy and cleaner growth strategies. These strategies also include non-fiscal instruments like performance standards for vehicles and appliances, feed-in tariffs for renewable energy and many others. These are particularly important to emerging economies and developing countries, so that they can grow along a lower carbon trajectory that the advanced countries did.

The negotiating framework for climate change, however imperfect, is the UN framework Convention on Climate Change (UNFCCC), which has been ratified by virtually all Fund members. Its principles and architecture define the basic approach and negotiating groups. In this respect, a key departure point is the "principle of common but differentiated responsibilities and present capabilities." This argues for a more flexible framework in the post-Kyoto negotiations that considers both responsibility for the problem as well as capability of addressing it, and that provides different ways in which countries can join. For example, instead of having only mitigation commitments, low-income developing countries facing high climate risks could be encouraged, and supported, in undertaking adaptation commitments.

It is true that allocation of revenue from carbon pricing can be quite different under a locally- charged carbon tax and a cap-and-trade scheme which depends on how emission rights are allocated. Under international cap-and-trade, countries with low abatement costs would sell emission rights to those where it is costly. The model presented in the paper considers two different allocation schemes, one based on 2012 emissions, and the other on a per-capita basis. Given that damage is related to the stock of emissions, equity considerations might lead to an allocation of emission rights that is inversely proportional to the contribution to the stock. This may be an intermediate approach between per-capita allocation simply taking emissions in 2012 as the baseline.

Although there is a wide range of estimates, an important conclusion of the model is that a carbon tax can be relatively small, a few cents per gallon of gasoline, if it is put in place early and rises slowly over time. Potential revenues from carbon pricing under the scenario of stabilization at 550 ppm are between 1-2 percent of global GDP by mid-century, which is significant but modest. Many countries have explored or implemented "green" or ecological tax reforms where the tax burden is placed on energy and pollution rather than on wages and income. Ending energy subsidies is a necessary precondition to implement this type of reform.

Carbon taxes need not increase the overall tax burden and there are different alternatives to use the revenues. For example, Costa Rica is the only developing country to have adopted a carbon tax (3.5 percent on all petroleum based fuels). It has utilized the revenue from the carbon tax to finance about half of the cost of its system of payment for ecosystem services, which pays private land owners to reforest or maintain their existing forested lands. This tax, adopted voluntarily by Costa Rica, has been in effect for over 10 years and is partly responsible for the turnaround in deforestation in the country.

Revenues from the carbon tax have allowed Costa Rica forest cover to go up from a low of 30 percent to over 50 percent today.

Adaptation means adjusting to climate change, and given the characteristics of the problem, all countries face some degree of adaptation but a group of countries faces the largest burden: low-lying developing countries and small island nations. It is inevitable that climate change will impact the poorest disproportionately because they are the most vulnerable and have fewer resources to adapt. Although part of adaptation will be undertaken by the private sector, it is also inevitable that a large burden will fall on the public sector. Financial markets could help these countries insure against extreme weather events, however insurance is not presently available in many developing countries and coverage is very low in those where it is available.

Adaptation costs are highly uncertain and cost estimates vary widely, however, they are likely to be considerable and include basic issues like land-use planning and zoning, building codes and emergency preparedness. Self-insurance through accumulation of budgeted resources in emergency funds or borrowing are important and have considerable fiscal impacts. Other risk reduction strategies like the catastrophe ("cat") bonds introduced by Mexico or the Caribbean Risk Insurance Facility (CCRIF) have also been tried.

Given their high level of exposure to extreme weather-related events, the Finance Ministers of Central America and the Dominican Republic have undertaken a joint initiative to explore potential risk reduction mechanisms for their region. Although these are still pioneering efforts, diversification of climate-related risks across the regions of the world would lead to lower insurance premiums for all. To this end, international markets on climate related risks should be encouraged and the Fund could play a useful role in a variety of ways.

To some extent, the Fund is implicitly already considering the impact of climate-related events in surveillance for countries that face the largest and most persistent climate risks (warmer, low-lying and low income countries and island nations) and has supported countries facing natural disasters for over 45 years. However, at this time it may be important to explicitly recognize the reality of climate change and deal with the issue more systematically than in the past. Some specific recommendations:

The Fund should start reporting on the fiscal impact of mitigation and adaptation policies in its surveillance work. This can be done within the existing framework and with existing expertise, supplemented by specialist from the World Bank and other UN agencies.

The Fund should make some effort in compiling different experiences with carbon taxation in member countries and make those available to all. It is also likely that some countries will request technical assistance in fiscal issues, in particular the design of carbon taxation schemes and regional cap-and-trade systems.

As part of the UN family, the Fund should make its economic and financial expertise available to the UNFCCC and participate in the post-Kyoto negotiations to provide guidance on the fiscal aspects of climate change and on key issues like financial instruments for risk reduction.

Mr. Bakker and Mr. Tanasescu submitted the following statement:

At the outset we would like to reiterate our call that the World Bank, not a refocused IMF, should take the lead on the topic of climate change. Against that background, we offer the following remarks.

Effects of Climate Change on Financial Stability

Before addressing the fiscal side, we would like to make some remarks on climate change and the financial markets. The financial sector considers climate change as a new opportunity for doing business, which is in itself a welcome development. However, we would like to stress the importance of more awareness of the risks that climate change could pose for financial stability. Events happening as a consequence of the changing climate may lead to volatility in financial markets and could also have a negative effect on the economic activity of countries or regions. It would therefore appear useful to focus on the financial stability implications of climate change with special attention to financial innovation on the one hand and potential micro and macro prudential risks on the other hand (e.g., in terms of exposure, correlations and geographic concentration). In this context, we feel that it would be valuable to focus more on how financial institutions have been preparing to bear climate change related shocks in order to retain stability in the financial sector in adverse circumstances. Staff comments are welcome

Fiscal Aspects of Mitigation and Adaptation

We welcome the analysis of the fiscal implications of climate change, and the potential role of the Fund in addressing them. Addressing climate change is central to development and poverty reduction, since it has crucial implications for fiscal policy, policy coordination and public finances. Identifying now the fiscal instruments to mitigate the financial impact of climate change, could have significant importance for development priorities and bringing new business opportunities.

While adaptation to climate change will occur through private sector adjustments, certain public goods, like coastal defense will also need adaptation. The size of adaptation through fiscal instruments will differ across countries and is highly dependent on the level of climate change and thus on the level of mitigation. However, in the near term mitigation will have the largest fiscal implications. As argued by the staff, this will be mainly on the revenue side, causing a shift in sources of revenue towards pricing emissions of greenhouse gasses. In the longer term adaptation will have fiscal implications as well, but mainly on the expenditures side.

Fiscal Instruments to Mitigate the Impact of Climate Change

We share the staff's view that fiscal instruments have a role to play in both mitigation and adaptation, and in making effective climate action part of development efforts. Fiscal instruments can support mitigation opportunities, together with solutions for local development, such as energy efficiency measures, cost-effective and reliable use of renewable energy. In this sense, reorienting public spending through technology support, and attracting more private investment in addressing these issues could provide multiple environmental benefits.

To achieve sufficient mitigation of climate change, it is necessary that all groups of countries—developed and developing—start pricing their emissions. Acceptance of the instrument should therefore be a consideration in choosing from different instruments. Whether taxes, cap-and trade or hybrids, these instruments will generate additional revenues for the government budgets. Revenues from carbon taxation remain in the country that levies the tax, and allow governments to increase environmental public spending or reduce general taxation to cope with pressures from international tax competition. The cap-and-trade programs are intended for polluters to give them financial incentives to clean up their act, for governments to set emissions caps, and for companies to trade their pollution credits to other firms willing to pay to pollute. However, the issue of choice between cap-and-trade versus taxation will encounter different practical obstacles, and should take into consideration country-specific priorities and vulnerabilities related to climate change. It will be hard to agree on a uniform carbon tax scheme, because different countries already have different environmental tax schemes, and a cap-and-trade scheme would require a new system of monitoring emissions and allocating permits.

From our perspective, quantity instruments such as cap-and-trade, which are working to stabilize the quantity of emissions in the atmosphere, are preferable to taxation. We think that international emissions trading will ensure a uniform global carbon price, ensuring efficient allocation of abatement, and will allow companies to comply with Kyoto rules to buy and sell on the exchange, which acts as a kind of guarantor and cuts down credit risk for buyer and seller. To achieve the same efficiency using a tax will require all participating countries to levy the same rate of carbon tax, and to agree on when and how to adjust it. In this respect, EU experience shows the difficulty of coordinating tax rates, even among a group of closely integrated countries. Both quantity and price instruments are important and can be used to face the cost of greenhouse gas remittance and to increase the public revenues. However, the purpose of environmental taxes is to change the behavior and not to raise revenue. These behavioral changes, not the use of the revenues, have to lead to the mitigation of climate change. The revenues generated with the pricing of emissions, leading to higher prices for consumers, could be compensated through a lower personal income tax.

Prepare Countries for Climate Change Challenges

We share the staff's view that as long as climate change is moderate, adaptation costs will be also moderate for the advanced economies, but it would be wise for those countries to evaluate the consequences of a more serious climate change. For some developing countries adjustment to even moderate climate change may put significant pressure on public spending. It will be crucial for these countries to develop adaptation strategies and to clearly articulate the balance of priorities between adaptation and lower carbon growth opportunities. Creating fiscal space may not be the most feasible option, but providing assistance to climate risk management, and developing competitive products for financing lower carbon investments could diminish the impact of climate change for developing countries and the countries most vulnerable to climate change. These countries could explore alternative mechanisms, such as insurance mechanisms, to reduce the economic impact of extreme weather events (e.g., through catastrophe bonds).

Improving the understanding of the various fiscal instruments and climate change, and of the adaptation and mitigation linkages, will better prepare countries to accelerate economic growth by increasing their capacity to adapt to and take full advantage of low carbon business opportunities. Country ownership in this respect is the key to mitigating the effects of climate change and to prepare countries for further developments in reducing GHG emissions.

We know already that climate change is expected to have macroeconomic consequences, and the fiscal implications of climate change should be part of the bilateral surveillance process for the next years. At the same time, we believe that if agreement for cooperation would be reached, the Fund could be helpful in setting up the desired system for pricing carbon emissions, whereas other institutions should monitor the progress countries make towards mitigation objectives. Addressing climate change and reducing its impact will require attention to integrating all aspects, from the macroeconomic perspective to the development and building of infrastructure, and in this respect there is a clear need for enhanced international cooperation among several development partners.

Mr. Prader and Mr. Demirkol submitted the following statement:

We thank the staff for the well-written paper. We agree that climate change brings along many difficult policy issues. This necessitates coordinated action both at national and international levels. However, as emphasized in the paper, sharp asymmetries in the impact on different countries and inherent uncertainties—let alone strong ethical issues—could seriously undermine international policy cooperation. While we see a role for the Fund to facilitate envisaged "fiscal" cooperation, its contribution will be limited, unless other non-economic core issues are adequately addressed. We would also like to stress that the Fund's work in this area should be demand-driven rather than being a regular part of bilateral surveillance.

On the fiscal aspects of mitigation, the paper gives a brief summary of the fiscal instruments—i.e. direct or indirect taxes, cap-and-trade policy, or hybrid systems. Appendix II provides useful hindsight on the choice discussion. We agree with staff that given the uncertainties, the use of taxation rather than quantity-based instruments could be a better option. However, quantity-based instruments should be considered positively as they could prove to be effective given that the ultimate target is to stabilize the quantity of emissions. Also, given the negative experience with tax coordination in other areas, it is likely that the use of taxes could lead to some complicated coordination issues. Furthermore, country-specific circumstances would differ and, therefore, countries could opt for different instruments.

We note that the estimates for the carbon price path differ substantially. Although the starting value is tolerable, it is the future path that shows the real difference. The staff's assumption of stabilization at 550 ppm is a reasonable objective. We agree with the staff that the potential revenue from carbon pricing under this assumption is sizeable but not really "transformational." In this regard, the quantitative examples about the impact of carbon pricing on households are useful. In theory, there could be many ways of offsetting any regressive impact of carbon pricing on households. However, like the staff, we believe that the design of these compensating measures is a delicate issue. Reducing or eliminating fuel subsidies has serious economic implications and potential political consequences for developing countries.

The staff has rightly pointed out that adaptation will have fiscal implications, i.e., increased public expenditure, especially for some developing and small island countries. Efforts by a country to create fiscal space should definitely be supported. However, it should be also recognized that the cost could be quite large relative to the economic size of a country. While insurance and financial innovation could also be helpful, multilateral support should be the main channel for particularly helping small developing countries. In this regard, UNFCCC provided a good initial framework for donor support to most vulnerable countries although, thus far, its financing has been limited. The World Bank Group is active in this area and a well defined Fund–Bank collaboration framework should be helpful.

We agree with the staff that many economic issues resulting from climate change are in the areas of Fund expertise. Technical assistance by the Fund in designing and implementing fiscal instruments for mitigation will be most valuable. However, climate change issues should be incorporated in bilateral surveillance only if there is a request from the country authorities and they should not become a regular part of surveillance activities. We would like to reiterate our position that the Fund should not overstretch its core mandate. The Fund could facilitate an international cooperation framework for fiscal measures to address the issue of climate change.

Mr. Moser and Mr. Weber submitted the following statement:

We thank the staff for an informative paper that covers a topic that the Fund is not usually associated with. Global climate change has and will have further significant economic implications for all members. Due to the nature of the problem, international collective action will be critical in arriving at an efficient, effective, and equitable response to these challenges. The manifold fiscal consequences of climate change and the suitability of fiscal instruments to mitigate and adapt to this change suggest that the Fund should indeed contribute to the international efforts in this area as set out below.

Our comments will focus on the fiscal aspects and the role that the IMF can play in the international debate. While we agree with many of the findings of the paper pertaining to the available fiscal policy tools, and would fully subscribe to the goal of efficient carbon pricing, we do not comment on which policy response would be preferable for individual members.

Role of the Fund

The Fund should respond to member countries' needs for candid advice and information on how to deal with fiscal implications as part of its bilateral surveillance activities. We concur with the staff that fiscal instruments will be pivotal in mitigating and adapting to climate change in an economically efficient way. Here, the Fund has a comparative advantage. In particular, the Fund can play an important role in advising members on the choice of fiscal instrument. As countries are stepping up their efforts, the Fund might also contribute to enhancing the transparency of members' actions in a way that would need to be discussed.

In this advisory role, the Fund should remain focused on its core macroeconomic mandate, complementing the expertise of climatologists and ecologists. In doing so, the Fund is called to provide counsel that is independent and based on sound macroeconomic reasoning. This could prove particularly valuable in the context of calls for action that are driven by short-term interests rather than the goal of finding effective solutions to a very long-term global problem (which involves issues of geographical and intertemporal redistribution).

While we acknowledge the strong rationale for coordinated action in this area, we consider that the Fund should provide its particular expertise without aspiring to be in the lead. We thus do not see the Fund, at this point in time, as playing a central role in "enhanced international cooperation."

Although the Fund will have to come to terms with new terminology, its involvement should not amount to an expansion into new territory. Its activity on climate change should thus be accounted for within the existing resource envelope with its cost implications clearly laid out.

Policy Choices under Uncertainty

The paper provides a good overview of the likely effects of different instruments for the mitigation of, and adaptation to, climate change. To a large extent, the differing outcomes are due to the many uncertainties associated with the underlying projections and cost estimates. These uncertainties, both with regard to the diagnosis and the prescriptions, seem to be overly conducive to wait-and-see attitudes by policy makers, slowing the search for globally agreeable solutions. We recognize that there are many very welcome and creative international schemes intended to address subsets of issues. Members' national climate policies will need to be coherent with these more comprehensive regional or global initiatives.

In terms of choosing fiscal instruments, climate change resembles other optimization problems that call for behavioral change (e.g., measures should be practicable, efficient, equitable). The difference (or novelty) may lie in the global dimension of the challenges. The feasibility of fiscal measures—more so than the economic theory behind them—will thus need to be carefully assessed.

Although the staff paper focuses on the fiscal aspects, it is important to bear in mind the potential contribution of regulatory measures and financial instruments to address climate change. Regulation may play a significant role in fostering environment-friendly innovation, for example by guaranteeing innovators a certain market share. New financial instruments might be able to provide similar incentives like fiscal measures (by pricing in externalities or future costs) beyond the confines of national borders.

Mr. Alazzaz submitted the following statement:

I am surprised that for the second time in a week the Board is discussing issues relating to climate change—an area clearly outside the Fund's mandate. Indeed, work on this very important issue is ongoing under the United Nations Framework Convention on Climate Change (UNFCCC). In this connection, it is important to recall that 187 countries meeting recently in Bali, Indonesia, agreed to launch negotiations towards a strengthened international climate change deal. According to the press release dated

December 15, 2007 of the UNFCCC secretariat, the decision includes a clear agenda for the key issues to be negotiated up to 2009. These are: actions for adapting to the negative consequences of climate change, such as droughts and floods; ways to reduce greenhouse gas emissions; ways to widely deploy climate-friendly technologies and financing both adaptation and mitigation measures. Indeed, the negotiators can draw on a substantial body of literature, some of which has been flagged in the staff paper.

Against this background, it is important that the Fund should not duplicate the work of other agencies and focus its work within its mandate and comparative advantage. This will also be consistent with the recent Board discussion on the Managing Director's statement on strategic directions in the Fund's medium-term budget to refocus and reposition the Fund with the principle of comparative advantage underpinning the Fund's new business model and its work program going forward.

Clearly, the Fund has an important role to play in advising members on fiscal issues, including on strengthening revenue bases and rationalizing expenditures. However, this should continue to be done on a case-by-case basis taking into account the specific circumstances of each country. As I noted earlier, both adaptation and mitigation measures for climate change should be left to the negotiations under the UNFCCC. Moreover, as stated in paragraph 71 of the paper, other institutions have expertise in the scientific, environmental, and sector-specific issues that will be central to addressing climate change issues. The list includes the World Bank, United Nations Development Program, and United Nations Environment Program that have considerable experience with the impact of, and micro-level responses to, changing climates.

Ms. Agudelo and Mr. Mori submitted the following statement:

We thank the staff for the informative paper.

We share the view that climate change (CC) is a fundamental issue that remains as a major concern for the world at large, member and non-member of the Fund. Yet, we are less convinced whether this issue should be addressed by the Fund. Of course, we would like to see material progress in addressing CC, but other entities may perhaps be better equipped and specialized to deal with it. This will be more so in the current restructuring that the Fund is undergoing, to be more focused on its core mandates, under a strict budget constraint. If the Fund has resources to address climate change, it seems more urgent and useful applying them in research to understand better financial market dynamics and flows.

The staff points to the fiscal implications of CC as a justification for the Fund's involvement, the case for purposive use of fiscal instruments in mitigating the extent of CC, and adapting so as to limit the damage. The instruments suggested by the staff could work in a small scale but we wonder whether they would be effective in a global context in achieving the desired objectives. Fiscal implications appear to become of lesser relevance in the whole discussion of CC, as there seem to be more difficult obstacles to achieve a reasonable compromise in reducing the problem of CC.

The process of emission seems to have started more dramatically since the industrial revolution. As noted, global temperature depends not on the current flow of emissions but on the cumulative stock, with emissions taking decades to have their full effect and decay. Therefore, it has been so far an accumulation of emission and change in the environment, primarily centered in the industrial countries. We can infer that the physical consequences of the process we are experiencing now and in the near future are mainly the result of those accumulated past emissions.

There is then a more fundamental question to be solved before any macroeconomic concern, which is the tension between development and climate change. In view of its global nature, the problem of CC is the responsibility of the entire membership, but the burden of mitigating it needs to be distributed in a way so as not to hamper the development process of emerging and developing countries. If any type of fiscal instruments is used for addressing CC, such a key element has to be taken into due regard.

Mr. Murray and Mr. Moveni submitted the following statement:

Given the medium to longer-term significance of climate change in economic, social, environmental and political terms, the Fund has a legitimate role to play in underlying economic analysis and in shaping the climate change policy debate. In our view, the Fund's strategy, within its core mandate and taking into account comparative advantages and the work of other institutions, should be to focus on: (i) analysis of macroeconomic consequences; (ii) fiscal policy development and design in relation to revenues (from mitigation) and expenditures (from adaptation); and (iii) financial market developments to catalyse new products to assist adaptation. In this context, we welcome the staff paper, The Fiscal

Implications of Climate Change, as a useful contribution to developing sound policies in this important area.

The paper rightly identifies climate change as a global problem. Because of this, all major economies and greenhouse gas (GHG) emitters must be involved in the solution. A new international agreement providing a global framework for approaching both mitigation and adaptation challenges will be vital for ensuring that the climate change response is both efficient and effective.

The paper also highlights the need for a permanent change in private sector behaviour, both to reduce emissions and to respond to the risks and challenges of adaptation. While there is a role for government to provide the structures and frameworks that will facilitate such changes, we agree with staff that market-based instruments provide the best opportunity for least cost abatement—supporting the effective leveraging private sector investment and directing financial flows to the most efficient mitigation opportunities. The counter-factual would be reliance on government financed interventions to enforce the necessary changes in private behaviour, which risks exerting enormous (and potentially unnecessary) fiscal pressures in the long-run.

We welcome the staff's analysis, both in the paper and in Chapter 4 of the draft April 2008 World Economic Outlook, on the relative merits of carbon taxes and cap and trade schemes under a range of different scenarios. On carbon taxes, we agree with the staff that there is a strong economic efficiency argument for any international carbon tax to be applied uniformly across major emitting countries, including to avoid free-riding and to reduce potential distortions created by overlapping and/or inconsistent incentives. Within our constituency, Australia's commitment to implementing a 'cap and trade' emissions trading scheme (ETS) reflects the growing international consensus in favour of this approach, partly due to the certainty that it provides in relation to the level of emissions reductions. We also note the points raised by Messrs. Bakker and Tanasescu on the practicalities, both in application and in reaching a global agreement, of an ETS relative to a uniform carbon tax based on the EU experience.

In any event, we agree that the introduction of a uniform carbon tax or an ETS should replace existing incentives for abatement, including tax concessions, rather than supplement them. Retaining these distortions or embedding new distortions to assist affected parties will have the effect of reducing the efficiency of any global response and thus increase the overall economic cost of mitigation. That said, we can conceive of a role for other, complementary measures that support carbon pricing and mitigation. An example would be well-designed and carefully-targeted government financing of climate-related research and development.

The paper also discusses the possible introduction of trade-related measures, namely border tax adjustment (BTA). We consider such measures unnecessarily trade restrictive, while being both an inefficient and ineffective approach for meeting the mitigation challenge. In our view, a comprehensive response would be clearly superior, with consistent action by all major emitters.

We note the discussion in the paper on the impacts of revenues from carbon pricing on potential taxation reform, compensation arrangements and complementary mitigation measures. We agree with the staff that the use of these revenues should avoid distorting the carbon price signal. A clear pricing signal is essential in order to effectively incentivise abatement actions—distorting that signal may compromise the efficacy of the mechanism and thus increase the costs of the scheme. Furthermore, we agree with the staff's view that hypothecating or earmarking revenues is generally undesirable as it reduces the flexibility of government spending. The paper notes that receipts from emissions permits will enable governments to reduce other distorting taxes and consider broader tax mix issues between personal, indirect, and corporate taxation. Indeed, it will be important for governments to seek opportunities to use the revenues in ways that will generate greater efficiencies in the tax system which, in turn, could lead to further possibilities for low cost abatement.

We share the staff's scepticism that there is a role for carbon pricing in addressing supply side exhaustibility of fossil fuels by setting carbon prices below the market interest rate (Paragraph 23 of the staff report). It appears to us that this would be at cross purposes to carbon pricing, which would ideally reflect the social cost of greenhouse gas emissions. Further, as mentioned in the paper, there are other policy instruments, including allocating property rights that represent a more targeted approach to the problem of fossil fuel exhaustibility.

In terms of operationalizing the Fund's role, our view is that the IMF must contribute to the international debate on significant areas within its core mandate. As mentioned above, in the climate change context, this includes the Fund contributing to international analysis and dialogue on: assessments of the macroeconomic consequences of climate change; fiscal policy development and design; and related financial market developments. We also agree with the staff that the Fund should take into account the interaction between various fiscal instruments and mitigation and adaptation objectives in its bilateral advice (including in the context of Article IV consultations) and technical assistance. In the case of adaptation, for example, the Fund's fiscal policy expertise is invaluable for Pacific Island Countries in our constituency, who confront significant and potentially very costly adaptation challenges due to rising sea levels. At the same time, bilateral advice on the fiscal policy implications arising from climate change needs to be calibrated to the magnitude of the adjustment challenge faced by individual countries and the related implications for domestic and external macroeconomic stability, including relative to other pressures.

Mr. Sigurgeirsson and Mr. Bergundhaugen submitted the following statement:

Key Messages

We agree that the IMF has a role to play in the macroeconomic aspects of climate change. Especially fiscal aspects may arise in a range of Fund activities. At the same time, the Fund can be a useful forum for discussing and exchanging experiences with economic instruments for cost-effective mitigation.

We also concur with staff that the implications for the Fund's work program are relatively modest and that the resources can be accommodated within the existing resource envelope.

When designing a framework to deal with climate change, we would like to highlight the need for having well-designed cap-and-trade systems for these to be a proper alternative to carbon taxes. It is also important to ensure as broad participation as possible in order to avoid, among other things, the so-called carbon leakages.

We thank the staff for an interesting analysis on an important topic. The paper discusses the potential impact on public finances from climate change and the pros and cons associated with different fiscal instruments. For a 3°C rise in temperature over the next century, benchmark estimates point to a loss of global GDP in the range from zero to 3 percent. Although there is a high degree of uncertainty surrounding estimates of the economic cost, and these are also likely to vary across regions, climate change will most definitely have an impact on public finances worldwide.

Given the nature of climate change as a global externality problem, we agree that the IMF has a role to play in addressing the related challenges. The staff rightly indicates that the Fund's work on climate change related issues should have macroeconomic relevance. We also concur with the staff that the implications on the fiscal work of the Fund should be modest and that the resources can be accommodated within the existing resource envelope.

On Fiscal Instruments

Three different types of fiscal instrument are discussed in the paper: a carbon tax (price-based), cap-and-trade (quantity-based) or hybrids of the two. A carbon tax seems to be a cost-effective way to limit global emissions and provides a predictable long-term price for energy producers. The emissions trading schemes on the other hand, are at risk being subject to manipulation by special interests. Nonetheless, well-designed cap-and-trade systems that address such concerns will also generally be a cost-effective instrument to reduce emissions and a transferable quota system should not be ruled out as an instrument to limit emissions from larger scale producers.

On Carbon Leakage and Border Tax Adjustment

Regarding the design of a framework to deal with climate change, we would like to highlight the importance of the broadest participation possible to avoid so-called carbon leakages. Generally, at the macro level there is very little reason to be concerned about negative effects on overall competitiveness or employment stemming from mitigation efforts. Nonetheless, it is worthwhile recognizing that for a handful of very energy intensive sectors there could be a risk for carbon leakage, which can lead to an increase in green house gas emissions. We would welcome further analysis in this area.

We oppose border tax adjustments and believe—in addition to the issues mentioned by staff—that such taxes could contribute to imposing restrictions against developing countries, restraining their possibilities of economic growth.

On Earmarking

For the reasons mentioned in the report, i.e., constraints to public finances and inefficient spending, earmarking is not in accordance with some countries' budgetary principles. As one example of earmarking, the report also mentions the allocation of proceeds from the Clean Development Mechanism (CDM) to an Adaptation Fund. We are in principle skeptical about such an arrangement. Financing for adaptation should ideally not be based on activities that reduce emissions and thereby increase the costs of mitigation. At the same time, whilst acknowledging the usefulness of the CDM, it is very important to ensure its environmental integrity, both with respect to proper evaluation of each project, but also in avoiding that the mechanism may give countries perverse incentives for not adjusting e.g., their regulation.

Mr. Lushin and Ms. Ustyugova submitted the following statement:

The issue of climate change is a fresh item on the IMF work agenda. Therefore, we read the staff paper with interest. However, in the end, we were somewhat puzzled by the issues proposed for discussion. We would like to offer several comments related to the climate change issue as a whole and to the staff paper in particular.

As a general comment, we do believe that climate change is “one of the world’s greatest collective action problems,” as formulated in the WEO. We also believe that this problem calls for urgent attention, as its potential consequences, including economic ones, are enormous. Therefore, we think that both Chapter IV of the WEO and the staff paper we discuss today make a valuable contribution to raising the sense of urgency in dealing with climate change. At the same time, we doubt that the IMF should take the lead in fostering this process.

Being a global externality problem, climate change requires profound international cooperation in dealing with its near and long-term implications. In particular, any policy response (fiscal or not) needs to be considered in a multilateral setting. In this regard, we believe that the role of the Fund in dealing with climate change should be defined on the institutional level, after extensive consultations with other institutions involved in a climate change discussion and clear delineation of responsibilities between them. Any unilateral initiatives on the Fund’s side to include certain aspects of climate change in a range of Fund activities could be unproductive. Thus, we prefer that the discussion on the format of the Fund’s involvement (not necessarily limited to the fiscal area) follow rather than forerun the decision to be made by the international community at large on the precise role of the Fund in the global coordination effort to tackle the climate change problem.

One can argue that the Fund should be forward-looking in preparing to deal with potential macroeconomic effects of current developments, including climate change. In our view, in the situation when political compromise on the topic is yet to be achieved and there is a long way to go towards effective international cooperation, the forward-looking nature of the Fund's working agenda on climate change should be reflected in strengthening the research foundation, which naturally contributes to better understanding of effective policy responses.

Having said that, we suggest that the paper on the fiscal implications of climate change, if published, be limited to Sections I-IV.

As for the issues proposed for discussion, our position is the following:

We agree with the first and the third statements, as it is hard to disagree with them.

We believe that producing any "general principles to guide how revenue generated by fiscal instruments should be used" is unproductive. The staff is right to indicate that the best use of additional revenue from carbon pricing will vary across countries in line with their different circumstances.

We doubt that preparedness for the fiscal challenges from climate change and progress towards mitigation objectives should be specifically emphasized in bilateral and multilateral surveillance at this juncture for the reasons indicated above. The best approach, as we see it for the moment, is to promote sound macroeconomic (including fiscal) policies within each country based on country-specific circumstances. This is within the traditional work agenda of the Fund. Credible fiscal institutions and efficient public administration will support domestic stability objectives and help protect public finances. The fiscal challenges from climate change should reinforce the existing fiscal advice coming form the Fund, but not change its substance. The Fund may elaborate on fiscal instruments to mitigate the climate change effects for an individual country if the country itself explicitly asks for this type of advice.

The enhanced international cooperation in deploying fiscal responses to climate change is needed. However, as we already emphasized, we doubt that the IMF should take the lead in fostering this process.

We also have a specific question and a remark on the paper.

Our question is related to the wording in describing the principles of carbon pricing. We read in paragraph 17 that “not only its current level, but—especially—the future path of the carbon price, and its credibility, are critical.” At the same time, paragraph 29 says that “less important than the initial level of the carbon price is its future path—with estimates suggesting substantial real increases.” Does it mean that the future path of the carbon price is less critical than its current level?

Our remark is related to citing the examples of climate developments that affected fiscal positions. A high degree of uncertainty that surrounds climate change developments precludes from easy interpreting of a separate phenomenon as having a climate-related cause. In particular, a number of works failed to find evidence of a climate-related cause for the 2002 flood in Germany, quoted on page 5 of the staff report. Thus, cooperation with other institutions that have expertise in scientific and environmental issues is critical to providing the credible analysis of macroeconomic challenges from climate change.

Mr. Rutayisire submitted the following statement:

We thank the staff for a very informative paper on fiscal implications of climate change. Given the significant risks to the macroeconomic framework that changes in the climate profile entails for many members and the need for a coordinated response for any response to be effective, we welcome the Funds involvement in the design of fiscal response to the challenge of climate change. Nonetheless, we are of the view that the Fund involvement should be within its core comparative advantage and should inform and complement, not be a substitute to ongoing negotiations in forums such as the UNFCCC.

We note that energy costs are already at their historical highest level and contribute to increasing the cost of living in many countries and in sub-Saharan Africa in particular which strains social cohesion. We strongly feel that any mitigating or adaptive solution to climate change—which in all likelihood would drive prices even higher, is needed but should include adequate safety nets for the most vulnerable members, specially low income oil importing countries. We welcome the finding that any Fund contribution, including through technical assistance would be within the projected budget envelope.

We agree with the staff that climate change has both near and long-term fiscal implications through their impact on tax bases and government expenditures, with low income countries amongst the most vulnerable and the least able to cope with their effects. These vary from high contingent liabilities from insurances against catastrophic weather events to government interventions to mitigate the consequences of climate change such as droughts, flooding or hurricanes.

Fiscal instruments can play a central role in mitigating and adapting to the effects of climate change although we note that a policy mix involving the private sector could lead to higher gains. The credible commitment to use fiscal instruments as implemented through an intergovernmental agreement would address both intergenerational and free riders obstacles to an economically efficient response to climate change.

We note that the results of the model-based assessment of various fiscal instruments are highly sensitive to the model's assumptions and parameters uncertainty, which points to the need for further investigations and flexibility in their eventual implementation. We are of the view that the principles of equity and effectiveness in addressing the issues should guide the choice amongst different fiscal options. Under the most likely scenarios, many low income countries would be severely affected by climate events related to excessive greenhouse gas (GHG) emissions in affluent countries and it would be reasonable to anticipate increased assistance from the later. With respect to the principle guiding the use of revenue generated by the fiscal instruments, we see merit of less regulation given the fungibility of budgets and the distortions generated by earmarks.

In operational terms, we encourage the staff involvement in evaluating and assisting member countries as they take measures to respond to climate change challenges, including through the creation of ad hoc fiscal space. Given the limited resources available, this undertaking can be usefully restricted to the bilateral surveillance of members with external stability at risk. However, we view enhanced international cooperation, including within the framework of multilateral consultation as preferable to a bilateral approach to addressing climate change issues given the economies of scale and cost effectiveness of a broad based and concerted deployment of a fiscal response.

Mr. Torres and Mr. Pereyra submitted the following statement:

The Fund has a clear expertise on fiscal matters and we welcome this discussion to clarify the role that the Fund can play in helping countries choose instruments and in articulating globally consistent response. In recent years a broad consensus has emerged about the potentially considerable macroeconomic implications of climate change (CC) associated with carbon emissions. Both in the near and long term, under current policies, significant weather changes—including the possibility of catastrophic ones—are bound to have a dramatic impact on global living conditions and broad economic patterns. The staff report provides a useful overview of the theoretical and practical aspects of the fiscal responses to CC.

Fiscal instruments can have a central role in mitigating CC, financing abatement costs, and compensating for social loses; however, command and control measures may also be necessary. Even if fiscal instruments are easier to administrate, this does not exclude the need to also use regulatory measures to cap or ban socially unacceptable externalities. Speed limits make a good analogy. Wealthy drivers do not have the option to drive faster even if they can afford speed tickets. In its policy advice, the Fund should be mindful that the threshold of tolerance for environmental externalities may vary among countries and this leaves room for complementary regulatory measures.

Progressive integration of carbon externalities into fuel prices will induce lower emissions and generate revenues that can be used to finance adaptation costs. Carbon pricing should be phased-in progressively so as to avoid economic and social disruptions. This could be done through carbon taxes, cap-and-trade, or hybrids of the two. A main guiding principle is that, to ensure efficiency, the carbon price should be levied at the same specific rate on all emissions, irrespective of their source.

Adequate pricing of carbon externalities is important. The staff argues that when abatement costs are uncertain, carbon taxes are preferable[1]. We fail to see the logic. Should an ideal carbon tax not equate marginal social abatement costs? Therefore, one would think that known abatement costs would have to be the basis for adequate taxing. The staff's comments would we welcomed. Additionally, in actual fiscal policy, currently no country has a carbon tax as such, apart from excise taxes on petroleum products. In practice, the latter serve different purposes, from raising revenue to favoring the use of certain kind fuels against others. The downward pressure on rates, originated

[1] Paragraph 26

in international tax competition, is another major element to consider. Therefore, there seems to be merit in considering a second-best, more feasible solution (“broad-but-shallow”, instead of “narrow-and-deep,” as put by the staff) in the form of minimum tax rates.

The discussion on implementation of carbon pricing comes down to a problem of international cooperation:

There are asymmetries between potential revenue collection and impact of emissions. Potential revenue would be mostly collected in high-income and large emerging economies (where most emissions will be originated). However, impacts may be mostly felt in LICs where adaptation costs considerably more significant as a percentage of GDP. This brings up the need to study cross-country transfer schemes to address fairness concerns.

Effective coordination requires transparent and streamlined fiscal instruments to ensure effectiveness and comparability—thus promoting cooperation. As highlighted by the staff, “there is scope in many countries for taking inventory of significant measures in place, so as to assess their coherence, transparency, and effectiveness.” Fuel subsidies would need to be phased out, albeit carefully particularly where “clean” substitutes are not available and/or affordable, so as to prevent, for instance, a substitution of wood for kerosene in cooking.

Earmarking or revenues can make carbon taxes more acceptable. Whereas in general we agree that earmarking introduces and element of rigidity in fiscal management, in this case it could provide assurances that the revenues raised will be used for specific adaptation to, and compensation for, CC.

Border Tax-Adjustments can also help make carbon taxes acceptable. The staff argues that BTAs “may be WTO-inconsistent.” Indeed, if they are levied on income this would be the case. However, taxes levied on the product (i.e., so-called “indirect taxes”) could be adjusted at the boarder in consistency with Article III.2 of the GATT. This is an area in which the Fund could seek advice from the WTO.

Assessing the fiscal costs of adaptation is key to an international agreement on carbon pricing. Currently the estimates vary widely. Also, appropriate instruments should be chosen to promote efficient technological innovation geared to dealing with CC, as discussed in Section III.G.

A trans-border problem requires consistent national policy responses. The Fund is uniquely positioned to help articulate them. The Fund can, and must, make a significant contribution given its fiscal expertise, leaving other associated aspects to the World Bank, the International Energy Agency, and other institutions. We agree that addressing the fiscal impact of CC is not unlike preparing for population ageing—a matter in which the Fund is fully engaged. Crucially, the Fund's universal membership can provide a platform for effective international cooperation. The coordination difficulties flagged by the staff, especially the transparency issues, resemble the "prisoner's dilemma." The Fund can resolve it through universally consistent and adequate policy advice. This can be embodied in technical assistance about the design of fiscal instruments for mitigation, and in bilateral surveillance—with advice in this respect focused on promoting harmonized fiscal practices and assessing the potential impact of climate risks. The most challenging effort, however, is to facilitate international cooperation as part of the Fund's multilateral surveillance work. Encouraging fulfillment of commitments in the context of the United Nations Framework Convention on Climate Change (UNFCCC), and the development of institutional structures within a successor to the Kyoto Protocol, are key in this respect.

Finally, we would appreciate the inclusion of an acronym list in all staff papers to facilitate reading.

Mr. Stein and Mr. Denk submitted the following statement:

We thank the staff for two excellent pieces of work: the paper on Fiscal Implications of Climate Change and the WEO chapter on Climate Change and the Global Economy.

We consider climate change as the global commons challenge of our time and highly welcome the staff's contribution on key macroeconomic aspects of the ongoing debate. Most importantly, the staff makes a powerful case for timely and comprehensive action that includes advanced, emerging, and developing countries. Our authorities strongly support this main message. It is in that spirit of collective action that Germany has offered to reduce its greenhouse gas emissions from 1990 to 2020 by 30 percent, and by 40 percent if other countries were to set themselves equally ambitious targets.

We broadly agree with the thrust of both papers and would like to focus our comments on three points:

Fiscal Instruments to Mitigate Climate Change

Germany supports market-based instruments to mitigate climate change. In so doing, we favor cap-and-trade schemes over carbon taxes and would like to share the following considerations: First, successfully tackling climate change requires stabilizing the quantity of emissions in the atmosphere—this argues in favor of instruments that are based on quantity rather than price. Second, the issue of international efficiency of abatement efforts needs to be taken into account. International emissions trading will require a uniform global carbon price, ensuring efficient allocation of abatement. To achieve the same efficiency using a tax would require all participating countries to levy the same rate of carbon tax and to agree on when and by how much to adjust it. There is some prospect of international agreement on the former; the latter is not even on the negotiating agenda. Moreover, experience in the European Union shows the difficulty of coordinating tax rates, even among a group of countries that are closely integrated.

In addition to the ongoing EU Emissions Trading Scheme (EU-ETS), Germany has implemented a comprehensive environmental tax reform over the past years that substantially increased fuel taxes. Revenues from these taxes were mostly used to lower social security contributions, thereby realizing a "dual dividend" for the environment and for employment.

Going forward, we wonder whether emissions trading and fuel taxes alone should alone compensate for externalities. As the staff has pointed out, some technological developments could allow to unbundle externalities, for example road pricing and congestion charges. Further comments by the staff would be welcome.

The Role of the Fund regarding Climate Change

Climate change will be one of the major forces affecting public finances over the long-term. In that sense, it has some commonalities with demographic change. However, the high degree of uncertainty about the precise timing, extent, and impact of climate change as well as the multiplicity of causes make matters considerably more complex. We believe that the Fund cannot afford to ignore such an important force that is increasingly affecting the public finance of its membership. Not dealing with climate change would pose a reputational risk for the Fund and could be exploited by those who already question the Fund's relevance. We therefore believe that the Fund has an important, but very clearly focused role to play in the area of climate change.

Regarding multilateral surveillance, we highly appreciate the Fund's analysis on the overall macroeconomic impact of climate change as well as relevant implications of different mitigation scenarios.

Regarding bilateral surveillance, we see a role for the Fund in advising members to design efficient tax systems with a particular focus of internalizing external costs. We encourage the staff to bring to bear its cross-country expertise in his policy advice.

Having said that, we believe that role of the Fund in the debate on climate change will need to be very focused on key macroeconomic aspects, particularly in view of the tightening budgetary framework. It must be clear that the bulk of the multilateral work on climate change will have to be performed at other international organizations, including notably the United Nations and the World Bank. The Fund should certainly not duplicate work that is being done elsewhere, but it should inform these debates in the areas of its core expertise.

A Carbon Neutral IMF

Finally, we invite the Management to consider what practical steps the Fund itself can take to reduce its emissions of greenhouse gases. We propose that Fund becomes "carbon neutral".

As a first step, we would be interested in learning about the size of the Fund's carbon footprint. As a second step, measures could be designed and implemented to decrease greenhouse gas emissions caused by the operation of the Fund's headquarters, its travel activity, and the commute of its staff. In that spirit we welcome the proposal within the budget framework to eliminate parking subsidies. Other measures could include slightly reducing heating in winter and air-conditioning in summer as well as replacing some air travel by teleconferencing. All these measures would have a positive impact on the budget as well, thus yielding a "dual dividend." Remaining emissions could be compensated by carbon offsets, as it is already done by the World Bank.

Making the Fund carbon neutral would strengthen the Fund's legitimacy by not only talking about macroeconomic consequences of climate change but also taking practical steps in its own realm. For the future, we would expect that carbon neutrality will increasingly become a standard for responsible organizations, particularly for those facing intense public scrutiny like the Fund. Acting now presents an opportunity to take leadership and strengthen the image of the Fund as an innovative and credible organization.

Mr. Daïri and Mr. Mohammed submitted the following statement:

We thank the staff for their paper on the fiscal implications of climate change (CC), which focuses attention on issues that fall within the Fund's area of comparative advantage. The paper complements the extensive analyses produced by the Research Department in the October 2007 WEO and in Chapter 4 of the current WEO document. There was some uneasiness expressed during the last WEO discussion whether this chapter, with its longer-range dimension, could fit appropriately into a document that gave so much focus to the current financial turbulence. Perhaps a melding of the chapter with the FAD paper could produce a more rounded publication that would establish the rationale for Fund's involvement in a subject that otherwise appears somewhat removed from its immediate concerns in the current WEO. In response to concerns about the involvement of the Fund in CC issues, it is important to recognize that staff involvement is not recent, which is explained by the FAD's expertise in fiscal implications and taxation. What is new is the Board's involvement in this issue, which can provide guidance on the extent and focus of further work in this area.

The subject of CC has enormous significance for the well-being of the world's population, and especially the poorer countries; the findings of the scientific community on the issue are widely accepted as valid even through divergences of views remain because of the uncertainty on the relationships between emissions, policy interventions, market responses, and economic damage. We tend to agree with the "precautionary principle" that requires the world community to "act now to avoid bad future outcomes" rather than delay action "to avoid incurring costs that may prove unnecessary."

The damage from emissions is sometimes regarded as too slow-moving to call for prompt actions, given the stock nature of the impact on global temperatures and, thus, little connected to the current flow of emissions. However, as the recent experience of the adverse impact of diverting land from food crops to biofuel production indicates, there are "knock-on" effects that should be dealt with urgently to prevent, or to mitigate widespread harm to food-importing countries. It is curious that in a discussion of what role the Fund could play to deal with CC, there is no mention of the possibility of reviving CFF-type instruments that would help such countries deal with the balance of payments consequences of spikes in food import costs.

While the paper discusses the application of tax and spending instruments to deal with CC and considers them superior because they can be "particularly well-targeted," there is need for greater awareness of the possibility of using non-fiscal instruments of a regulatory character. Such measures have the advantage of being more practical to apply at the national level, whereas the fiscal measures are likely to require much greater and more difficult cooperation at the international level to produce results. The difficulties of obtaining multilateral agreement on carbon pricing, including on starting values of the carbon price and on its future path and allocation methods for emission permits, are spelled out clearly in the staff paper and are indicative of the prolonged and intensive effort that lies ahead for the international community to shape the post-Kyoto world. In this context, the Fund should collaborate with other international institutions, especially the World Bank, for effective international coordination of the fiscal aspects of climate change. One question that needs a clear response, however, is why a carbon tax at levels currently being envisaged would succeed in reducing emissions, while the recent huge increase in energy prices have so far failed to produce any tangible results.

We see a role for the IMF in the following areas: to follow developments in the areas of CC that may have a bearing on member countries' economies and international stability, in the context of multilateral surveillance ; to contribute to the debate and research on issues of relevance to the IMF mandate and expertise, particularly regarding fiscal issues; to contribute through bilateral surveillance and technical assistance to increasing awareness and preparedness of countries likely to be most affected by CC, especially among low-income countries and countries with limited capacity.

Mr. Fried and Mrs. Alvarez submitted the following statement:

Climate Change (CC) is a serious challenge, both environmental and economic, to all the Fund's member countries. It is a global externality problem with both near and long-term implications. While the staff paper properly focuses on the macroeconomic aspects, it acknowledges and documents well the wider implications of CC. International cooperation to mitigate CC's potentially serious impact is required, and much progress has been achieved so far in several regions of the world. Indeed, these discussions will intensify as negotiations move towards a conclusion on the successor to the Kyoto Protocol. But international fiscal cooperation in particular is limited under current international arrangements. The Fund is well-positioned to inform the discussions on the fiscal implications of CC given its universal membership, global perspective and expertise.

We thus thank the staff for the informative report and for their efforts to engage the Board on this important issue. Indeed, the fiscal implications of CC could be among its most powerful and immediate, affecting all Fund members, in different ways. We are struck by the range of conclusions that could be drawn by just varying the assumptions regarding targets, dates, and advances in technology. This underlines that developing a universal approach will depend on model-specific agreement.

Role of the Fund

We consider it important for the Fund to limit its involvement in CC to its core competence. The Fund should not get trapped in the technicalities of CC or indeed the international negotiations that will be required to move towards common solutions. The Fund's work on CC should be budget-neutral, especially given the current refocusing and downsizing exercise. The staff's indication that the potential implications for the fiscal work of the Fund can be accommodated within the prospective budget envelope is therefore reassuring.

The Fund can play a pivotal role in assisting those members that are currently most vulnerable to CC, with the greatest potential for substantial effects on their external stability. The staff can assess these countries' preparedness for the fiscal challenges likely to result from CC, and progress towards mitigation objectives in the context of bilateral surveillance work. Indeed, the staff is already providing such advice to many of these countries, for example regarding the desirability of raising and broadening energy taxes, and assistance in identifying and preparing for fiscal risks.

While the more advanced countries are in a better position to address these issues, they, too, should continue to benefit from candid advice from the Fund where climate change-related policies carry potential macroeconomic consequences. Changes in absolute or relative prices for fossil fuels and technology, the choice of cap-and-trade, tax or hybrid measures and targeted incentives, and such other public policy choices as transportation and infrastructure spending each may carry impacts on fiscal policy, inflation expectations, and terms of trade.

Members' Options for Dealing with Climate Change

All countries should strive to implement prudent macroeconomic and financial policies to ensure fiscal and external sustainability. The main considerations that should guide their selection of the various fiscal instruments to mitigate the impact of CC should include both effectiveness in domestic policy-making and international coordination to facilitate simplicity, transparency, and coherence in domestic energy taxation. We agree that carbon taxes, cap-and-trade, and hybrids are liable to have significantly different effects depending on the assumptions, but with carbon taxes appearing to be generally more regressive, we can see a bias towards the use of these revenues to protect weaker sections of the society. We would, however, emphasize that earmarking revenues is, in general, undesirable.

Many countries frequently review domestic macroeconomic policies to address internal and external imbalances. Some of the more advanced countries regularly evaluate these policies to address CC challenges, and to help public and private sector bodies cope with climate-related risks, among other things. The paper provides several examples of countries that have successfully created fiscal space through expenditure rationalization, strengthening revenue bases, and/or exploring insurance mechanisms. We consider that the smaller countries would find it more difficult to emulate this practice, largely due to resource and capacity constraints and the need to tackle more immediate problems. We agree with the staff, however, that much adaptation will occur as spontaneous private sector adjustment with limited fiscal impact, even though additional public spending may be needed to provide and strengthen various public goods.

The vulnerable and low-lying Caribbean countries, which this Chair represents, are among the Fund's smallest members having to continue to tackle climate-related risks. Strong and more frequent hurricanes in recent years have had a disproportionate impact on their economies. The authorities have sought to mitigate and adapt to the fiscal implications of these climate-related risks in a variety of ways, including self-insurance, expenditure rationalization, strengthening revenue bases, and exploring insurance mechanisms. Supportive TA from the Fund has been offered within the context of bilateral surveillance work, and several affected countries benefited from the Emergency Assistance for Natural Disasters (ENDA). The regional experience with a disaster insurance facility (CCRIF) has been mixed: significant damage in Belize and Jamaica in August 2007 from Hurricane Dean did not trigger any payments under the CCRIF, while an earthquake (7.4 on the Richter scale), which shook the Eastern Caribbean in November

2007 triggered a payout to Dominica. The World Bank and the regional authorities are revising the 2008 policy with a view to more adequately covering these risks.

Conclusion

We broadly agree with the staff's position on the key issues raised on page 32. The Fund has expertise in advising countries on a wide range of fiscal issues, including the implications of CC, and this can be built on and deepened. However, the Fund should remain focused on those aspects where it has genuine expertise. In this respect, we find the paper reassuring.

Mr. Larsen and Mr. Pillai submitted the following statement:

We thank the staff for an excellent analytical paper, which provides a good basis for our discussion today. Climate change poses perhaps the biggest global threat to securing sustainable economic growth and development. Few now question the science behind climate change, though there are some remaining uncertainties around the path and speed of its impact. The inter-regional and inter-generational effects, and the "free-rider" issue, add to the degree of complexity in solving the collective action problems. However, there is growing recognition around the world of the importance of mitigating the climate risks. As a result, work is underway to explore appropriate response strategies for mitigation and adaptation with additional resources, and we have an agreement to initiate international negotiations on the post-Kyoto arrangements. In our view, the Fund has an important, if ancillary, role in providing analysis and advice on the fiscal and design issues of macroeconomic relevance to tackling climate change.

The Fund's comparative advantage is on the fiscal instruments for mitigation and the likely costs of adaptation. We generally agree with the staff's views on the issues related to choice of instruments—taxes, cap-and-trade or hybrid arrangements. However, we think that the paper could have had a deeper discussion on the relative benefits of cap-and-trade vis-à-vis taxation. In particular, the potential advantages of the former in providing long-term certainty on emission levels should be considered in the light of the potentially catastrophic results of an excessive emission level. Here we would note that the Intergovernmental Panel on Climate Change (IPCC) flags the risks of extreme events and tipping points, which should point to the need for a long-term quantity target. Furthermore, the EU Emissions Trading Scheme provides demonstrable experience that international cap-and-trade schemes can function effectively, while there exists no successful model of international carbon tax cooperation.

We would note the need for caution in two particular areas (beyond the Fund's purview) where further work is needed. Firstly, the paper provides some useful stylized analysis of financial flows from cap-and–trade. The direction and magnitude of such flows is clearly dependent on the extent of "burden sharing," which will emerge as a result of (no doubt complex) international negotiations. Secondly, the paper refrains from prejudging the level of emission reduction target. We note that the EU goals for cutting emissions are considerably more ambitious than those considered in the paper.

We would also stress that our discussions should be guided by the IPCC's conclusion that both mitigation and adaptation are important. The emphasis should now be on moving rapidly to low-carbon growth trajectories for all countries. As the staff notes, there are particular challenges in considering the fiscal aspects of both mitigation and adaptation. We agree with the staff that adaptation will inevitably require increased public expenditure, including to facilitate private sector adjustment.

In addition, the IMF's comparative advantage also positions it to potentially play a useful role in helping members examine the implications of fossil fuel subsidies on climate change; monitoring the levels and types of global carbon prices (with a view to strengthening the transparency in this regard); assessing the fiscal impact of future 'liabilities' associated with disaster recovery, and the role of climate change in increasing both the amplitude and frequency of extreme climate-related events.

Mr. Kotegawa and Mr. Kihara submitted the following statement:

We thank the staff for their academic work on the fiscal implications of climate change. These analyses could provide potentially useful insights for future policy dialogues. Nonetheless, we are not fully convinced with the strong emphasis on climate change in the context of surveillance or technical assistance. The Fund is currently refocusing its operations towards core mission, and its resources need to be allocated to where the Fund has unique expertise, such as linkage between real economy and financial sectors.

It is true that fiscal policies could play an important role in the mitigation and adaptation to climate change. Nonetheless, it is also important to assign fiscal policies with appropriate role, taking into consideration a comprehensive policy package on climate change, including an international treaty and domestic regulations. Paragraph 14 of the staff report says that fiscal instruments “can be particularly well-targeted” to reduce GHG emission. This proposition could be also reexamined from the viewpoint of their effectiveness as a tool of international policy coordination. The UN process is taking the lead in holding multilateral negotiations on climate change, and we expect that discussions in those fora will clarify the expected role of fiscal policies.

With regard to the various fiscal instruments, such as taxes and cap-and-trade, more discussions will take place, as these measures gather increased attention, on adjustments on double-taxation, desirable framework to ensure the introduction of uniform policies, and their effects on cross-border capital flows as well as the corporate sector’s productivity and efficiency.

It would be difficult to reach a firm conclusion on the potential impact of climate change on public spending, since such an analysis needs to be conducted over the long term and involves considerable uncertainty. The coverage of climate change in bilateral surveillance should be limited to countries that expect substantial effects from climate change on their external stability. We do not expect that the Fiscal Affairs Department will be uniformly involved in every country’s bilateral surveillance in order to analyze climate change. However, for some countries, such as small island countries where the impact of climate change is evident and significant, the Fund’s appropriate involvement at an early stage on this issue would be desirable.

As the staff points out in paragraph 72, the role of the Fund in multilateral settings will depend on developments in the institutional structure for cooperation in climate policies. However, we do not expect the Fund to become the main venue for negotiations on fiscal policy coordination on climate change. Rather, it would be more practical for the Fund to contribute to international negotiations, mainly held within the UN process, by utilizing its expertise. In this regard, we welcome the staff’s response on how the Fund has been involved in the UN process discussions on climate change. We also point out that the paper uses a distinction between developed and developing countries. In order to promote enhanced international policy coordination, different approach could be more beneficial.

Mrs. Sucharitakul and Mr. Agung submitted the following statement:

We thank the staff for the informative paper which makes a useful contribution to this very important issue of climate change. We agree that it is in the Fund's mandate to analyze fiscal and macroeconomic implications arising from climate change, and to develop the necessary tools and policies to address them. Like a number of other Directors, however, we found it somewhat surprising that the Board is being asked to revisit this issue again so soon when it was featured in the just concluded WEO and given other more pressing priorities. Besides, work on this issue is currently being undertaken by the UNFCCC and other international organizations, and it may be more expedient for the Fund to work in parallel and in collaboration with these institutions. Like Mr. Bakker and Mr. Tanasescu, we caution that the Fund should not take a lead on this issue of climate change.

Given considerable uncertainties on various aspects of this issue, including the costs and benefits of policies, we would like to emphasize that it would be inappropriate for the Fund to rush into any policy recommendations to member countries, especially in this period of market stress. As Mr. Rojas pointed out in his gray statement, it is extremely difficult to attribute any single weather-related event to climate change. Currently, weather-related impacts on the economy are already included in Article IV discussions. Hence we do not find it necessary to include specific climate change discussions in regular Article IV surveillance.

However, we agree that the Fund could tap its economic expertise to look into ways to internalize the cost of climate change. With regards to the specific fiscal instruments proposed, we would like to underscore the staff's observation that the pervasive uncertainties and irreversible effects in dealing with climate change would warrant a "gradual and flexible approach" for both mitigation and adaptation. Such an approach would probably involve a sequence of decisions based on the gradual accumulation of information and the resolution of uncertainties. For such an approach, policies that can be easily modified over time would offer advantages.

On fiscal instruments for mitigation, we note that there are two options available for policy makers: tax and cap-and-trade, which would theoretically be equal under certainty of emission reduction costs. However, under uncertainty regarding the costs and benefits of emission reduction, the emission tax would generally be more preferable than cap-and-trade approach, particularly given that tax would minimize the costs of choosing the wrong level of control. Moreover, carbon taxes are more transparent and easily understandable, making them more likely to draw the necessary public support than an opaque and difficult to understand cap-and-trade system. However, we understand the difficulties in harmonizing tax across countries. This is particularly so given that measures to deal with climate change would entail equity issues. The emissions come disproportionately from industrialized countries, while the most harmful consequences of climate change are likely to befall the poorest countries, which are least equipped to deal with them. We would like to invite the staff's comments on how to address this issue in designing a harmonized tax.

On the adaptation policies, government intervention may be appropriate in the case of market failure for private adaptation, including the development of climate-related insurance. At the same time, we see some scope for international efforts for climate change adaptation. These could include factoring adaptation into development assistance through measures such as mandatory climate risks assessments for projects financed by multilateral and bilateral lenders. Furthermore, international donor support in this regard, including the introduction or expansion of insurance-type instruments in vulnerable countries by committing funds to subsidize premiums or to reinsure governments, would be helpful. In our view, there may be some instances where it would be justifiable to use revenues from mitigation for spending on adaptation. We are not sure why the staff considers that "there is no link between the appropriate revenue from mitigation and the appropriate spending on adaptation." We welcome the staff's clarification.

Carbon pricing would have distributional impact on the households particularly in developing countries where social safety nets are typically less well developed. Lowering tax for the vulnerable groups or some forms of tax exemption could potentially help address this problem although it could introduce administrative difficulties and reduce the effectiveness of the taxes. We thus see greater merit of direct, well-targeted compensating measures for vulnerable groups or losers.

Mr. Gakunu and Mr. Sulemane submitted the following statement:

We thank the staff for this paper which focuses on an important issue for the membership of the Fund, with both short and long-term macroeconomic and fiscal implications. We consider the position of climate change an issue of concern to the international community. A key question is to what extent the Fund, individual countries and the international system, already burdened by resource constraints in dealing with other pressing needs, would be able to mobilize additional financing for measures to mitigate climate change challenges. Our comments below focus on two major areas: i) the trade-offs in priority spending and strategic planning; and ii) the role of the Fund.

Trade-offs in Priority Spending and Strategic Planning

Due to climate change, countries face a trade-off between priority spending and meeting the costs from climate change within budgeting processes. This is especially the case in developing and low-income countries (LICs). Many LICs see the need to incorporate climate change concerns, and in particular, adaptation costs, as a cross-cutting issue in their PRSPs or National Development Plans. In practice, such an approach will spill over into budgeting processes and policy design, which they would not be in a position to finance.

For countries trying to find solution to climate change-related problems, adaptation to climate change, is becoming an additional stress on already stretched budgets, adding to the existing onerous burden imposed on countries by social sector challenges such as malaria, HIV/AIDS, natural disaster management, de-mining (in post-conflict areas), and food insecurity. With the limited revenue and aid at the disposal of LICs, and the restrictions many face on their capacity to borrow, they are forced to be selective in addressing climatic and other challenges which border on emergencies. Thus painful trade-offs have to be made in resource allocation, and in the process, this compromises development efforts.

While poor regions have contributed the least to global emissions, they nevertheless face substantial financing costs for mitigation and adaptation, which has implications for both national budgets and international transfers. Strengthening resilience to climate change increases project costs and so has a potentially large impact on public budgets. Regarding equity, there are the large differences between developed and poor regions, in their level of contribution to greenhouse gas emissions, and in their ability and capacity to adapt and mitigate against adverse effects of climate change. A World Bank assessment of the global distribution of climate risk shows that low income regions, such as sub-Saharan Africa (SSA), are the most vulnerable and yet have the least resources to deal with climate change. SSA faces a rising intensity and frequency of storms, flooding, drought, wild fires and excessive heat, which compromise agriculture and necessitate larger social safety nets and recurring disaster mitigation and recovery efforts which tend to be costly.[2]

It follows that the real challenge for LICs, in dealing with the climate change agenda, is in determining how the necessary financing to cover the costs of adaptation can be secured. This applies especially to external resources, given the sizable demands on existing domestic revenues and the severe constraints to mobilizing local resources in a country which is already poor and limited in what financial resources can be generated domestically. Developing countries need not be crippled further by externally induced problems such as climate change. Regions such as SSA which have not benefited significantly from climate-related emergency facilities should be allowed to access significantly more in grant resources for adaptation to climate change. These resources can then be directed to immediate climate-related priorities such as disaster mitigation and recovery, and drought relief. Financing innovations should also be used to raise new mitigation and adaptation grant resources for poor regions.

In exploring the use of financial markets to foster adaptation, instruments could be structured to ensure that the resources generated in the carbon market, for example, are directed to poor regions to finance their mitigation and adaptation requirements. Beyond this, other innovative instruments, such as highly concessional or grant-based finance for poor regions, will also be necessary.

Proposals such as carbon taxes are not always appropriate in poor regions. An example being in SSA, where the private sector is already extremely small and high taxes already constrain business expansion and consequently slow down growth.

The Role of the Fund

We note that the World Bank has a climate change department and reports extensively on the costs of climate change for developing countries, and on the fiscal implications. It would be helpful for the staff to include the findings reported by the World Bank and the UN Commission on Sustainable Development in this report, to demonstrate the onerous adaptation costs for

[2] SSA also faces falling crop yields which affects agricultural output, the mainstay of the poor. There are significant decreases in water availability in many areas which adversely affects production and health. A rising number of species face extinction which adversely affects tourism and conservation.

poor countries. The magnitude of the adaptation costs due to climate change is so overwhelming relative to GDP in low income countries.

The Fund can make a positive contribution to efforts to address climate change problems through its surveillance work, which should be limited to raising awareness on macro-fiscal issues, where it has a comparative advantage. Technical work more closely related to climate change should be left to the relevant specialist institutions. In addition, on the basis of its expertise on fiscal matters, the Fund is also well placed to give advice to its members on the fiscal implications of policies being pursed to address climatic problems. On technical assistance, we do not see a role for the Fund, especially as there are other specialist institutions already providing such assistance.

We commend the staff for the efforts made to better understand how climate change financing can be addressed. We emphasize, however, that the IMF's approach to this issue will need to differentiate between developing and developed countries as there is a vast difference in their respective capacities to finance the adaptation agenda.

Mr. Heath submitted the following statement:

The IMF, along with all responsible global citizens, is right to be alert to the potential economic impact of climate change. However, vigilance on this issue at this time need not imply great change in the Fund's work program or diversion from core issues. We join the preponderance of Directors who endorse the staff judgment that the climate change workload should be modest and within existing resources.

The informative staff paper describes how fiscal instruments can be helpful in mitigating and adapting to climate change's public financial effects. Fiscal tools comprise a portion of market-oriented approaches that countries may choose to address policy or market barriers to investment and to ameliorate the burden on public finances of carbon emission reduction. The fiscal instruments for mitigation—including taxes, cap-and-trade, and hybrids—imply different economic effects.

Amidst this milieu, a guiding principle is to accommodate each country's own political, economic and social realities within which it must operate as it chooses fiscal or non-fiscal instruments in pursuit of its national climate goals. Nor is it clear to what extent all countries should stress their public spending with evaluation and preparation for climate change challenges at this point. Creating fiscal space through expenditure rationalizing, strengthening revenue bases, and exploring insurance mechanisms sounds advisable. But many countries' planning, particularly long term, might be unrealistic, given the broad range of uncertainties and impacts—both climatic and fiscal—that are currently being projected. Planning will have to involve a variety of scenarios and stress testing and may not be immediately valuable over long-term scenarios.

The need to consider individual countries' situations is especially pronounced in the distributional dimension of emissions reduction. As several Directors point out, some LICs—and some low income groups in various countries—are expected to bear the costs of problems they did not create. Other countries surmise they are being urged to delay achieving the standard of living enjoyed by the industrial economies. The United States and the World Bank recently announced clean technology funds to help poor and emerging market countries deploy beneficial of technical innovation at reduced public cost. The macro-fiscal prism may well be ancillary in charting courses on climate change.

This variety of judgments and plans suggests that a useful IMF role is offering analysis and guidance on the macroeconomic aspects of climate change—as distinct from the World Bank's sectoral work on climate change—when a country demonstrates an immediate need or request. Preparedness for climate change, progress towards mitigation objectives, or recommending fiscal policy on climate issues should not become a formal or standard part of bilateral surveillance programs.

Similarly, to the extent there is a need for enhanced international cooperation in deploying fiscal responses to climate change, the Fund's role, albeit important, must be clear and limited. The World Bank and UN agencies have the lead on climate change, and any IMF work should draw on its comparative advantage in macroeconomic analysis. International cooperation on climate change—conducted by the UNFCCC—is complex and highly political; introducing the Fund as a multilateral watchdog on the deployment of fiscal responses to climate change at this time would diminish its core mission. A properly refocused and effective Fund must be fully engaged in its primary areas of responsibility.

Mr. Fayolle submitted the following statement:

We thank the staff for a clear analytical paper, which offers a good basis for our discussion on what is a major policy issue. We see today's discussion, as well as that of chapter 4 of the draft WEO last week, as useful contributions to nurture a shared vision on long-term cooperative action for mitigation and adaptation to climate change.

There is little doubt that climate change has short and longer-term fiscal implications. We also agree that mitigation and adaptation policies should use economic tools, such as taxation, cap-and-trade schemes, or hybrids, for carbon pricing.

To foster mitigation, economic tools are as important as regulatory responses. They price carbon emission, minimize social costs of mitigation, and provide incentives for technological progress. The staff spells out clearly the respective pros and cons of carbon taxation, cap-and-trade schemes, or hybrid approaches. Recent works suggest that price-based approaches may be more efficient instruments than quantity approaches, which tends to validate staff's preference for carbon taxation. At the same time, we believe that the key distinction is not so much between carbon tax and cap-and-trade schemes, but rather between carbon tax and auction based cap-and-trade schemes vs. free permit cap-and-trade schemes. From a political viewpoint, we concur with Mr. Prader and Mr. Demirkol that experience with tax coordination highlights the difficulties this raises. Conversely, the EU Emission Trading System offers a concrete experience of a cap-and-trade scheme from which the international community could draw useful lessons. In particular, it demonstrates that cap-and-trade schemes can effectively reduce the quantity of GHG emissions, without sacrificing economic growth. For reasons related to the efficiency of domestic or regional mitigation policies, we see merits in border tax adjustments.

We agree with the staff that public policies, including public expenditures, will be needed to compound private sector's adaptation to climate change. This should not necessarily increase pressures on public finances, if additional revenues are generated through tax instruments for mitigation. Besides, as the staff rightly stresses, the Fund's Exogenous Shocks Facility is at hand to help member countries hit by extreme weather events.

On the role of the Fund, we recall that the Bali Action plan agreed "that the process shall be informed by, inter alia, […] outputs from other relevant intergovernmental processes". Theses initiatives, in particular those from technical organizations, should be seen in the context of the ongoing dialogue under the UN Framework Convention on Climate Change, and should translate into a neutral and balanced approach. In this context, we agree that the Fund has a role to play in areas that are in its mandate. Clearly, the Fund is the relevant body to analyze and discuss the fiscal challenges raised by, and responses to climate change. Besides, like Mr. Bakker and Mr. Tanasescu, we consider that the Fund will also need to analyze the implications of climate change for financial markets and stability. Indeed, the expansion of existing instruments (such as cat bonds) or the design of new financial instruments will require monitoring from both a micro- and macro-prudential risks. We are pleased to read that this is budget neutral. We would like to know what kind of regular collaboration with international organizations can be envisaged, taking into account the respective mandates and comparative advantages. We invite the staff and the management to bear in mind that the World Bank is developing a strategic framework on climate change. We encourage close coordination between the two institutions on this front.

Also, we believe that countries and the Fund could exchange views, on a voluntary basis, on national policies and on the impact of fiscal instruments. For instance, the impact of economic instruments can have a significant effect on the population, particularly the poor. Exchange of information and evaluation can contribute to a better understanding of the economic instruments being used and could help in avoiding prejudice.

We agree that the Fund can take advantage of bilateral surveillance to provide customized advice and expertise to member countries, especially those most vulnerable to climate change, on possible fiscal measures to address mitigation and adaptation challenges. Indeed, the analysis by staff suggests national policies, the main building block of the Bali process, are the first line of defense against climate change.

Mr. Shaalan and Ms. Choueiri submitted the following statement:

We take note of the staff's work on the fiscal implications of climate change, and suggestions for possible ways for the Fund to address these implications in its work going forward.

We wish to emphasize that an important component of the ongoing restructuring exercise involves a refocusing of Fund activities on its core mandate and comparative advantage. Within this effort, a clear priority for the Fund is to enhance the integration of financial sector issues in its work. We see no room for any issues regarding climate change to be addressed in either the Fund surveillance, lending or technical assistance activities. Such work would be clearly considered as mission creep, at a time when we are trying to reverse some of the mission creep that had occurred in the past.

We, therefore, cannot go along with any further work on this subject at this time.

Mr. Heath made the following statement:

Executive Directors appear to have made it resoundingly clear in their preliminary statements, and some of them quite emphatically, such as Mr. Shaalan, that strict limits and clear definition on any IMF work in this area are needed. Some advising on macroeconomic policy when requested and not a lead on international cooperation. There are 17 preliminary statements out of 21 issued that indicate limited or modest involvement or describe the work as passive macroeconomic advisory role. How much staff time is currently being devoted to work in this area in terms of hours and resources?

Secondly, the staff paper itself may well reflect this position of the Board along with vigilance on the issue that most Directors support. Last week, this chair suggested in the WEO discussion that the chapter on climate change (CC) did not really fit well in the WEO and it needed to be removed and possibly combined with the staff paper. I notice Mr. Daïri's and Mr. Mohammed's gray statement also proposed that. It may be more useful and actually more clear to demonstrate the IMF value on the topic of CC by publishing a paper like that.

Finally, we want to support Messrs. Stein's and Denk's proposal for the management to consider the carbon footprint of the Fund and stress more Directors' responsibility here. I realize that this is not the subject of the discussion, but it is as good a time as any, since we are undergoing the restructuring work. I am sure the Fund will be asked to account for its use of budget resources and their impact on environment, and leadership should be shown in this area. I am sure we all believe that in an enlightened community like the IMF, informed choices really make a difference in ameliorating the global problems.

Mr. He thanked the staff for a useful and informative paper, noting that the Board's discussion contributed to the overall dialogue on solutions to tackle climate change (CC). He was not convinced that CC needed to be formally emphasized in bilateral surveillance. While Fund advice was to remain demand-driven and focused on fiscal policies, technical assistance could be provided, if resources permitted. Fiscal policy was only one of the instruments needed to effectively address CC, and comprehensive policy packages should not be coordinated by the Fund but by other institutions that were better-positioned and mandated for that.

Mr. Bannerji made the following statement:

> First, we welcome the staff paper, notwithstanding that most of the issues surrounding climate change (CC) really fall within the World Bank's competence. The staff paper is certainly provocative, in many senses, however, the underlying analysis raises more questions than provides answers. I would like to address a few of these issues that are central to the equity-versus-efficiency debate that permeates much of public finance literature. The staff's responses are welcome.
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> The paper makes a correct assertion that a unit of greenhouse gas (GHG) emitted from any corner of the globe has the same effect in adding to the pool of GHG in the atmosphere. The principle of pigovian pricing would suggest that uniform taxes must be levied and a uniform price exacted whether this marginal unit emanates from an OECD country or Vanuatu. Yet much of public finance literature deals with the ability of countries to pay. For this reason alone, personal taxes are generally progressive. How would the staff view a progressive carbon tax based partly on a country's ability to pay?
>
> Second, and this is a problematic issue, GHGs are subject to a stock problem and a flow problem. The latter would deal with appropriate pricing and taxing marginal additions to GHG emissions until we reach the desired level of around 450 parts per million (PPM). There is no issue with the assertion that each incremental unit of GHG emission must be priced higher than the last. This is common wisdom. However, who bears the costs of the stock of emissions that has been accumulated in the past and, more importantly, on what principles? The lack of an appropriate solution to burden-sharing lies in the heart of the political debate under the UNFCCC. Developing countries will have to bear a disproportionate burden for bearing the costs of abatement. We would like to invite the staff to also comment on this aspect.

> I would like to address a theoretical point. Like many Directors, we have a distinct preference for cap-and-trade over taxation. Yet, when you try to generalize country-wide experiences, like the ones in Germany, that have been undertaken well in the context of a country at cross borders, we face certain serious problems related to market imperfections due to externalities.
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> Let me make two assertions. First, countries that are growing can be expected to emit more GHG than countries, where growth has moderated, and second, countries with larger populations, other things equal, can be expected to contribute more to incremental GHG emissions than countries with small populations. Almost tautologically, countries with growing populations would presumably contribute more than those where populations have stabilized, other things equal. If any of these assertions is correct, there will be a drain of resources from developing countries to developed countries under global cap-and-trade schemes. This is an ethical issue with no easy answers, and the staff's remarks would be welcome.
>
> Lastly, in keeping these issues in mind, and the fact that there are so many imponderables, this is not an opportune moment for the Fund to introduce issues of CC, at least in the context of bilateral surveillance. Much more work needs to be done before going forward.

Ms. Mannathoko expressed support for comments by some Directors on burden sharing, noting that the treatment of the stock of GHGs could be better considered on the basis of equity concerns. In particular, the distribution of taxation should take into account countries' contribution to emissions, as well as their level of income and development. There was no need to include issues of climate change in bilateral surveillance, especially in the case of the developing countries, because their contribution to the global stock of emissions was marginal.

The staff representative from the Fiscal Affairs Department (Mr. Gupta), in response to questions and comments from Executive Directors, made the following statement:

> I would like to address three broad issues: the justification for the Fund's role in the area of climate change (CC); the Fund's cooperation with other institutions, including the UN; and possible follow up work in the Fund's own surveillance and TA. Mr. Keen will then take up some of the technical issues that have been raised by Mr. Bannerji and other Directors in their gray statements.

The justification for the Fund's involvement in CC issues lies in the sphere of macroeconomic, fiscal, and financial consequences that CC may have for some countries, especially the low-income ones. For these countries, CC may adversely impact agriculture and tourism, add to infrastructure costs, increase the incidence of severe flooding, and raise energy prices, owing to efforts to mitigate carbon emissions. Besides dampening countries' growth prospects, these developments would impact on key macroeconomic variables, such as the balance of payments and the budget. Measures implemented to reduce emissions may themselves have significant macroeconomic, fiscal, and financial consequences. The recent experience with biofuels provides a good example.

I would like to reassure Directors that the Fund has no intention of taking the lead on the issue of CC. The staff's focus will instead remain on drawing on its extensive macroeconomic and fiscal expertise in analyzing the implications of CC. Because of the Fund's universal membership and global perspective, it has a unique role to play in helping countries to understand and mitigate key fiscal, macroeconomic, and financial risks that arise from CC. This work will be carried out within the prospective resource envelope. On a steady state basis, FAD has one staff member working on these issues. We, however, allocated more resources for the preparation of the Board paper.

In many respects, the fiscal implications of CC reinforce the advice the Fund already provides to its members; for example, on petroleum taxation and the rationalization of subsidies for fossil fuels in favor of more targeted programs to safeguard the poor. CC also reinforces the Fund's advice on the creation of fiscal space for addressing emerging fiscal challenges.

Turning to the interface with other institutions that was raised in some gray statements, the guiding principle for the staff in its CC work has been to remain within the Fund's core mandate, drawing on the Fund's comparative advantage and avoiding duplication. The staff has drawn on the expertise of other organizations, such as the World Bank and OECD, and of the policy and research work of various scholars. The staff paper was in fact reviewed by the World Bank and the OECD, and their comments were taken on board. The focus of the staff's work has been on adding value in the area of the Fund's expertise. Furthermore, the staff is maintaining and further developing strong working level links with these organizations. In the future, a large proportion of our limited resources will be devoted to keeping up with the CC work done in other institutions.

The Fund is actively participating in the UN efforts to develop an effective multi-agency response to challenges arising from CC. The management and the staff attended the Bali meetings, as well as chief executive board and high-level committee on programs, where CC issues were discussed. The Fund continues to cooperate with the UN agencies to ensure that there is a full understanding of macroeconomic and fiscal implications of CC in the negotiations toward a successor to the Kyoto Protocol,

Finally, turning to the implications for the Fund's surveillance and TA, the approach proposed by the staff can be viewed as minimalist. In cases where CC is likely to have significant macroeconomic and fiscal implications, it would be useful to discuss the underlying challenges for the country during Article IV consultations. In the fiscal area, the focus would be on designing efficient tax and expenditure systems and on creating fiscal space for adaptation. It is however expected that such situations would arise only in a limited number of cases. There may be grounds for taking up CC issues in regional or multilateral context, if there is a need for international fiscal cooperation to address spillover effects from national emissions. In some cases, regional consultations can provide a framework for discussing projects implemented in a group of countries to adapt to CC. Fund TA in the area of tax policy would continue to feed into bilateral, regional, and multilateral surveillance. Such TA—essentially demand driven—would be informed by the key fiscal risks and challenges from CC. At this stage, we do not expect to provide much TA on fiscal implications of CC unless it is funded by external sources.

On the issue of merging the WEO Chapter 4 with the staff paper on fiscal implications of CC, one possibility is to have an outreach for the WEO that is separate from the outreach on CC. In other words, to have two separate outreaches. Because the staff is currently finalizing the WEO, its preference is not to combine Chapter 4 of the WEO with the staff paper on the fiscal implications of climate change.

The second staff representative from the Fiscal Affairs Department (Mr. Keen), in response to questions and comments from Executive Directors, made the following statement:

I would like to turn to more technical questions. The first was the question of whether emissions trading and fuel taxes alone are enough to compensate for the externalities associated with climate change (CC). Our answer is certainly that fiscal instruments for mitigation will not be enough. While the staff paper focuses on fiscal instruments, there certainly is a range of nonfiscal instruments that potentially play an important role. We see an important role for regulatory provisions, performance standards, and product labeling. We also recognize that countries have different traditions in these areas, in other words, some countries traditionally rely more on regulatory provisions than on price signals. We note too that there is an important role for support for technological developments. Technical progress will clearly be an important part of any response to the challenges from CC. That is another important area for progress, including cross-country support of technological change.

Having said that, we believe that carbon pricing will play a key role in many cases in the formation of good policy, not least in providing the appropriate incentives for technological developments. The question also referred to the potential role for policy innovation, specifically in the fiscal area itself. There is progress that can be made. The gray statement mentions the possibility of unbundling fuel excises that in many countries are collected for different purposes: to raise revenue and to deal with congestion externalities, local pollution, or accident externalities. By unbundling these, for example through more effective use of congestion charging in a number of countries, one might even imagine, that fuel taxes as such could even be lower in many cases as they are now. So there is scope for innovation even within the deployment of fiscal instruments.

A second important question is the relationship between arguments for commonality in carbon pricing, particularly in carbon taxes, and various equity considerations, which is clearly a difficult and pressing issue. The argument for a uniform carbon price is primarily on the production side, to ensure that we achieve mitigation at minimum cost. The risk in departing from uniformity in that respect is that we end up doing too much mitigation where taxes are high and too little where taxes are low. It is a collective inefficiency. Certainly, to temper these considerations, there are some equity concerns that could be addressed by the use of various kinds of transfers between countries or individuals. The same kind of arguments apply within countries and across countries, in terms of the impact of uniform carbon pricing.

There are going to be impediments, such as difficulties in arranging the transfers, both across countries and within countries, in which case fairness considerations would come into designing the appropriate tax regime. More generally, it is crucial to find ways of dealing with these equity concerns within and across countries that do not blunt the incentives to mitigate. In some sense, the key in all this is that as soon as we differentiate taxes or prices, we need to accept that there is a potential efficiency loss and try to find better ways of dealing with it. This brings one into wider areas of cooperation, the question of how one allocates emission rights across countries under an international cap-and-trade scheme clearly being an important issue. If one goes down that road, it brings in many issues of ethics and philosophy. What we have attempted to do, both in the paper and also in the WEO chapter, is to essentially explore what the macroeconomic and fiscal implications might be of alternative arrangements for the allocation of emission rights, exploring some of the alternatives that have been proposed.

A third question regards the assertion in the paper that there is no link between the appropriate revenue for mitigation and the appropriate spending on adaptation. Broadly speaking, the key point is that mitigation—cutting emissions—and adaptation—living with climate change—are substitutes rather than complements. The more we mitigate, the more we cut emissions, the less we have to adapt. By the same token, if we have more revenue from mitigation measures, that does not mean we need to spend more on adaptation. If anything, it probably means the opposite, because to the extent that high revenue from mitigation indicates extensive mitigation efforts, there is less need for adaptation. Indeed, in an extreme case, the converse case, one could imagine we set an emissions tax so high that emissions drop to zero, so we would have no revenue from mitigation, but we would still potentially need some spending on adaptation because the global temperature will continue to rise just from past emissions. That is why as a matter of principle we would be reluctant to tie these two items together. Nevertheless, the paper does recognize that earmarking, making a link of this kind, can have some political advantages. It can be a way in which, given that carbon pricing is not being adopted primarily in order to raise revenue, earmarking the proceeds may be a way of reassuring taxpayers that the proceeds are being directed to good use.

With regards to the fourth question—of why a carbon price, whether a tax or through cap-and-trade, at the relatively modest levels mentioned in the staff paper, is expected to have a significant effect in reducing emissions, when recent surge in energy prices seems to have had relatively little effect—there are perhaps three points one would make. First, although we focus in the paper on the so-called central estimates of an appropriate carbon price, the range that one finds in the literature is substantial. There is a huge variation in what people might argue a proper carbon price would be. For example, we quote a range of $15 to $60 per ton of carbon and the Stern Review estimates something over $100 a ton of carbon.

A second point is the distinction between short and long-run responses. The impact on emissions of a high price now may be relatively moderate if there is some suspicion that the current price level will not prevail in the future. In contrast, having a low price now that is believed with a high probability to rise over time could have quite a marked effect on emissions. It is perhaps worth noting that although the starting levels of the carbon price mentioned in the paper may seem relatively low, the carbon price in all these scenarios is rising in real terms at 2 or 4 percent a year. By the time one reaches mid-century, the price will be substantially higher.

Third, the observed changes in realized demand are not simply a reflection of price changes. There have also essentially been shifts of demand curves. That does remind us that all these scenarios are underpinned by a view on the underlying business–as–usual scenario for emissions. Being much above projected business–as–usual emission scenarios would generally imply a higher carbon price.

The fifth question asked us to explain the assertion in the paper that in relation to the specific issue of uncertainty on abatement costs, why taxes are preferred to cap-and-trade. That is a technical question and, in the absence of the blackboard, we might address that bilaterally. However, the view expressed on the issue is a generally perceived and accepted technical view, but we would be happy to discuss that bilaterally, if acceptable.

It was pointed out, too, that we slip a little bit in our wording on one point when we talk about the relative importance of the initial price and the future path of carbon price. I apologize for that and we will certainly correct it. We certainly would emphasize the importance of the future path of carbon prices, and its credibility for a number of reasons, but mostly because energy supply decisions made today will depend on expected carbon prices over the next 10 to 30 years. There needs to be a reasonable degree of certainty on the future path of the carbon price to ensure that these investments reflect properly CC considerations.

I then respond to two questions that perhaps are mainly for departments other than Fiscal Affairs, but which may nevertheless be helpful to react to. On the issue of risks that CC poses for financial stability, primarily a matter for Monetary and Capital Markets Department. First, to the extent that CC is really a change in slow-moving productivity developments—the kind of gentler part of CC—one would not expect those to pose significant threats to global financial stability. There are, however, a number of possible exceptions to this, relating essentially to extreme weather events. One can, for example, envisage circumstances where reinsurance markets might find it difficult to cope with extreme hurricanes in costly areas. These issues, including the potential of weather derivatives and catastrophe bonds, are briefly touched upon in the paper, and discussed at more length in the WEO chapter. There may also be specific operational risks to some financial centers, flooding in London or New York, for instance, which would be seen as a legitimate topic for financial stability analysis along with a number of other operational risks, such as terrorism and earthquakes. These would be viewed in a more general context and might be taken up under Article IV consultations or FSAP updates.

Finally, just to address briefly the carbon footprint issue, which relates primarily to Technology and General Services Department's (TGS) work, and merely to report that TGS is actually quite active and involved on the issue. Indeed, on wider environmental issues, both headquarters buildings have the EPA's energy star certification, and the medium-term capital budget submission envisages some improvements to reduce the Fund's carbon footprint. There is an environmental sustainability assessment of Fund-owned facilities underway, with an external consultant, due for completion next month that will look at the Fund's nonmission carbon footprint, make recommendations, including on such topics as parking and commuting. Finally, GHG emissions associated with mission travel have already been calculated and arrangements made to purchase carbon offsets for mission travel as of April 2008.

Mr. He noted that some of the Asian-Pacific central bank governors were expected to meet euro area central bank governors in May 2008 to discuss CC issues, and specifically interlinkages between CC and monetary policy and financial sector. Some contribution from the Fund had been requested and the staff had agreed to provide a background note, which was appreciated.

Mr. Mori thanked the staff for the explanations, and asked for further elaboration on the economic rationale of a carbon tax. On one extreme, if a carbon tax were successful in reducing carbon emissions, there would be no revenue. On another extreme, the tax would produce large revenue but no effect on reducing carbon emissions. The tax also could be so elevated that it may lead to a high evasion.

Mr. Bannerji noted that Stern Review's proposition, although debatable, was that countries should be spending about up to one percent of their GDP on abatement as well as on mitigation. Another school of taught, led by Mr. Nordhaus and Mr. Dasgupta, had advocated that the social discount rate used in the report was inappropriate. Where would the Fund strike a balance between the underlying goals of these approaches?

Ms. Mannathoko remarked that the developing countries faced a dilemma of limited fiscal space and a risk to various exogenous shocks, while already dealing with the adverse consequences of the existing stock of emissions. To what extent the Fund's advice or interaction with the global communities could contribute to assisting these countries in structuring instruments to fill this financing gap?

Mr. Umaña made the following statement:

> On the issue of mitigation versus adaptation and whether they are substitutes or complements. The answer is not so clear and needs to be looked at both within a short-term and a long-term time frame. For example, in small islands and low-income countries that are affected by climate change (CC), no amount of mitigation will make any difference in the short run. They are really in the adaptation game. Many of them have one extreme weather event after another, for example in the case of the small Pacific Islands. In some cases, a hurricane can lead to 25 to 30 percent of GDP being wiped out in an entire year. In the long run, the situation is somewhat different: if mitigation is undertaken, in theory less adaptation is needed. However, in the presence of a substantial stock of GHG over a century, it will take a long time for mitigation and adaptation to become substitutes. Therefore, one needs to consider that all countries face inevitable adaptation, but not in the same degree and not with the same risk. For smaller low-lying islands and low-income countries CC becomes a real critical issue. We were not suggesting that the IMF forcibly includes in its surveillance the CC work, but for a large number of countries, work would be significant. Today, the countries—without even considering the topic of CC—are increasingly including in their Article IV program reviews effects that could be attributed to CC. It would be appropriate for the Fund to have at least a database and be informed on what countries currently report, and use the information as a basis for the future surveillance work.
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> Discounting benefits from mitigation over a very long time is difficult. There is no clear or elegant solution but we have to deal with the issue. We preferred not to comment on the benefits of cap-and-trade versus taxation, because we feel that this requires a deeper discussion and might be better dealt with on a bilateral basis. To give an example, my own country, Costa Rica, has had a carbon tax in place for over ten years, and it has used the revenue from the carbon tax to pay for ecosystem services, in other words, maintaining or recovering forest. It has been able to increase forest cover by 20 percent. We are working with the World Bank on a program, where they are helping us develop along these lines, and many other countries could find this useful as well.

The staff representative from the Fiscal Affairs Department (Mr. Gupta), in response to further questions and comments from Executive Directors, made the following statement:

> I will just take up the issue of fiscal space, and Mr. Keen will address the issue of discount rate and the other issues that were raised. I understand that creating fiscal space in many low-income countries is challenging. There are two ways in which one could consider expanding the fiscal space in these countries. The first is that the ODA is climate-proofed in the sense that it takes into account the additional cost of climate-proofing the infrastructure it is financing. The estimates by the World Bank indicate that this would result in four to eight billion dollars of additional resources every year for Africa. That is one option in which one can actually reduce the budgetary pressures in the countries that are facing a difficult fiscal situation.
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> On the other had, if some of the proposed schemes, such as cap-and-trade, were accepted by the international community, they could lead to resource flows to countries where the cost of abatement is low. This would result in some resource transfers to Africa as the staff paper indicated.

The second staff representative from the Fiscal Affairs Department (Mr. Keen) in response to further questions and comments from Executive Directors, made the following statement:

> On the questions concerning the rationale for the carbon tax, it is certainly true that if a carbon tax is successful in cutting emissions, revenue will ultimately fall. In terms of the simulations we do, that is likely to be quite a way off. In most of the simulations, carbon price revenue is rising toward the latter part of the century under the staff's scenarios, but it is certainly true that, at some point, it is perfectly possible that revenue from the carbon tax may fall. High carbon taxes also raise issues of evasion, which brings us to some of the issues touched upon in the paper that clearly will require more attention from the international community in the months and years ahead, concerning the implementation of taxation and cap-and-trade schemes. In some sense, carbon taxes fit neatly into existing domestic administrative arrangements for fuel taxes of various kinds, but further complications arise, when taxes are implemented in an international setting, as countries wish to know what other countries are doing. A whole set of implementation issues on cap-and-trade, such as the double tax implications of purchases and sales of emission permits, has hardly been addressed. This will be a major issue.

> The assessment of a discount rate falls in a very difficult and controversial area. We certainly do not come down with a view on this in any of our work. One reason is that once one accepts a view on the appropriate discount rate in one policy area, consistency would require it to be extended to a whole range of other areas. Indeed, that is one of the criticisms that is sometimes leveled at the Stern review.
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> Another theme emerging in the debate, is to try to formulate CC as a problem of risk management. Increasingly, the focus is on the possibility of catastrophic outcomes, that may dominate much of these concerns. For example, Professor Weitzman and others have recently focused on aspects of risk and uncertainty that the discount rate in itself cannot capture.
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> I should have been more clear on adaptation and mitigation; they are certainly not substitutes for national countries. In some broad global sense there is a degree of substitutability between them. Moreover, purchases of environmental services is an example of an area where we have actually been discussing with the Bank to try to learn from their expertise on these issues.

Mr. Mori recalled that generally, in optimizing taxation, the largest possible revenue was sought with the least distortion to the economy. What was the trade off in the case of carbon taxation?

Mr. Murray recalled that the Fund’s work on CC needed to concentrate on macroeconomic consequences, fiscal policy issues, and financial market developments. Given that CC was a long-term issue, it was important to determine the Fund’s role in the international political environment and to ensure a proper division of labor between the Fund and the Bank in that area.

Inclusion of CC issues in bilateral surveillance needed to be balanced with several other issues, Mr. Murray continued. It was a matter of a country-by-country approach, which would have limited implications for most countries in the short term, but would increasingly affect the Pacific Island countries.

The second staff representative from the Fiscal Affairs Department (Mr. Keen) remarked that the interaction between carbon prices and the rest of the tax system was an increasingly important issue that was to some extent covered in the staff paper in terms of the use of the proceeds to reduce distorting taxes—on which countries had different preferences—or for spending or debt retirement. It was also an area that had not received much attention, because approaches to energy taxation were complicated in many countries.

The Acting Chair (Mr. Lipsky) noted that while the Fund had shown responsibility in examining climate change issues, potential implications for its work needed to be considered in a broad sense, bearing in mind the limitations of the Fund's expertise and focusing the work accordingly.

The Acting Chair (Mr. Lipsky) made the following concluding remarks:

> Directors welcomed the opportunity to discuss the fiscal implications of climate change and the potential role of the Fund in helping its members address these implications. The staff paper prepared for this seminar, together with the chapter on the economics of climate change in the Spring 2008 World Economic Outlook, were generally viewed as useful contributions to the debate on a complex topic of global concern. Directors noted that, while much of the damage that might be caused by climate change remains many years away, moderating it is generally believed to require reducing emissions of greenhouse gases in the near term. They recognized that many low-income members—among them low-lying developing countries and small island nations—may be disproportionately affected, making the adaptation to climate change in these countries a pressing concern.
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> Directors expressed a variety of views on the implications of climate change for the fiscal work of the Fund, providing useful guidance to the staff on how to move prudently forward in this area. The overall sense of today's discussion is that the Fund has a distinctive and valuable contribution to make to the task of understanding and dealing with the fiscal challenges from climate change, but that this contribution needs to be well-focused and subject to clear boundaries. The Fund's work on climate change should be budget-neutral, especially in the current refocusing context, and should be limited to the Fund's core competencies. This means that the Fund should not seek to acquire additional expertise on environmental issues or duplicate the work of other organizations, such as the United Nations and the World Bank, on which it should continue to draw as appropriate.
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> With respect to the ongoing international dialogue on climate change, Directors agreed that the Fund should not take the lead in tackling climate change issues. Some Directors would prefer to see wider consultations with other institutions and a clearer sense of direction from the negotiations under the United Nations framework before coming to a firm view on what the Fund's role should be in this area. Taking into account this need for restraint, Directors generally encouraged staff to follow the negotiations underway toward a successor agreement to the Kyoto Protocol—given the difficult fiscal

policy cooperation and design issues that will need to be faced—and to contribute on aspects within the Fund's established mandate and expertise.

With respect to the Fund's country work, Directors broadly shared the view that the Fund is well-placed to advise members prudently and on a limited scale on macroeconomically relevant fiscal aspects of climate change through its surveillance and technical assistance. They noted that climate change concerns tend to reinforce established Fund advice on fiscal management, for instance in relation to energy subsidies. At the same time, many Directors cautioned against putting a particular emphasis on climate change in the Fund's surveillance and technical assistance work, or making climate change issues a standard part of Fund surveillance. It was suggested that the Fund's work in this area should be mainly demand-driven, pay special attention to countries where the impact of climate change on external stability is evident and significant, and facilitate the exchange of views on country-experiences.

Turning to the fiscal policy issues addressed in the staff paper, Directors acknowledged that policy formulation to deal with the effects of climate change is made especially challenging by the difficulty in attributing specific weather-related events to climate change. Even when the macroeconomic effects of climate change are clearly identified, policy action is further complicated by uncertainties regarding the size and timing of the effects; by the slow process of climate change; by the role of past emissions in contributing to future climate developments; by the need for international cooperation to harmonize policies, deal with international spillovers, and address difficult distributional issues across countries; and by a range of technical issues in instrument design and implementation. These considerations seem to favor a gradual and flexible approach, with emphasis on policies that can be easily modified over time.

Directors noted the potential role of regulation in mitigating emissions and of private sector actions to adapt to climate change, including through innovation and the development of financial instruments. At the same time, fiscal instruments will, in many countries, help to ensure effective pricing of emissions and to provide a supportive environment for innovation. They would also help finance and foster appropriate adaptation to remaining effects of climate change.

Directors noted the wide range of fiscal instruments that could be used for mitigation. An important first step in many countries is to scale back implicit or explicit energy subsidies. Beyond that, cap-and-trade schemes, carbon taxation, and hybrids of the two could be used to shift incentives in an appropriate direction. The choice among these instruments needs to be informed by careful analysis of their feasibility and fiscal consequences, of the scope for using the revenue they might raise to improve national tax systems or finance priority expenditures, of their wider implications for international macroeconomic performance, and of their capacity to foster broad participation by countries. Several Directors highlighted in particular the challenges that would be involved in the international coordination of tax rates.

Recognizing that the debate on these issues is in many respects still at an early stage, Directors noted that attention also needs to be given to other fiscal aspects of mitigation. The design of measures to offset the regressive impact of carbon taxation and the elimination of fuel subsidies is a delicate issue. While acknowledging that revenue earmarking generally introduces undesirable inflexibility in fiscal management, some Directors nevertheless saw merit in the well-targeted use of carbon tax revenues to compensate vulnerable groups.

Directors considered that, in those countries particularly exposed to climate risk, adaptation may impose significant pressures on public sector spending. In many cases, a better understanding of the macro significance of these pressures and of the fiscal risks and trade-offs from climate developments will be needed. Where feasible, the creation of fiscal space to deal with spending pressures may need to be considered. More broadly, Directors emphasized the importance of international efforts to support adaptation programs in low-income countries through a variety of instruments adapted to their specific circumstances. They welcomed the continued exploration of regional initiatives, and encouraged the international community to continue to stand ready to provide financial assistance as needed.

SHAILENDRA J. ANJARIA
Secretary