SEOUL G20 BUSINESS SUMMIT

SEOUL G20 BUSINESS SUMMIT

PRELIMINARY FINDINGS AND RECOMMENDATIONS FROM PARTICIPANTS

Discussion report for round table sessions

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INTRODUCTION

In the aftermath of the financial and economic crisis that engulfed the world in 2008, the concerted action of the G20 was instrumental in preventing a collapse of the global financial system and the global economy. As such, the G20 became the premier forum for international economic cooperation.

However, governments alone cannot address the most pressing challenges facing the global economy. To be effective, solutions must also involve the active participation of business and civil society. Indeed, the global business community has been playing its part in efforts to generate new growth and create the jobs needed to consolidate the economic recovery. Yet it is clear that government and business must deepen collaboration and create new public-private partnerships if long-term reforms and restructuring of the global economy are to be achieved successfully.

For this reason, President Lee Myung-bak, the chair of the G20 Seoul Summit, invited the Korean business community to host a gathering of top business executives from around the world immediately prior to the G20 Summit this November. The Seoul G20 Business Summit, which will be attended by about 120 corporate chief executives, will enable G20 leaders to exchange views with the private sector on the state of the global economy, how to prevent future crises, and the priorities for ensuring strong and balanced growth in the long term.

The Seoul G20 Business Summit is more than just a single meeting. To prepare for the G20 Business Summit, 12 business leaders have convened working groups involving over 100 global chairmen and CEOs. Their task was to deliberate on twelve critical issues facing the global economy and to produce reports on recommended actions that the G20 governments, global multilateral institutions and the business sector itself should take to meet the challenges facing the global economy. The working group topics were categorized under four broad themes:

- Revitalizing trade and foreign direct investment
- Enhancing financial stability and supporting economic activity
- Harnessing green growth, and
- Delivering on the promise of corporate social responsibility

In September, representatives of the working groups gathered in Tianjin, in the People's Republic of China, to share their initial findings, deliver the preliminary recommendations they had developed, and exchange ideas for further discussion. Following that meeting, each working group prepared a memorandum highlighting their key findings and recommendations. These in turn were presented to G20 Finance Ministers before their Summit preparatory meeting in Washington, DC, in early October and to G20 Summit Sherpas at their meeting in Seoul in the middle of October. As an outcome of this effort, the communiqué of the G20 Finance Minsters' and central bank governors' meetings in Gyeongju, South Korea, in late October, welcomed the work done by the 12 Seoul G20 Business Summit working groups.

At the end of their deliberations in late October, the 12 working groups drafted the final reports that are contained in this publication. This collaborative process, which was designed and supervised from the outset by the Seoul G20 Summit Organizing Committee, with the help of the McKinsey Global Institute, is noteworthy for the depth and breadth of the recommendations it has produced. The contents of this document represent a consensus among the members of each of the working groups on the steps that must be taken to deal with the global economic challenges covered by that group.

That final consensus will be further elaborated and deepened by the deliberations at the Seoul G20 Business Summit itself. The fruits of that work will be incorporated into reports, and an enhanced version of this current publication will be issued and made available to the public before the end of this year. We have welcomed the dialogue at this Summit and we look forward to continuing engagement with the G20 both on upcoming issues and tracking and implementing the commitments made at this summit and before.

EXECUTIVE SUMMARY

For the world to strengthen the current economic recovery and put the global economy on a sustainable growth path, business and government, as well as civil society, must join together to find new and innovative solutions and approaches to the key economic challenges that we face. To this end, the Seoul G20 Business Summit will bring around 120 of the world's leading business executives together with G20 leaders to discuss the recovery and share thoughts on what must be done to ensure strong, sustainable and balanced growth in the future.

The papers in this volume were drafted by working groups convened by leading global business executives and were designed to provide the background and foundation for those discussions. They lay out in great detail the current state of affairs in each of these 12 areas and provide recommendations for action to improve that situation by governments, the private sector, and government and business working together in partnership. Each paper reflects the consensus of the working group that prepared it, and does not imply agreement by other participants in this process. The highlights of the findings of each working group follow:

I. REVITALIZING WORLD TRADE: TOWARDS A SUSTAINABLE AND EQUITABLE RECOVERY

In view of the need to revitalize trade, the G20 should:

- **Recommit to completing the Doha Development Round in 2011** and reinforce that commitment through the personal engagement of each G20 leader.
- **Roll back protectionism** at least to where it was at the start of the global financial crisis and resist protectionism and trade-restrictive measures going forward.
- **Give trade finance favorable treatment** under the New Capital Framework, often referred to as Basel III.
- **Put trade and investment permanently on the agenda of the G20.**

The businesss community is committed to support the outcomes of the G20 Business Summit, and therefore **urges the G20 to establish a public-private task force under G20 leadership**, to help facilitate business actions, including:

- **Providing data and analysis on how trade and finance interact** to link economies and drive global growth.
- **Stepping up advocacy and outreach programs** to underscore the positive links between trade, job creation and economic growth.

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II. ENCOURAGING AND STRENGTHENING FOREIGN DIRECT INVESTMENT: DRIVING PROSPERITY THROUGH PRODUCTIVITY AND CREATIVITY

- If long-term foreign direct investment (FDI) flows are to accelerate and continue to grow, governments must avoid impediments to FDI and find ways that it can move even more freely.
- **Broaden monitoring of changes in conditions for private investment** to areas affecting all private investment and to improvements in order to stimulate further opening.
- **Work toward a Multilateral Framework for Investment reflecting all interests (host and home countries),** developing a non-binding International Model Investment Treaty as an interim step.
- **Ensure a clear and enforceable legal framework; aim for principle-based FDI regulation rather than detailed rules leading to simple compliance through box ticking.**
- **Build a better understanding of the mainly positive impact of FDI (Creation of Shared Value).**

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III. HOW CAN THE SMALL AND MEDIUM-SIZED ENTERPRISE SECTOR BE FUNDED AND NURTURED

Despite its major contribution to the economy, the SME sector around the globe faces a multitude of impediments to growth many of which could be addressed by the following recommendations:

- **Create an enabling legal, regulatory and financial framework** to favor SMEs, such as rationalizing tax schedules.
- **Improve awareness of the range of financing options available.**
- **Provide incentives encouraging the financial sector to lend to SMEs.**
- **Improve access of SMEs and innovative ventures to capital markets.**
- **Spur innovation and R&D** by establishing SME Innovative Technology Development Funds to encourage and facilitate SME access to R&D capital.
- **Promote the value of intellectual property (IP)** to help SMEs assess the effectiveness of their IP as the basis of innovative, creative, and economic activity.

The business community should:

- **Help foster an SME community** by working with SME industry associations to reduce transaction costs, improve the structure of loan applications, share best practices, work with experienced business and financial mentors, and explore alternative financing options.

IV. SUPPORTING ECONOMIC GROWTH AND THE IMPLICATIONS FOR FINANCIAL SECTOR POLICY AND REGULATORY REFORMS

In order to promote economic growth and to ensure that a stable financial sector contributes to funding the required investments in developed and emerging markets most efficiently, the following steps should be taken:

- **Reaffirm the commitment to global capital flows and consistent global regulatory standards** and take steps to deepen and broaden capital markets while highlighting the risks of financial protectionism.
- **Work with the financial services industry to develop a policy environment that supports SME financing and further establishment of credit bureaus in emerging markets.**
- **Incentivize world trade through the globally consistent implementation of regulatory reform measures and infrastructure investment through development of innovative solutions.**

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V. HOW BUSINESS VIEWS REDUCTIONS IN MONETARY AND FISCAL STIMULUS

As the recovery stabilizes, stimulus measures must be withdrawn to smoothly transition from government-stimulated demand to private-led demand.

- **Monetary and fiscal stimulus helped to stabilize a global economy** marked by excess supply.
- **In the long run, growth is based on private sector investment and innovation.**
- **Monetary policy should be gradually returned to a neutral stance** to prevent inefficient capital allocation and new asset bubbles.
- **Fiscal exit strategies should focus on cutting government spending** and governments should avoid tax increases unless these prove unavoidable to forestall an acute fiscal crisis.
- **Exit from financial sector support is warranted to avoid competitive distortions, signify confidence** in the underlying stability of the system, and boost market confidence. Public guarantees for the issuance of financial sector bonds should be ended first.
- **New standards for banking regulation and supervision must be sufficiently strong and responsive**, while still encouraging growth and financial innovation.
- **It will be imperative to avoid a perpetuation or aggravation of the current account-financial account imbalances of the past decade.**

VI. CLOSING THE GAP IN INFRASTRUCTURE AND NATURAL RESOURCE FUNDING

To overcome an estimated annual shortfall in in infrastructure and natural resource (energy, water) investment of up to $600 billion, these steps should be taken:

- **Working groups of key government officials and business leaders should be formed** to prioritize investments, define the best models for partnering with private investors and getting them involved, and assess past successes.
- **A consistent regulatory framework should be adopted.** Clear and even-handed rules are important to encourage private investors to participate.
- **Help to better quantify and reduce infrastructure project risk.** Private sector knowhow should be leveraged to reduce delays by using innovative project management techniques. Governments could share the asymmetric risks of projects through such measures as guaranteeing supplementary financing in the event of cancellation.
- **Government should clarify rules on sustainable development goals** such as greenhouse gas mitigation, and promote transparency and predictability of energy availability through a strengthened cooperation with IEF-IEA. The private sector should contribute to improve the dialogue between producing and consuming countries in the energy sector.
- **Government and the private sector should cooperate to create alternative funding mechanisms** to reduce the government's need to invest in projects and make infrastructure more attractive to private investors.

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VII. HOW CAN COMPANIES CONTRIBUTE TO IMPROVING ENERGY EFFICIENCY

Improving energy efficiency is the best way to ensure energy security, limit greenhouse gas emissions, and insulate economies from the volatility of energy prices. Larger capital investments are needed to push towards breakthrough technologies. To foster such commitments, G20 governments should:

- **Establish clear, consistent standards** that better measure energy opportunities, ease knowledge transfer and give small and medium enterprises access to information they can act on.
- **Develop long-term energy policies** that reflect an awareness of how legislation can radically shift demand, supply and price.
- **Provide new financing solutions** to help companies make long-term investments necessary for improved energy efficiency.
- **Support education, energy services and R&D** to help society build the skills it needs to develop and adopt new technologies.
- **Continue working towards a global framework** that coordinates national legislative approaches and overcomes "free rider" problems.

VIII. ENCOURAGING SUBSTANTIAL USE OF RENEWABLE AND LOW-CARBON ENERGY

Concerted global efforts to develop and deploy renewables and low-carbon technologies are key to addressing concerns about economic growth, energy security and climate change. A momentous change is needed, fostered by governments and business in partnership. To promote it, G20 governments should:

- **Pursue market-based carbon pricing.** A clear and steady carbon price is a pre-requisite to incentivizing investment on the scale necessary to shift to renewable and low-carbon energy sources. Business prefers market-based mechanisms. If taxes are used, revenue should be recycled to support clean energy technologies.
- **Mandate regular meetings of energy-related ministers.** These should aim to set aspirational targets, develop technology roadmaps and address regulatory barriers such as tariff and trade barriers and international standards.
- **Strengthen international public-private partnerships.** Chief among these are promoting universal access to energy. Public funding must be provided in a way that helps to unlock further private investment in clean energy. Carbon crediting mechanisms should be streamlined and expanded.

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IX. CREATING GREEN JOBS

To generate green growth and jobs, G20 countries need to adopt policies that strike a new balance between incentives and disincentives that indisputably favors green investment. To promote green jobs, G20 countries should adopt policies with respect to key sectors:

- **Buildings: Set high energy-efficiency standards and publicly funded incentives for green investments.**
- **Power: Accelerate uptake of renewable and other low-carbon energies, and expand and upgrade electrical grids to guarantee priority access for green energy.**
- **Industrial: Devise targeted incentives for energy efficiency in manufacturing equipment and processes.**
- **Transport: Introduce fuel-efficiency standards that ratchet up over time.**

G20 governments should promote free trade in environmental goods and services by eliminating tariff and non-tariff barriers, which will accelerate diffusion of green technologies, lower prices, encourage competition, and result in faster job creation.

G20 governments should also abolish fossil fuel subsidies within the shortest possible timeframe, and not more than five years.

X. UNLEASHING TECHNOLOGY-ENABLED PRODUCTIVITY GROWTH

Productivity-led growth will be the primary driver of economic growth in the coming decade, and the core driver for improving the economic well-being of our citizens. Technology and innovation will be critical factors enabling productivity growth. Working together, the G20 and business sectors should take three actions to foster productivity growth and foster innovation:

- **Develop a joint commission between the G20, other relevant organizations such as the World Trade Organization (WTO), and the business community to identify barriers to the diffusion of productivity-enhancing innovations and create a process to reduce them.**
- **Create a G20 clearinghouse to identify best practices in workforce development and innovation.**
- **Work with the OECD (or other suitable international bodies), in collaboration with the business community, to create a task force to identify opportunities to drive public sector productivity.**

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XI. ADDRESSING THE IMPACT OF YOUTH UNEMPLOYMENT

The global economic crisis has brought the problem of youth unemployment to the fore. These are recommendations for action by governments, business and civil society to create and maintain employment leading to sustainable recovery.

- **Create public-private academic partnerships** to train youth for available jobs.
- **Create effective unemployment, welfare and social-protection systems.**
- **Foster entrepreneurship.**
- **Identify high-growth sectors by geography.**

Government should take the lead in:

- **Providing adequate incentives and policies for stakeholders to create jobs,** leveraging training and internships.
- **Implementing multifaceted programs to ensure that special needs are addressed** with a "social-protection floor" with "mutual obligations" approaches to handle benefit dependence.
- **Supporting innovation and growth with low barriers of access for entrepreneurs.**
- **Creating a baseline report on job scenarios based on economic and political transformations** with standardized data to monitor progress.

Enterprise should take the lead in:

- **Leveraging local talent** for on-the-job training, internships and apprenticeships in high-growth sectors.
- **Piloting and testing progressive policies** to increase jobs.
- **Participating in task forces to create net new employment** and working to ease entry to the workforce through self-employment.
- **Creating a "global resource center"** to collate data and assist governments with implementations of best practices and programs.

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XII. INCREASING ACCESS TO HEALTHCARE IN DEVELOPING ECONOMIES

To change the trajectory of the private sector's involvement with healthcare in developing economies and to have a meaningful impact on improving access to healthcare, we encourage the members of the G20 to recognize:

- **The importance of health to economic growth, by including global health as a permanent agenda item at G20 Summits.**
- **The urgent need for healthcare system strengthening in developing economies with targeted investments through novel financing mechanisms,** such as the Global Fund and GAVI Alliance.
- **The importance for developing countries to invest a significant proportion of their annual budgets in health,** such as the 15% pledged by African leaders in 2001.

In support, in order to serve as a catalyst for broader global business community investment in health, we encourage G20 Business Summit participants to:

- **Commit voluntarily to a financial or core business competency investment in healthcare system strengthening lasting at least three years** and to longer-term support if performance indicators are met.
- **Support the novel global financing public-private partnerships** such as the Global Fund and GAVI Alliance.
- **Make a minimum investment equivalent to $1 million a year for three years.**

REVITALIZING WORLD TRADE: TOWARDS A SUSTAINABLE AND EQUITABLE RECOVERY

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INTRODUCTION

Every generation of leaders is judged at least in part on the value of their contribution in the face of adversity or challenge. This is especially relevant today, as global leaders must use the collective knowledge gained in the recent crisis to build the foundations for robust, sustainable and inclusive growth. Revitalizing trade is essential to this vision.

The World Trade Organization (WTO) recently raised its forecast for trade growth in 2010 to 13.5%, based on strong demand for goods and services, particularly from developing countries. Following a drop of 12% in trade volumes in 2009, this is encouraging and can support the global economic recovery.

We must now give durability to the return of trade volumes by creating additional opportunities for growth through trade liberalization, while nurturing a supportive environment for trade finance, and improving and strengthening the governance of trade. World trade can be one of the most effective catalysts for social and economic development, and can help us address looming global challenges, but we must create the conditions for this to happen. This paper puts forth four proposals to this end. Our proposals are neither financially costly nor requiring of large sacrifices by those who cannot afford it.

Clearly a fair amount of political will is required. Should this will be present, implementing the proposals will create a direct stimulus and a revitalization of trade, by accelerating the return of trade volumes. They will also promote qualitative changes towards the creation of a more equitable and inclusive global trading system. The importance of this point cannot be underestimated, as was highlighted during the Millennium Development Goals (MDG) Summit held September 20 to 22, 2010. The MDG Summit highlighted that "while economic growth is necessary, it is not sufficient for progress. The growth process must be inclusive and equitable…"[1]

Thus our efforts to rebuild trade must be predicated not only on supporting a return of trade volumes, but also on improving the global trading system so that trade can more effectively foster social and economic progress and aid our collective efforts to address looming global challenges.

Admittedly, there are a number of adverse conditions and constraints on our ability to work towards these ends. First and foremost are the tight fiscal conditions found in the G20 countries, where average public debt is in excess of 50% of GDP and is not forecast to recede significantly for at least another decade. Second, there is the "jobless recovery" in which developed countries see a return of economic growth but without job creation. Linked to this is a reduction in private consumption in the very regions which have led global consumption in the past half century, the US and Europe. Third, business confidence remains at low levels, and many companies prefer to hold cash due to the uncertain prospects for recovery, despite policy measures to stimulate business investment. Fourth, global imbalances are fueling currency disputes which could mushroom into protectionism and trade disputes. Lastly, the world faces a number of new challenges such as climate change. Clearly, the world needs a united and communal effort among nations,

1 "Millennium Development Goals must be met, UN Secretary-General says ahead of September Summit", UN Press Release, 16 March 2010. http://wwwupdate.un.org/millenniumgoals/pdf/mdg_pressrel_sept2010.pdf

backed up by resources, to address all of these issues. This is ambitious, but entirely within our means.

In light of these quite daunting challenges, in recognition of the perils that may lie ahead if proper action is not taken, and in view of the need to revitalize trade, we propose that the G20 take the following actions:

RECOMMENDATIONS

- **Commit to completing the Doha Development Round by the end of 2011** and reinforce that commitment through a personal engagement on the part of each G20 leader, to ensuring that his or her commitment is borne out in the negotiations towards resolving remaining disputes.
- **Roll back protectionism** to at least where it was at the start of the global financial crisis and foreswear implementing new protectionist or trade-restrictive measures going forward.
- **Provide continuing support for trade finance both multilaterally and by favorably regulating trade finance within the New Capital Framework** (also known as Basel III). If the Framework is implemented as currently written, there are significant risks that trade finance capacity would fall and pricing would rise, thereby having a severe and adverse impact on global trade and all who rely upon it.
- **Put trade and investment permanently on the agenda of the G20 as a high-priority item** and embed trade in the G20 structures and processes in recognition of its role in fostering global development.

Put simply, we propose that existing barriers to trade be removed and that the Doha Round be concluded in order to stimulate additional demand, while ensuring that the system has enough financial "oil" to function smoothly. Moreover, we are convinced that the recent crisis shows that the world needs a more effective means to ensure a more holistic management of trade over the long term. The G20 is clearly best placed to carry out this mandate.

Our proposals have no significant financial costs and yet can yield multiple tangible and intangible benefits, while supporting progress towards a more inclusive global trading system and peace among nations.

Furthermore, we recognize that business has clear responsibilities and roles to play to increase the efficacy of these proposals and help ensure that their implementation has more positive and far-reaching impact. Indeed, public-private partnership and coordinated action between business and government are essential to a full recovery.

Thus, **we urge G20 leaders to put their weight behind the proposals and ideas raised in the G20 Business Summit by creating a task force comprising business leaders, policymakers and other stakeholders to engage in dialogue and actions in support of the G20 and G20 Business Summit agendas. We in the business community would offer our full-fledged support for such an initiative.** This could become an effective platform for mobilizing broad-based business action on a number of issues.

The business community has in the past supported similar bodies, including the APEC Business Advisory Council and other Eminent Persons Groups. This new group would serve as a dedicated interface serving the G20 process. With regard to revitalizing trade, it could mobilize and oversee the following proposed action items, among others, for the business sector:

- **To expand and enhance the repository of knowledge, data and analysis on how trade, finance and investment work together to link economies and drive global growth,** for example, through existing trade-finance registers such as that created by the International Chamber of Commerce (ICC) and the Asian Development Bank (ADB). Providing such data and insight to governments, institutions and the public could facilitate better understanding and effective policymaking.

- To support the rolling back of protectionism and the completion of the Doha Round by providing **business-led advocacy and outreach programs to underscore publicly the positive links between trade, job creation and economic growth.**

We now look in depth at each of our proposals.

Complete the Doha Round by 2011

If one had to name the single greatest factor that could revitalize trade in the world today, completing the Doha Development Round would surely be the leading contender. Indeed, the best way to keep trade open is to keep opening trade. Concluding the Doha Development Round is a must. Its results can be a fiscally sustainable stimulus package. According to the WTO, after 10 years of negotiation on the Doha Round, the majority of the work is done. Focus must now be in resolving the remaining outstanding points.

G20 leaders must now commit to enter into the endgame. They must empower their negotiators to put their remaining cards on the table and build a global package that each government can ratify. Failure to do so, in an era of fiscal constraints, will surely count as a great set-back which will have negative impacts on future generations.

While the G20 leaders have rhetorically supported completing the Doha Round—it is explicitly mentioned in the Washington, London and Pittsburgh Summit communiqués—this support has not produced tangible results in the actual negotiations. More worrying is that the G20 Toronto Summit communiqué refrains from naming a date for completing the Round. It thus appears that the G20 no longer views Doha with the same urgency.

This is perplexing given that the G20 previously has recognized the benefits of completing the Doha Round as amounting to some $150 billion in global trade. Other studies put the gains even higher.[2] If a small basket of additional "top-up" measures in services, sector initiatives, and trade facilitation which have been considered are added, global export gains could reach $384.1 billion, with a global

2 For example, Hoekman, Martin, and Mattoo estimate US$160 billion in global gains for agricultural and nonagricultural market access agreements alone, even after exceptions for sensitive products. Bernard Hoekman, Will Martin, Aaditya Matoo, "Conclude Doha: It Matters!", Policy Research Working Paper WPS 5135, Nov 2009, The World Bank.

GDP boost of $282.7 billion, or 0.5% of global GDP.[3] We should judge this "Doha stimulus" figure against calls for cash-strapped governments to provide a "second stimulus" to ensure that the economic recovery continues.

In addition to the financial gains, the Doha Round would also represent a major step forward for the global trading community and the strengthening of the rules-based multilateral trading system:

- For developing countries: The Doha Round represents the most significant opening of international markets in recent years, creating new markets for exports and accelerating the integration of these countries into the global trading system.
- For developed countries: The Doha Round fulfills their commitment to opening up global trade in support of inclusive growth, while clearing the way for much-anticipated discussions on the liberalization of services. The Round also creates a platform for parties to cap subsidies to domestic sectors, which will reduce budgetary pressures.
- For those concerned about climate change: The Doha Round will reduce tariffs on various renewable fuels (such as ethanol and biodiesel) and certain energy-efficient environmental goods and services. It is thus a significant first step towards reducing barriers to the trading and sharing of green technologies and solutions in the fight against global climate change.

As a result many in the business community who support open trade recognize that currently there is no better tool than the Doha Round to provide sources of new demand that will accelerate a return of global trade volumes. Over the long term, the Doha Round will support rising incomes in the developing world, and the creation of new markets and customers.

Finally, completion of the Doha Round will help replenish the legitimacy of the WTO and the multilateral trading system in the interests of inclusiveness. Completion of the Doha Round will underline to developing nations the benefits of participating in global trade, and encourage them to invest in trade as a pathway towards development. With additional capacity building and trade support measures, this will pay handsome rewards for the world economy.

Thus, given the leading role of the G20 in confidence building for the global economy, we urge the G20 to recommit to completing the Doha Round by the end of 2011, and for every G20 leader personally to engage on the Doha issues to ensure that his or her commitment is fully carried out to resolve remaining disputes.

The disputes standing in the way of completion of the Doha Round are significant and divisive but not intractable. With the *personal engagement* of every G20 leader, these disputes can be resolved. There have also been many other suggestions on how to create the conditions for a breakthrough in negotiations, such as creating an arbiter of final resort, or tying certain disputes together in compromise, or working with implementation timeframes. We believe that these ideas need to be tried in good faith and with the backing of the G20 leaders.

3 Matthew Adler, Claire Brunel, Gary Clyde Hufbauer, and Jeffrey J. Schott, "What's on the Table? The Doha Round as of August 2009". Peterson Institute of International Economics, Working Paper 09-06, August 2009.

To boost public understanding of the benefits of completing the Doha Round, the business community could launch a publicity, advocacy and outreach campaign internationally. Such a campaign could be mobilized and coordinated by the proposed public-private task force.

Roll Back Protectionism and Avoid New Trade-Restrictive Measures

At the onset of the financial crisis in the autumn of 2008, world leaders unanimously spoke of the need to avoid protectionism as a response to the crisis. At the Washington Summit in November, the G20 declared "within the next 12 months, we will refrain from raising new barriers to investment or to trade in goods and services, imposing new export restrictions, or implementing WTO-inconsistent measures to stimulate exports." The following G8 meeting in Italy contained a similar call: "We reconfirm our commitment to keep markets open and free and to reject protectionism of any kind."[4]

Since the November 2008 declaration, there have been almost 650 new trade-restrictive measures implemented. G20 countries have been responsible for the majority of these.[5]

It has been said that when jobs and economies are under threat, governments are under pressure to cushion the impacts by erecting new trade barriers as a way to "protect" their domestic economies. Governments may also be tempted to submit to calls to "buy local" as a way to support their home bases. Perversely, trade barriers and buy local calls may often do more to destroy jobs than they ostensibly protect.

The Peterson Institute for International Economics has documented how the "buy American" rules erected in the autumn of 2008 have had severe impacts on local communities where jobs depend on trade with Canada or other countries.[6] In fact, the existence of "buy local" requirements may also have slowed the implementation of projects or solutions that were critical to national security, local infrastructure, or community building; in other words, buy local requirements actually impeded job creation that would have taken place in their absence.

A comprehensive accounting for the damages wrought by protectionist and trade-restrictive measures, including "jumbo discriminatory measures" which were likely to affect multiple trading partners, by the Global Trade Alert (GTA) concludes that nearly $1.618 trillion, or 10.45% of world imports, were impacted in 2008 alone.

In short, trade-restrictive measures not only have high political costs, but also high costs in terms of people, as reflected in jobs and livelihoods. The GTA is right that the task before policymakers "is not just to resist the temptations of future protectionism, but also to find the means to unwind the substantial amount of discrimination introduced into the world economy during the crisis."[7]

4 "Responsible Leadership for a Sustainable Future", G8 Declaration, L'Aquila, 08 July 2009. (http://www.g8italia2009.it/static/G8_Allegato/G8_Declaration_08_07_09_final,0.pdf)
5 Simon Evenett, "Unequal Compliance: The 6th GTA Report." (http://www.globaltradealert.org/gta-analysis/unequal-compliance-6th-gta-report)
6 "US Protectionist Impulses in the Wake of the Great Recession", Report to the International Chamber of Commerce Research Foundation, by Gary Clyde Hufbauer, Jacob Funk Kirkegaard, Woan Foong Wong, and Jared Woollacott, Peterson Institute for International Economics, Washington, DC, March 2010. (http://www.iie.com/publications/papers/hufbauer201003.pdf)
7 Evenett, "Unequal Compliance: Sixth GTA."

In addition, we fear that current developments on currencies and exchange rates have the risk of percolating into trade protectionism. This should be avoided. What is needed is cooperative action to address global economic imbalances.

Thus, at a time when the global economy is struggling to recover, and in view of pressing needs to support the recovery by boosting international trade, *we call on the G20 immediately to stop the implementation of pipeline protectionist or quasi-protectionist measures. Moreover, we challenge global leaders at the G20 to show support to the global recovery by rolling back protectionist measures implemented since the start of the global financial crisis and to foreswear the future use of protectionist and trade-restrictive measures.*

Rolling back protectionism will put substance behind the G20's rhetoric. It also creates the right momentum for further opening up the global trade system, not only in services but also in areas such as renewable energy, green technologies and green economy in general.

We recognize that there are divisions of opinion on these issues. Indeed, many in subsidized or non-competitive sectors might be against a withdrawal of protectionist measures. These voices are frequently well organized and effective in their campaigns to defend their stance. While their points must be heard, we must ensure that they are met with a persuasive case outlining the positive links between international trade, job creation and economic development.

Thus, we in the business community who support an open, rules-based trading system could undertake a program of policy outreach and public advocacy to underline the domestic and international benefits of trade on development. This would help build a case that would enable the public and policymakers to make an educated choice in the interests of the greater good.

Ensure an Adequate Supply and Fair Pricing of Trade Finance

We have until now dealt primarily with how global leaders can create the right policy framework to enable trade to flow given the existence of demand and supply. We now need to address how to ensure an adequate supply and fair pricing of trade finance, which is the critical ingredient that oils the flow of world trade.

Put simply, trade finance provides risk mitigation to both suppliers and buyers of goods and services, and is typically achieved with various degrees of financing through commitments given (off-balance sheet) or loans (on-balance sheet). To elaborate:

- Importers may extend trade finance to their suppliers, either directly through bills of exchange or indirectly to suppliers' banks in the form of letters of credit
- Exporters may seek trade finance in the form of acceptances with corporate risk or confirmations of letters of credit
- Both import and export loans may also be used.

The commonality amongst these different instruments is their low-risk self-liquidating nature and short tenor. Thus, trade finance is considered to be one of the most secured forms of financing, allowing counterparties to raise credit more easily with underlying goods as secured collateral. Indeed, companies will do their

utmost to avoid defaulting on trade finance facilities—even if they have defaulted on other loans—as it is a lifeline for their operations.

The important role trade finance plays in global trade was underlined during the global economic crisis. The WTO has estimated that during the crisis 10–15% of the fall in global trade stemmed directly from lower trade-finance liquidity, as banks slashed their trade-finance portfolios to shore up capital positions.[8]

Recognizing that the lack of trade finance was dampening global trade, the G20 acted to allocate $250 billion in trade facilitation funds through multilateral agencies in the London Summit in 2009. These efforts have yielded positive results in both the developed and developing worlds. Given the cautious global recovery now underway and threat of a double-dip recession, these trade facilitation funds should be maintained as an essential support to the recovery of the world economy. Ensuring sufficient support for trade finance in developing and low-income countries should be a particular priority, given the role that international trade plays in economic development in these economies.

Clearly, the recent crisis has signaled the need to review the global financial regulatory framework, so as to boost the banking sector's ability to absorb shocks from economic crises and to build a stronger, safer international financial architecture. However, in attempting to create a more robust regulatory framework and curb speculative and highly leveraged instruments, the New Capital Framework could significantly curtail banks' ability to provide affordable financing to businesses.

Evidence shows that trade finance is generally low-risk, self-liquidating, and short tenor in nature, which is markedly different from most corporate or financial institution lending exposures, which tend to be larger in size and longer-term. The difference is demonstrated in the ICC-ADB Trade Register.[9]

Created in November 2009, the ICC-ADB Register pools performance data for trade finance products from nine international banks, covering a total of 5.2 million transactions between 2005 and 2009 with a total value of over $2.5 trillion. Analysis of the data largely supports the view that trade finance is a relatively low-risk asset class.

- Trade-finance transactions have an average tenor of just 115 days.
- Trade-finance transactions typically have a low incidence of default, with less than 1,200 defaults reported for all 5.2 million transactions. Off-balance sheet trade transactions have an even lower default rate, with only 110 defaults reported for 2.4 million transactions.

8 Marc Auboin, WTO Secretariat, "Boosting the availability of trade finance in the current crisis: Background analysis for a substantial G20 package", Centre for Economic and Policy Research, Policy Insight No 35, June 2009 (online at http://www.cepr.org/pubs/PolicyInsights/PolicyInsight35.pdf)

9 International Chamber of Commerce Commission on Banking Technique and Practice, "Report on findings of ICC-ADB Register on Trade & Finance: Statistical analysis of risk profile of trade finance products", September 2010 (http://www.iccwbo.org/uploadedFiles/ICC/policy/banking_technique/Statements/1147%20Register%20Report%20ICC%20Final%20Draft%2021%20September%202010.pdf)

- Even during the global economic downturn, trade-finance transactions experienced relatively low levels of default, with fewer than 500 defaults among 2.8 million transactions.
- For written-off products, recovery rates average 60% for all product types, albeit with significant variance year to year and by product type.

The above data support the view that trade finance should be given favorable treatment that reflects business realities under the New Capital Framework, in terms of the capital, leverage and liquidity requirements. Indeed, grouping trade finance with other corporate asset classes suggests that default and recovery rates are similar, but this is clearly not the case. Restricting trade finance would be unwise under any circumstances, and now we can see from the data that it would also be unwarranted.

Imposing the New Capital Framework as currently written could have a severe and adverse impact on the pricing and supply of trade finance.

In a forthcoming study for the World Bank, Standard Chartered Bank estimates that the cost of trade finance could rise by 20–40% and overall supply could shrink by 6% *per annum* under such a scenario.[10] The most severe effects would be felt by small and medium-sized enterprises and banks in the developing world, where trade financing is needed most to create jobs and alleviate poverty. Similar results are seen in a study by Dun & Bradstreet, which finds that some banks will face a five-fold increase in the costs of trade finance, and therefore cut back.[11]

Moreover, we note that traders and producers in developing countries with weak institutions are generally *more reliant* on bank-intermediated trade finance than their peers in developed markets. Thus, a "squeeze" on trade finance would hit the emerging markets much harder than elsewhere.

To be clear, there is broad support for a proper regulatory process and framework. Although these adverse impacts on trade finance might be unintended, they could potentially do great damage to world trade. We therefore urge policymakers to act to avoid such a scenario.

In addition, we need to stimulate an *increase* in trade finance capacity if we are to grow global trade as a way to achieve an even modest rate of global GDP growth of 3% for the next decade, and thereby meet the many developmental priorities that remain.

Thus, we urge G20 leaders to take the initiative to ensure trade finance is adequately supported at the multilateral level through maintaining the existing programs of trade facilitation and trade support; and by ensuring that trade finance receives the appropriate, favorable treatment within the New Capital Framework.

In support of this proposal, we in the business community would like to continue to build our collective knowledge and understanding on how trade and finance work together to support global growth, for instance, by expanding the above-mentioned ICC-ADB Trade Register or undertaking other efforts.

10 Tan Kah Chye, "Impacts of Basel III on Trade Finance" forthcoming (2010) by World Bank
11 Dun & Bradstreet, "The Business Impact of 'Basel III'," October 2010.

Put Trade Permanently on the Agenda of the G20

We have now offered three substantive proposals on how to create the right policy frameworks to support a revitalization of trade. The sole remaining issue is how to ensure that support for trade continues in an integrated manner and with the appropriate high-level attention given the vital role that trade plays in global growth. Or, put another way, how to ensure that we do not wait for the next crisis to rethink our approach on trade?

During the recent financial crisis, the G20 began to address trade on such a high-level basis by making commitments on Doha, trade finance and protectionism. Indeed, these were key issues and deserved attention at the level of global leaders. We propose therefore that this practice be continued and broadened, by making trade and investment a permanent, priority agenda item for the G20.

In practice, this will mean that the G20 continue to devote attention to trade, but to make such attention institutional and integrated, for example

- Trade ministers will work together at the G20 level, and as part of the G20 summit process and follow-up to ensure that commitments are carried through.
- The G20 institutional process will provide an ongoing eye on trade by following up on the trade-related recommendations of each meeting, and providing feedback for further action.
- The G20 architecture will open to incorporate views from multilateral agencies, the business community and the public, regarding trade where appropriate.

While this paper is on how to revitalize trade in the immediate context, there are a number of other issues which need to be dealt with in order to make trade flow more smoothly and to produce better results through trade. Among these are: regulatory reforms, trade capacity- building and aid-for-trade programs, rationalizing country of origin rules, subsidies reform, and so on.

The G20's attention could focus attention on key issues in trade, while providing a platform for multilateral cooperation through the WTO framework, thereby strengthening the global trading system.

CONCLUSION

The unfulfilled Millennium Development Goals (MDGs) and the nearly 2.5 billion people who remain in poverty today are stark reminders of the scale of unmet needs in our world. Pascal Lamy, Director-General of the World Trade Organization (WTO), recently reminded us that "the regions where most progress has been made in eradicating poverty are those that trade most."

This will not happen unless we act swiftly and decisively to remove trade barriers, kick start demand, and provide sufficient and growing amounts of trade finance to the task. We in the business community stand ready to support the G20 in this important endeavor to secure a sustainable, equitable and lasting recovery.

ENCOURAGING AND STRENGTHENING FOREIGN DIRECT INVESTMENT: DRIVING PROSPERITY THROUGH PRODUCTIVITY AND CREATIVITY[1]

Working Group II

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1 The Working Group thanks ERT (Dennis Kredler) and members of ERT-FER, ICC (Stefano Bertasi) and WEF (Rick Samans/Jennifer Blanke) for support and advice over the whole process to build this common position, James Zhan Director of UNCTAD-IED and Jan Atteslander for very substantive comments. Special thanks go to Professor Karl Sauvant and Ken Davies, Columbia Law School and The Earth Institute at Columbia University for their advice and support with empirical facts. Their paper prepared for the Group: What strategies and measures should the G20 pursue to encourage foreign direct investment? Report to the Working Group on Investment of the G20 Business Summit, New York September 2010, can be found on G20 Business Summit Internet site http://www.seoulg20businesssummit.org/en/

INTRODUCTION

"Encourage the private sector to now assume the leading role in generating growth." The priority target set for the G20 meeting in Seoul is of particular relevance for this working group. While fiscal stimulus packages were necessary to aid national economic growth in the short term during the crisis, sustainable prosperity in both developed and emerging economies must now come from private investments, freely allocated in order to stimulate productivity and creativity. Locally invested firms will have to be the main drivers, with foreign direct investments (FDI) as an essential complementary component needed to generate such advances. As a matter of fact, FDI flows foster a more efficient allocation of resources—capital, knowledge, and human—in a global perspective, which in turns boosts research, innovation, they are a core mechanism to transfer new technologies and knowhow globally, essential to the establishment of global supply chains, also accelerating trade, and thus one of the main drivers of globalisation. Gains in efficiency and prosperity from open FDI, more private sector activity and market opening integration are ultimately benefitting both developed and developing economies, host and home countries. More private sector investment and global integration led to an increase in average annual net job creation in services and manufacturing worldwide from less than 20 million in the 1960s and 1970s to more than 40 million in 1999–2007. And the number of people able to establish themselves above the threshold of absolute poverty increased from 60 million per year in the 1970s to far more than 100 million annually in the years before the crisis.[2] To get an idea of the relative importance of FDI in these developments: The total stock of inward FDI of nearly US $18 trillion by end-2009 generated sales by foreign affiliates of about US $29 trillion—almost twice the US $16 trillion value of world exports.[3]

In 2008 and 2009, as a reaction to the global economic crisis, FDI flows fell significantly compared to the two years before. In the first quarter 2010, FDI started to slowly recover, but then suffered again a significant reduction in the second quarter.[4] If long-term-oriented FDI flows are to accelerate sustainably in the years to come, governments must continue to avoid impediments to FDI flows (in and out) and find ways that FDI can move even more freely across all borders and in all directions—also, and in particular inflows of industrialised countries from surplus developing economies. The global challenges today require multi-channel FDI flows that stimulate productivity and creativity worldwide, rather than relying on a collection of single-country initiatives to encourage one-way capital flows that might substitute for stimulus packages. Against this background, our working group decided to look into the question: "What strategies and measures should the G20 pursue to encourage Foreign Direct Investment?"

Two Decades of FDI Growth—and the Decrease in 2007-08

Over the last 20 years the FDI landscape has changed from a North-South perspective to a truly global event, from center-periphery structures to network organisations, and from mainly Greenfield investment to an increasing share of acquisitions—the latter creating even better opportunities to re-allocate resources

2 S. Chen/ M. Ravallion; Absolute Poverty Measures for the Developing World, 1981-2004; World Bank Washington DC
3 UNCTAD World Investment Report 2010
4 James Zhan, UNCTAD; press briefing 14 October 2010. Inflows of foreign direct investment fell by 25% from the first quarter, and were down 17% from the second quarter of 2009.

and tasks and to readjust structures in existing assets in both developed and developing economies. From 1990 to 2009, FDI inflows worldwide more than quintupled, from US $208 billion to US $1.1 trillion. The total stock of inward FDI rose at the same time from just under US $2 trillion to nearly US $18 trillion by end-2009.[5] The share of the developed countries in total inflows has been dramatically eroded 51% by end-2009, while simultaneously the share of developing countries has more than doubled from 17% to 43%.

A second major development in global FDI in the past two decades, particularly since 2000, has been the emergence of *developing countries as outward investors*. The outward FDI flows from such countries rose from US $12 billion in 1990 to US $229 billion in 2009, the share in the global total from 5% to 21%.[6] Although these new investors are creating tremendous new opportunities for both developing and, even more importantly, advanced economies, they are often viewed with suspicion by incumbents, (i.e., some companies and traditional home countries of FDI).

Part of the game-changing growth in FDI—the increasing shares of developing countries in both in- and outflows—over the past 20 years was due to a widespread move towards open trade and investment regimes in countries that formerly practiced various degrees of market closure and protectionism. Influenced by the success of the newly-industrializing economies, countries around the world have largely abandoned import-substitution strategies or the autarky of centrally-planned economies. Especially since the mid-1980s, mainly triggered by the fundamental change of policies in China, the investment climate has become more welcoming to foreign investors. Countries have liberalized national entry conditions for multinational enterprises (MNEs), instituted measures to attract such enterprises, and facilitated their operations once established.[7] This new openness has not been based on reciprocity but has generally been a unilateral adoption of demonstrably successful policies, as the rising proportion of trade in GDP has been accompanied by an acceleration of economic growth and a rise in living standards.

Slowdown of Opening and Emergence of New Impediments

Since 2005, however, governments' efforts to enact laws and regulations to liberalize the investment regime and strengthen FDI promotion have slowed down, often replaced by measures that regulate or restrict FDI inflows (see Exhibit 1 below).

There is increasingly the risk of spill-overs of financial regulations on multinationals in manufacturing and non-financial services. Governments may need to take investment measures to safeguard essential security interests and public order, but countries have increasingly sought to screen investments at the national level by invoking "national interests," "essential security interests," or similar concepts that are often linked to strategic sectors and national champions. These concepts are typically left undefined, giving host countries discretion to apply discriminatory treatment to foreign investors. The focus has primarily been on cross-border M&As, with particular attention to sovereign FDI, including investment by state-owned

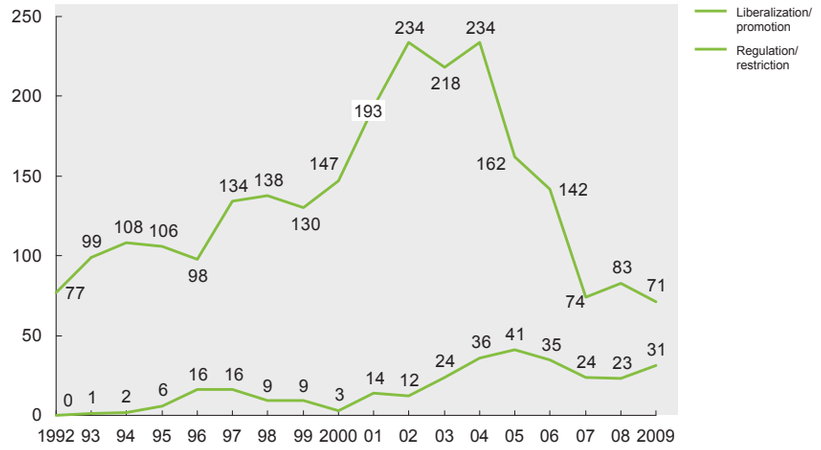
5 UNCTAD FDI statistical database http://stats.unctad.org/

6 At the same time their share of outward FDI stock doubled from 7% to 14% of total global FDI stock. Transition economies, which recorded negligible FDI flows and stock in 1990, were in 2009 responsible for 5% of global FDI outflows and 2% of global outward FDI stock.

7 Karl P. Sauvant, *FDI Protectionism Is on the Rise*, Policy Research Working Paper 5052, The World Bank, Poverty Reduction and Economic Management Network (New York: 2009).

enterprises and Sovereign Wealth Funds (SWFs).[8] It seems clear that Sovereign Wealth Funds and state owned companies cannot, *a priori*, expect to have the same treatment as fully private entities. But trends appear to be negative, FDI from these important new and private sources are often screened with rather vague or ambiguous criteria; at times one may feel that considerations of global efficiency as a source of prosperity for all is pushed more to the background. And even more worrying is the significant slow-down in measures to open up.

Exhibit 1. Number of regulatory changes related to FDI 1992-2009



SOURCE: UNCTAD, World Investment Report 2010: Investing in a Low-Carbon Economy (Geneva: UNCTAD, 2010)

A Broad, Strategic Perspective to Get FDI Growth Back on Track

The G8's L'Aquila Declaration pledged that: "We will work to reverse the recent decline in FDI, by fostering an open, receptive climate for foreign investment, especially in emerging and in developing countries." The global challenges today require multi-channel FDI flows that stimulate *productivity* and *creativity* worldwide; quality of the investment matters at least as much as net flows. Developed and developing economies must act as both host and home countries of these FDI flows.

Productivity. The annual growth rates of labour productivity in G7 countries started to slow down in the middle of the last decade, from 2.3% annually in the years 1999 to 2003 to 1.5% in the years 2004 to 2007. The global economic crisis further depressed productivity growth to just 0.5% in 2008–2009.[9] These rates need to recover, driven by national factors. Our interest in the G20 perspective is where and how global efforts might contribute to success.

Freer and increased cross-border trade of goods and services would contribute to higher overall productivity and efficiency worldwide, hence the importance of successfully concluding the Doha Development Round by the end of 2011 (see working group Report on **Revitalizing World Trade**). But studies also show how FDI can increase total factor productivity and labour productivity in host countries.[10]

8 Karl P. Sauvant, op.cit. This includes the US, Australia, Canada, France and Germany; screening with political pressure is also still to be observed in developing and emerging economies.
9 http//stats.oecd.org
10 Sauvant/Davies ; op. cit.

More importantly, a high share of FDI in total investment is related to a low incremental capital/output ratio—or, in other words, one additional dollar invested in private companies has a stronger impact on growth in countries with significant FDI presence than in those with little or none. FDI appears to be a major driver of a more efficient capital use over the period 1990–2005. The two—FDI and efficiency of investment—are even correlated in the case of the least developed countries.[11]

This becomes even more important in the present economic context. What has been mainly perceived as a financial crisis and treated as a severe recession, more and more turns out to be a debt crisis. Consumers and governments of advanced economies have spent far beyond their means. Implicit government debt from over-promising, well hidden through opaque accounting practices by governments, is now step by step turning into explicit debt. Scenarios developed by the Bank for International Settlements[12] show that if no action is taken, in countries such as Austria, Germany, Ireland, Italy, Portugal and Spain, debt would increase to 300% of GDP by 2040 and in countries such as France, Greece, Japan, Netherlands, UK to 400% and more.

Higher economic growth would help reducing these high ratios, but since according to this same study capital would be become scarcer and more expensive, faster growth will only be possible with an even more efficient allocation of private capital and, as a result, a significantly higher incremental capital-output ratio.

This perspective is in line with the underlying motivation of companies investing—to increase shareholder value. At a time, when pension funds hold the largest proportions of shares, this is also a responsibility towards sustainable socials systems in a period of rapid ageing. The value created by companies must be shared, both in the interest of shareholders and in the interest of long-term sustainability of a company. Major stakeholders—employees, local suppliers and customers, ultimately consumers, communities where the business is embedded—must participate in the value generated.[13]

Creativity. FDI is associated with technology transfers and dissemination. Information networks resulting from multi-channel FDI flows will in that sense also increase creativity by better using and connecting knowledge and the people generating it. According to a recent study, R&D and other knowledge pursuits undertaken by multinational corporations "contribute not only to their own performance, but also to society's reservoir of scientific knowledge. Investment abroad makes this reservoir accessible for other economies (transfer, spill-overs) and, in turn, enhances social returns as it may point to new technological avenues, offer new solutions to old problems, reinvigorate existing knowledge, lead to more efficient processes, serve as the starting point for future technologies, and influence

11 For the suggested measure of investment efficiency, the incremental capital/output ratio (ICOR), see Oberhänsli, H.; Foreign Direct and Local Private Sector Investment; in: Aussenwirtschaft; Zürich 47.1992,1; pp. 31 54. For the orders of magnitude: With an assumed unchanged total private investment, a 1 percentage point increase in the share of FDI in the total amount increases the growth potential of an economy by 0.1 to 0.2 percentage points. See http://www.ert.be/doc/01641.pdf. Inflows that increase overall private investment will obviously have an even more significant impact.

12 S. G. Cechetti et al; The future of public debt: prospects and implications; BIS Working Papers No 300; Basel March 2010.

13 Peter J Buckley et al.; Value Creation and Sharing. Economic view and measurement; University of Leeds, mimeo; June 2009. This report can be found on the G20 Business Summit internet site http://www.seoulg20businesssummit.org/en/

the general understanding and problem-solving techniques."[14] The free flow of knowledge and key personnel driven by multinational companies, combined with adequate protection of intellectual property of all kind enhances this process

RECOMMENDATIONS

Most suggestions in our paper are addressed to host and home governments. But we are fully aware of other working groups preparing the Seoul G20 Business Summit addressing green growth and CSR commitments of companies; we see our proposals as part of an overall package. And some of the proposals below were already made before. But with developing countries entering global markets as investors, they get a new meaning.

In our concrete proposals we ask governments of G20 countries and beyond to:

1. Ensure a clear and enforceable regulatory framework in individual countries.[15] Clear rules which protect investments are important to encourage and stimulate FDI (see also checklist below). Governments need to create and develop an investment environment that provides secure ownership rights and enable risk mitigation. This is even more important when we consider long term investments. In this situation, where the initial investment is recovered during a long period of time, it is essential that the ownership rights could be enforced under the rule of law. Governments need to provide a transparent, understandable and clear regulatory framework which will mitigate the investment risks and boost FDI.

2. Broaden and further systematize monitoring of framework conditions for private investment: avoiding new impediments, stimulating further opening. The G8's L'Aquila Declaration welcomed joint efforts of the United Nations Conference on Trade and Development (UNCTAD), the OECD Freedom of Investment Roundtable (FOIRT) with the WTO and the IMF to monitor restrictions on investments. The G20 Pittsburgh Summit endorsed this in September 2009 asking these organisations to report publicly in each quarter.[16]

- Monitoring of investment conditions and possible new impediments could be further *systematized* to ensure that they are not disguised protectionism. Screening of FDI has become more widespread, particularly in industrialized countries. It is intended to help government adopt policies with clear and transparent criteria that are effective in safeguarding security.

- In addition, this monitoring could be extended to a broader range of measures affecting both local and foreign invested firms. (see box "Checklist" for some elements mainly concerning host countries); and also to interventions by home countries (e.g., the measures against so-called "delocalisation"). FDI and local private investment are complementary and, in a healthy economy, mutually re-enforcing; and a more efficient allocation of resources globally is favourable for both, home and host countries of FDI.

14 Peter J Buckley et al.; op.cit.
15 Non-nationals investing in farmland cannot automatically expect the same degree of protection, particularly when the land is being diverted from food production to other crops. See also Principles for Responsible Agricultural Investment that Respects Rights, Livelihoods and Resources; UNCTAD TD/B/C.II/CRP.3; Geneva April 2010.
16 Leaders' Statement, The Pittsburgh Summit, September 24-25, 2009", G20 website http://www.g20.org/

Checklist: Major Impediments to Free Private Investment and Potential Areas of Improvement

The following have been identified as elements for a broader checklist for monitoring of both new obstacles to FDI but also potential areas to show improvements:

- Weak overall governance and economic environment; inconsistent, unclear and/or erratic regulations and approval procedures
- Restrictions on management control and freedom of decision-making of private investors
- Restrictions on private and/or foreign ownership along with the risk of nationalization or expropriation; restrictions on exit strategies of companies and on repatriation of capital
- Restrictions on FDI in certain sectors, purportedly for security reasons; barriers to participate in public procurement markets
- Performance requirements: exports, local content and manufacturing requirements
- Lack of intellectual property protection and restrictions on remuneration for technical assistance as well as regulatory interference in corporate technology transfer
- Discriminatory and restrictive labour market regulations and conditions, such as pressure to employ or retain more or other staff than required and pressure to implement employment conditions that are more costly than those required of comparable local employers
- Price controls and freezing prices (both sectoral and periodic), as well as the freezing of wages
- Foreign trade barriers and restrictions on other international transactions by local and foreign firms
- Mercantilist attitudes and politically motivated opposition to investments that are otherwise in line with laws; unfavourable experience and perceived problems, of existing investors
- Entrenched rent seekers among local entrepreneurs, oligopolistic and "distributional cartels"
- Taxes including also structural and procedural issues
- Local finance including discrimination against private investors by state banks and insufficient links with international financial markets
- Restrictions on marketing, distribution and trade in goods and services in the domestic markets
- Direct and indirect repercussions of environmental risks, particularly when more strictly applied liabilities for foreign investors than for domestic ones
- Problems with bribery, corruption and extortion (often a hidden tax on companies). Lack of application of international anti-corruption rules and guidelines.

Extracts from: ICC/ERT; Improved Investment Conditions - Third survey on improvements in conditions for investment in the developing world; Paris/Brussels 2000; http://www.ert.be/doc/0122.pdf

- A third extension of monitoring could include keeping track of positive policy changes more conducive to private investment. Since the early 80s, developing countries in particular have been opening and liberalising locally, modernizing and globalizing rules and institutions relevant for running private businesses. They viewed these initiatives not as concessions, but as advantages in global competition. This positive process should be further stimulated, with focus on measures contributing to higher efficiency of the capital invested (improved incremental capital-output ratio).

The broader monitoring should be done in close cooperation with the private sector, also in order to avoid politically distorted outcomes.

3. Avoid additional and overly detailed regulations and attitudes that favor formal compliance over principles and that hamper creativity. The economic crisis spawned a plethora of new financial regulations, and it is important to avoid ones that directly or indirectly slow flows of FDI in sectors that were not causing the crisis. More generally, overly detailed regulations may lead to formal compliance attitudes affecting positive risk-taking, creativity and innovation, so urgently needed if we want to relaunch the global economy in a sustainable way. In FDI in particular, extensive new codes of conduct risk leading to such an atmosphere. If the decision was taken, for instance, to go ahead with another revision of OECD Guidelines for Multinationals, it should be used as an opportunity to reduce its size significantly, making sure it remains as a set of voluntary principles and standards of good practice and as a platform for balanced dialogue, with obligations and responsibilities for all participants.

4. Build a better understanding of the mainly positive impact of FDI. Organizations such as UNCTAD and OECD could undertake studies using concepts such as Creating Shared Value to demonstrate more clearly how FDI contributes to prosperity for host and home countries alike, and sharing that wealth with stakeholders and society at large rather than re-distributed through the state at a high administrative cost.[17] This better understanding would also help countries to set policies strengthening overall positive developments.

5. Set a long-term goal of a Multilateral Framework for Investment. Efforts to establish such a multilateral framework for "creating a predictable and stable climate for investment" (G8 statement, L'Aquila 2009) should be maintained and strengthened. Perspective should be mainly the one of host countries (i.e., not an MAI type agreement). The agreement should help with both a freer inflow and outflow of FDI—that is, a level playing ground in the global allocation of FDI. It could also formalize and strengthen the monitoring process with a requirement to notify both improvements (to lock them in) and deteriorations of conditions for investment. A majority of the Group believes that a **non-binding International Model Investment Treaty** could help building common ground and understanding for such a framework and, at the same time, serve as a practical device to help countries negotiate (or renegotiate) their bilateral investment agreements, providing more clarity, predictability and transparency for companies investing abroad. The process set up by the European Commission towards a Model Treaty could serve as a useful reference.

17 Peter J Buckley et al.; op.cit. on G20 Business Summit Internet site http://www.seoulg20businesssummit.org/en/

CONCLUSION

"What strategies and measures should the G20 pursue to encourage Foreign Direct Investment?" This was the question this paper tried to respond to for the Seoul G20 Business Summit. Multinational companies can **contribute to shared growth beyond the crisis**. This will be facilitated if the specific role and strengths of FDI at the global level—that is, the efficient allocation of resources (capital, knowledge, key personnel)—is well understood by governments and encouraged through opening and local liberalisation, modernising and globalising rules and institutions relevant for running businesses, aiming for a coherent, transparent and predictable framework for both local and foreign invested firms.

The companies represented on this working group of the Seoul G20 Business Summit positively accept the challenge raised at the Summit and are willing to drive strong, sustainable growth. Local entrepreneurs will have to continue mobilizing the bulk of the resources (human, financial, knowledge) for growth and development of a country. FDI and local investors are not alternatives to each other; they are complementary in a mutual partnership of cooperation and competition, with a key role for FDI in improving the growth impact of overall private investment. And there is the commitment on the side of companies to invest in a sustainable perspective, making sure that employees, suppliers, customers/consumers, communities and states that we are active in actually participate in the value generated by our businesses there.

HOW CAN THE SMALL AND MEDIUM-SIZED ENTERPRISE SECTOR BE FUNDED AND NURTURED

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INTRODUCTION

Modern economies operate as complex networks of firms large and small, with Small and Medium-Sized Enterprises (SMEs) contributing an important role—improving market efficiency, making productive use of resources, driving innovation, facilitating long-term economic growth, and fostering income stability and employment.

The SME sector is vital to the world economy, and the role of SME businesses is increasingly viewed as that of a powerhouse of employment, innovation and entrepreneurial spirit. SMEs are also a large source of investment, particularly in emerging markets. Innovation and entrepreneurship has been spreading all over the world, not only in Silicon Valley, Cambridge UK, Biopolis Singapore, but also in the "BRIC" countries of Brazil, Russia, India and China. In countries like Saudi Arabia, Jordan and South Africa, new entrepreneurial activities are emerging. There are high expectations that such small entrepreneurs and ventures in various parts of the world will contribute to the development and growth of the world economy and improvement of quality of life.

Governments must take concerted measures to further encourage and support innovation and entrepreneurship found in the world's SME sector.

Profile of SMEs—SMEs are typically non-subsidiary, independent firms that employ fewer than a given number of employees—which varies widely across countries. The most frequent upper limit is 250 employees in the EU, while some countries set the limit at 200. In the US, SMEs are considered to be firms with fewer than 500 employees. Small firms are generally those with fewer than 50 employees, while micro-enterprises have at most ten, or in some cases five workers. Financial assets are also used to define SMEs. In the EU, SMEs must have an annual turnover not exceeding EUR 40 million.

The majority of business firms in each economy are SMEs. In Japan for example, 99.8% of corporations are SMEs. SME activity varies widely too. They predominate in service sectors, particularly construction, wholesale and retail trade and hotels and restaurants. They also play a key role in strategic business services, including computer software and information processing, research and development, technical testing, and marketing. SMEs can also account for a high percentage of manufacturing firms, for example 98% in Sweden, 92% in Korea and 80% in Mexico. SMEs are major employment generators and can surpass larger firms in net job creation: for instance, SMEs account for approximately half of total employment in the OECD and 70% in Japan.

While it is true that large firms are most likely to conduct R&D, some 30–60% of SMEs in the OECD are increasingly characterized as innovative, with about 10% conducting research and development (R&D). And, while smaller firms have traditionally focused on domestic markets, more recently SMEs are globalizing, contributing between 25–35% of world manufactured exports; and they are becoming more involved in international strategic alliances and joint ventures, both among themselves and with the larger multinationals. In many ways, they can be considered the core of future economic growth in many countries.

SME Role in the Economy—SMEs' contribution to innovation in many fields is significant and growing. Traditional economic theory and empirical studies have

demonstrated how large companies are a major source of innovation, given that they may well have greater funding than small firms to devote to R&D, greater ability to take the risks associated with innovative activity, better economies of scale, and thereby a lower marginal cost of innovation.[1]

The overall share of economic activity attributable to SMEs has grown in most OECD countries in recent years, however. And when it comes to addressing global issues like climate change, innovative SMEs often play an even greater role than large companies, governments and academic institutions in developing innovative "green" technologies. In pharmaceutical, automotive, nuclear energy as well as renewable energy sectors, there has been a growing trend toward partnerships between large companies and ventures and M&A of ventures by large companies. This clearly indicates that large companies have difficulties in succeeding without partnering with or acquiring innovative SMEs.

And although large firms do undertake considerably more R&D in raw terms, SMEs enjoy particular advantages of their own with respect to innovation, and in some cases can contribute to innovations of particular types or in particular ways in relatively greater proportions than their large-firm counterparts.

Some of the particular ways that academic and other studies have identified that SMEs are important for economic growth are as follows:[2]

- Research and development among SMEs is on the rise. SME investment in R&D in the US grew by nearly 300% in between 1985 and 1995, while large firm R&D expenditure grew by only about 20%.[3]

- SMEs' return on R&D investment often exceeds that of large firms. The R&D-to-sales ratio of SMEs, for example, in the US in the late 1990s stood at 3.9%, compared to 3.1% for the largest companies, and had improved substantially over the previous 10 years.[4]

- Small firms can account for a disproportionate share of new product innovation. This is due in part to the very fact that SMEs can or must keep their R&D expenditures low. Using a variety of measures of innovations, SMEs in the US and other countries have been found to contribute to approximately 2.5 times more innovations per employees than do large firms.[5]

- SMEs have organizational and economic advantages in developing innovations in certain sectors. In some particularly fast-paced and innovative industries, which include process control equipment and information technology, capital intensity is a less important constraint. An SME may be more easily able to focus on a narrow range of specific inventions. Organizational differences—such as a less bureaucratic, more innovation-focussed management structure or more direct incentives to

1 Jensen, P. and Webster, E., Firm Size and the Use of Intellectual Property Rights, Economic Record, 82:156, 44-55, p. 46 (Mar. 2006), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=889138.
2 This discussion is summarized from OECD, Enhancing the Competitiveness of SMEs through Innovation, pp. 6-8 (2000), http://www.oecd.org/dataoecd/20/1/2010176.pdf.
3 *Id*. p. 6, *citing* National Science Foundation (1999).
4 *Id*.
5 *Id*. p. 7, *citing* Acs and Audretsch (1990), Gellman Research Associates (1976, 1982), Rothwell (1989), Audretsch (1995), and Brouwer and Kleinknecht (1996).

drive to succeed—also may give SMEs a relative advantage over their larger counterparts in developing innovations.

It is therefore no surprise that, in the words of the OECD, "The contribution of small firms to innovation-led growth and job creation has been of renewed interest in recent years. A large body of evidence shows that SMEs, especially young firms, contribute greatly and increasingly to the innovation system by introducing new products and adapting existing products to the needs of customers."[6]

CONSTRAINTS

Notwithstanding these wide-ranging benefits to the economy, SMEs lacking in human and financial resources face a variety of constraints owing to the difficulty of absorbing large fixed costs, the absence of economies of scale and scope in key factors of production, and the higher unit costs of providing services. Additionally,

- Complicated and inefficient tax codes that include cascading sales taxes and stamp taxes are least favorable to SMEs and artificially promote larger-scale firms.
- Cumbersome bidding procedures and lack of information can inhibit SME participation in public contracts and subcontracts.
- High start-up costs, including licensing and registration requirements, along with costs to SMEs of protecting their own intellectual property are great burdens to SMEs.
- SMEs suffer from limited access to capital markets, both local and international, in part because of the perception of higher risk, informational barriers, and economies of scale in credit markets that result in higher costs of intermediation for smaller firms.
- Difficulties in gaining access to appropriate technologies and information on available technologies along with other constraints on capital, labor and raw materials, and uncertainty surrounding new technologies restrict incentives to innovation.
- Limited international marketing experience, poor quality control and product standardization, and little access to international partners impede expansion into international markets, just as domestic markets are opening to foreign competitors under growing EPAs and FTAs.
- An insufficient supply of skilled workers can limit the specialization opportunities, raise costs, and reduce flexibility in managing operations.
- SMEs can face constraints in the availability of production inputs. For instance, better quality raw materials are generally exported or are available only to larger firms; and their suppliers tend to be oligopolies.
- Inadequate infrastructure and weak provision of basic services such as transportation, energy, urban planning and production sites represent particular impediments for SMEs.

6 *Id.* p. 4.

- SMEs do not have adequate access to large companies (as customers) and universities (as R&D partners) because of lack of information/knowledge and because of "Non Tariff Barriers".

The Legal, Regulatory, Fiscal and Financial Framework

By definition, Small and Medium-sized Enterprises exhibit inherent disadvantages with respect to their ability to compete with larger firms on a cost-basis and to benefit from regulatory frameworks that have by and large been established to cater to larger firms.

Tax codes are a primary example where limited staff and expertise disadvantage SME ability to comply with complicated tax requirements or to absorb the fixed costs of tax preparation. Likewise, cascading sales taxes and stamp taxes are least favorable to SMEs and artificially promote larger-scale firms. Likewise tariff barriers can disadvantage an SME's ability to explore export opportunities.

Longstanding practices in the public procurement system can limit SME's access to public contracts and subcontracts, often because of cumbersome bidding procedures, proposal design biases favoring larger firms and lack of information. Many governments have begun to remedy the inherent bias against SMEs in public procurement, for example, Australia, Japan and the US set quotas and budget for SMEs and Korea requires public agencies to give preference to procurement of products from SMEs. The EU proposes changes in national public procurement procedures that aim at leveling the playing field. In addition, E-procurement practices facilitate SME's access to information and lower the administrative burdens of accessing and responding to tenders. In all cases, structuring tenders to target new innovations will fundamentally open the door to SME strengths and improve their competitiveness in securing public tenders.

Legal frameworks including licensing and registration requirements can impose excessive and unnecessary burdens on SMEs. The cost to SMEs of protecting their own intellectual property can be high, and the high cost of settling legal claims and excessive delays in court proceedings adversely affect SME operations. The absence of antitrust legislation favors larger firms, while the lack of protection for property rights limits SME's access to foreign technologies.

The establishment of government-sponsored *SME Support Centers* would provide a valuable one-stop service window to meet SME's needs in legal, tax, financing, accounting, human resources, information, intellectual property, training, business management, market development, internationalization, and crisis management. Such *SME Support Centers* could also collaborate with one another internationally to provide valuable assistance to SMEs.

In addition, governments should consider a range of measures to alleviate the problems many SMEs, particularly in emerging countries face with their cash flow, such as the deferral of SMEs' taxes and/or social contributions for a defined period; and coordinated action to reduce payment delays, for example by requiring public bodies and encouraging larger firms to sign up to a prompt payment code of conduct.

Access to Public Financing

It is the SME sector that suffers most during economic downturns. Since SMEs comprise the majority of enterprises in each economy and because they play a crucial role in delivering innovation and the associated productivity gains to a national economy, it is therefore a matter of urgency for G20 governments to provide SMEs with financing and funding support, particularly to close the gap in early stage capital requirements. Of course, such financial support could also be provided in conjunction with private sector investors.

- Governments should provide SMEs with R&D tax incentives and loan guarantees that are more generous to them than to large companies.
- Fee reductions and/or tax credits are appropriate to cover all aspects of SMEs' costs for application and examination of their patents and other IP protections.
- Public sector financial support should be made available on terms congenial to SMEs.
- Initiatives such as the *G20 SME Finance Challenge* are potentially useful in encouraging SME development, especially when G20 governments are committed to mobilizing funding needed for implementation. This program should be continued.
- Establishment of a *G20 Global Equity Fund* to support the capitalization of SMEs could make a significant contribution: Many small firms have emerged from the financial crisis over-leveraged, and unable to obtain loan funding at prices they can afford, and provision of equity support would enable them to deleverage, making loan funding potentially more accessible. An alternative would be the establishment of a network of national (or regional) equity funds. Given their local level and "closeness" to the SMEs they are trying to assist, the funds would be more aware of the particular needs of local SMEs. At the same time they would benefit from sharing best practice and shared services provided by the wider network of funds. The funds could either be entirely funded with public finance, or with a mixture of public/private funding.
- Targeted information initiatives could help increase awareness of the range of financing options available from public programs.

Working with the Financial Sector

The fact that SMEs in many emerging markets do not have adequate access to equity support and credit financing is especially worrisome because SMEs contribute substantially towards employment generation and national income. In contrast, banks in the most advanced countries are adopting strategies to reduce the risk of lending to SMEs—enabling banks to better identify businesses likely to survive and expand, and with which it is worthwhile to develop a long-term relationship.

SMEs have limited access to capital markets, in part because of the perception of higher risk, informational barriers, and economies of scale in credit markets that result in higher costs of intermediation for smaller firms.

Risk—In most jurisdictions, commercial banks and financial institutions are the main source of external finance for SMEs. They are, however, often reluctant to lend due to high perceived risk and a resulting risk weighting which leads to a higher capital charge that is probably overcautious. As a result, SMEs often cannot obtain adequate finance at competitive terms. Financial regulators and supervisors should be encouraged to re-assess the capital treatment of equity and other finance for SMEs to ensure they are not being unnecessarily penalized.

One of the key reasons why in some countries banks perceive SMEs to be a high risk segment is the absence of suitable laws protecting the rights of the creditors. Rationalization of mortgage laws and introduction of collateral enforcement laws would go a long way to changing the banks' perceptions of the SME sector. It would also reduce the risk weighting of the SME portfolio thus enabling banks to increase their exposure to SMEs on better terms. In addition, this will also unlock the SME funds that are currently tied up with the banks in the form of deposits/margins, thereby improving the liquidity of the SME sector.

Banks would be much more receptive to SME proposals if they were backed by a credit guarantee/insurance. While such schemes do exist in many countries, the SME sector is often not able to fully benefit from it due to lack of awareness, high guarantee cost and elaborate procedures involved. Therefore, the credit guarantee mechanism should be simple and with enough corpus so as to cover a reasonable percentage of the total SME portfolio of that country.

Financing costs—High financing cost is another important barrier for SMEs. Its reduction will promote the faster growth of SMEs. To the extent practical, bank programs should lower financial costs, improve access to institutional credit and expand the availability of market related information.

Therefore, it is essential that the banking system be incentivized to extend equity support and cheaper credit to the SME sector. Such incentives may include tax rebates, liberalized branch licensing, interest subsidies, etc. For loans given to the SME sector, banks may be allowed to have relaxed provisioning norms.

Creation of an Apex Bank/Central Agency for the SME sector—G20 governments should create Apex Banks/Central Agencies for acting as a single window for meeting the financial and developmental needs of the SME sector. Besides developing lending strategies, the Apex Bank can play a lead role in channeling government schemes/subsidies to the SME sector. Such a bank can refinance the SME portfolios of other banks at a lower cost. It can also identify the SME subsectors that need specific interventions and then launch schemes such as term loans for upgrading of technology in specific sectors.

Trade Finance—Financial regulators and supervisors should be encouraged to re-examine the capital treatment of trade finance to ensure that Loss Given Default (LGD) expectations and Credit Conversion Factors (CCFs) are representative of real world risks, and do not lead to a capital charge that penalizes SMEs. Banks and other financial institutions should also foster the development of innovative forms of funding, including through supply chain finance, to enable SMEs to benefit from the higher ratings of major firms with whom they have regular supply contracts.

Access to Venture Capital

Venture capital is an essential ingredient in developing innovation and commercializing new science-based technologies. It addition to providing needed equity, venture capital provides small companies with value-added services, helps in both science and business to professionalize the companies it finances and helps companies establish themselves in the marketplace. According to a recent survey of German companies, 77% of companies believe that without private equity the venture business would not have existed at all or would have developed less rapidly. An economy that does not have a strong venture capital sector is one that displays symptoms of deeper economic problems.[7]

Despite the value of venture capital to spurring innovation to market, many countries have not developed a strong venture capital industry. For example, although Japan is internationally competitive and exhibits high level science and technology capabilities, it has not been very successful in developing internationally competitive innovative ventures. There are a couple of reasons for that but the weakness of Japan's venture capital sector is a chief reason. Most Japanese venture capital groups tend to lack:

- Management teams with a track record in venture capital fund operations
- Large-sized funds
- A global network of syndicate partners
- Experience in building internationally leading venture companies
- Management policy to overcome excessive risk aversion culture

Roles of G20 governments—G20 governments should work together to improve the regulatory environment and tax incentives for investment in venture companies or merger and acquisition of venture companies. These improvements should include corporate, tax and securities regulations that should not be hostile to capital formation and sufficient investment in early stage ventures. In promoting national innovation for economic growth, one of the most important roles of government is to stimulate entrepreneurial activity and the venture capital industry, as the United States Government did in the 1970s and early 1980s.

Governments should nurture and fund SMEs and innovative ventures by establishing large size venture capital funds that will invest in conjunction with private sector venture capitals through international syndication investments. Governments should also encourage venture capital funds to form regional venture capital networks such as the Asia Venture Capital Network that will collaborate with one another for accelerating global innovations.

International venture capital collaboration—One way to compensate for a weak venture capital sector would be to encourage venture capital funds to build strategic partnerships with experienced venture capital groups that have world class management teams and possess a powerful network of global syndicate partners, such as those in the US Venture capital data reflects an increasingly global focus of entrepreneurial activity. It is critically important, therefore, for venture capital funds

7 J.P. Cotis, Chief Economist OECD

to collaborate with one another across borders and continents. To attempt to build a local entrepreneurial sector and venture capital industry without strong global ties is not a recipe for success in the days of globalization and growing EPAs and FTAs.

Bridging large and small companies—Today the role of venture capital funds is not just to invest in venture companies. Venture capital funds play a role in match-making SMEs with large companies in such key industries as healthcare, energy and environment and IT. As it has been increasingly more difficult for large companies to keep pace with technology innovation and the risks associated with R&D investments, major companies have been finding a strategic advantage in developing joint R&D with or acquiring venture companies. For example, investment in venture companies by Pfizer, Exxon Mobil and Toyota in the pharmaceutical industry, biofuel industry and electric vehicle industry, respectively, is a new development unheard of as recently as a decade ago. In short, even global corporations need innovative entrepreneurial ideas found in venture companies and venture capital funds play a vital role in bridging together large companies and entrepreneurial science and technology-based venture companies.

To cite an example, MPM Capital based in Boston is the world's largest healthcare venture capital group, managing about US $2.5 billion. MPM has invested in over 100 biotech ventures and holds the Annual Healthcare Leaders Summit, inviting some 30 top executives of multinational pharmaceutical companies, 75 CEOs of biotech ventures, 50 senior management members of institutional investors and 15 leading scientists of universities. This Summit is an extraordinary example of "match-making" opportunities between mega pharmaceutical companies and biotech ventures—to exchange information and ideas and to explore joint R&D collaborations or M&A opportunities.

Governments should recognize this increasing importance of venture capital funds and take initiatives to strengthen the venture capital industry.

Innovative Technology Development

In order to thrive in an expanding, globally competitive business environment, it is critically important for SMEs to develop next-generation technologies in such growth areas as green innovation, healthcare innovation and information technology (IT). However, often lacking in financial and human resources, many SMEs are not in a position to engage in innovative R&D by themselves. SMEs also have difficulties gaining access to appropriate technologies and information on available technologies. This limits SME's ability to improve productivity and competitiveness.

Government-sponsored SME Innovative Technology Development Funds—In order to enhance productivity and competitiveness, SMEs badly need to develop innovative technologies and for that purpose SMEs need access to R&D capital. Governments should jointly establish government-sponsored SME Innovative Technology Development Funds on a regional basis and support SME's efforts to develop creative innovative technologies.

University-industry R&D collaborations—While R&D centers and homes of innovation are dispersed worldwide, now more than ever, new science and technology-based ventures arise out of universities. SMEs could enormously

benefit from the support of universities in innovative technology development as well as in education and training of SME's human resources.

University-industry (also university-industry-government) collaborations have been under way in a number of countries. International open innovation university-industry collaborations have been developing at IMEC in Belgium, MINATEC in France, SUNY Albany in the US etc. Generally, to date, most SMEs have not been a part of such university-industry R&D collaborations, partly because these partnerships exhibit a too high academic and intellectual threshold for SMEs and there has not been enough information for SMEs on available opportunities.

Governments can nurture SME R&D efforts by strongly encouraging university-industry R&D collaborations to include SME partners—thereby gaining from SME contributions while at the same time availing SMEs of the group resources.

Intellectual Property

Recent studies have shown that the SME sector may actually demonstrate a higher concentration of innovation intensity (when compared to their number of employees and their assets) than large firms. As a result, SMEs in many cases can have greater incentives than large firms to obtain IP protection.[8]

Within the ICT (information and communication technology) sector, SMEs that strategically use intellectual property—patents, copyright, trademarks and the like—report higher growth, income and employment than those that do not. A study carried out by the International Data Corporation (IDC) for the European Commission in 2008[9] involved an extensive survey of SMEs in the ICT sector to see what sorts of IP rights they acquired, how these IP rights were being used, and how such use affected the success of these SMEs. The results showed that SMEs that used IP rights reported that they are more successful than SMEs that do not use IPR. IPR-using companies reported at least 10% greater turnover, market share and employment growth than the other companies surveyed that did not. The likeliness of showing turnover and profit growth increased with the size of the IPR portfolio, i.e., firms with patents are more likely to grow, while firms with informal IPR (i.e., relying on confidentiality and trade secrets) in some cases are even less likely to grow than firms without IPR."[10]

The valuation of IP and intangible assets is very difficult, especially for entities like SMEs which lack the resources and expertise to do this. More fundamentally, IP rights can be costly to acquire and to enforce, which can put SMEs at an unnecessary disadvantage to large firms in their ability to use IP rights to appropriate returns from their innovative efforts.[11] This is especially unfortunate given that:

- Successful SMEs use IP rights strategically not only to protect their inventions and markets, but also to generate investment funding, collaborate, and license out their technologies.

8 *Id*. pp. 51, 54.
9 IDC, Intellectual Property Rights and Competitiveness: Challenges for ICT-Producing SMEs, Study Report No. 08/2008 (Sept. 2008), http://www.ebusiness-watch.org/studies/special_topics/2007/documents/Study_08-2008_IPR.pdf.
10 *Id*., p. 7.
11 Jensen and Webster (2006), *supra* note 83, p. 44, *citing* Cordes *et al*. (1999), WIPO (2003), and Macdonald (2004).

- Effective IPR protection has been shown to correlate with increased trade and access to FDI, which is a particular benefit to SMEs in developing countries.
- In the words of Czech Republic Deputy Prime Minister Alexandr Vondra, "Lack of IPR (intellectual property rights) can be fatal to SMEs, who are the main drivers of our economy and who, according to many studies, outperform larger firms in terms of the technological importance of their innovations."[12]

Governments should support SMEs' efforts to obtain, protect and use intellectual property to help the success of their business. Specifically governments should provide SMEs with fee reductions and funding support (ideally in the form of tax credits) for their activities involving intellectual property creation and protection, in particular for all of the necessary costs involved in securing patent protection.

SME Community

Traditionally, most trade associations are formed across business sectors and are populated by established companies successful enough to contribute membership dues. SMEs, in contrast, cut across sectors and have not formed business associations to raise their concerns with governments, work with banks and financial institutions to reduce transaction costs, and explore alternative financing options.

The establishment of a global SME community, through international support by Chambers of Commerce and Industry in each country could assist SMEs to:

- Participate in international SME trade fairs toward fostering international market development.
- Expand networks of SMEs and share best-practices of successful SMEs.
- Participate in domestic and international business matching between SMEs and large companies.
- Satisfy SME's needs in various matters including internationalization, overseas market studies, tax issues etc when an increasing range of EPAs and FTAs change business environments for SMEs.
- Take advantage of experienced individuals drawn from ageing populations. (Many countries are facing the challenges of an ageing population. But in many cases, that ageing population includes active individuals with entrepreneurial or financial experience which could be of considerable value to young SMEs. It should be possible to establish networks of business and financial mentors in a "Big Society" initiative to link this pool of long-term experience with young innovators.)
- Governments should encourage such initiatives as the APEC SME Summit held in Yokohama, Japan in November 2010 to expand a global SME community.

12 Czechs vow to revive Community patent talks, EurActiv (6 Mar. 2009), http://www.euractiv.com/en/innovation/czechs-vow-revive-community-patent-talks/article-180018.

RECOMMENDATIONS

Throughout this paper we have cited areas that need the attention of the public and private sectors in helping SMEs fulfill their potential. In particular, we believe that the G20 should address some specific issues on how to encourage, fund and nurture SMEs, share knowledge and experience on SMEs, and promote joint programs on SMEs:

- **Create an enabling legal, regulatory, fiscal and financial framework** that creates fair tax schedules for SMEs, provides targeted tax incentives and loan guarantees, simplifies regulatory and bureaucratic requirements for setting up and doing business, and favors SMEs in public procurement opportunities. The creation of government-sponsored *SME Support Centers* can assist SMEs to better navigate the legal, regulatory and financial framework. Such Centers can also assist SMEs in other matters such as human resources, training, business management, market information, internationalization and crisis management.

- **Provide incentives encouraging the financial sector to lend to SMEs.** These include intelligent capital treatment in the context of risk weighting, interest subsidy schemes, and tax relief. Lending would also be encouraged by adoption of suitable laws protecting the rights of the creditors, by providing a comprehensive system of credit guarantees, rationalizing mortgage laws and introducing collateral enforcement laws in some emerging countries. Incentives for the private sector to assume an active role in SME finance could include syndication of international funding. The establishment of an *SME Credit Rating Agency* would also reduce uncertainty for institutional lenders.

- **Improve access of SMEs and innovative ventures to capital markets** and business opportunities by establishing large-size government-sponsored venture capital funds investing in conjunction with private sector syndicate partners and encouraging a formation of regional venture capital networks such as the Asia Venture Capital Network. The G20, working with the international financial institutions, might also consider the establishment of a *Global Equity Fund*, or a network of national/regional funds, to support the capitalization of SMEs. Government clearing houses, international SME trade fairs, and matching programs between SMEs and large companies can all help SMEs and entrepreneurs learn about sources of venture capital and better connect with potential business partners.

- **Improve capital structure and credit access of SMEs** by promoting schemes in which financial institutions can convert part of the credit into equity in those successful undertakings. The possibility of capitalizing the credit would benefit SMEs with lower financing costs.

- **Spur innovation and R&D** by establishing government-sponsored *SME Innovative Technology Development Funds* on a regional basis to encourage and facilitate SME's access to R&D capital. Governments should also set up SME-oriented incubation centers, encourage technology transfer collaborations, and strongly encourage university-industry R&D collaborations to include SME partners—thereby gaining from SME contributions while at the same

time availing SMEs of the group resources on technology innovation in such growth areas as green innovation, healthcare innovation and IT.

- **Promote the value of intellectual property** by providing practical training on steps SMEs can take to assess the effectiveness of their IP as the basis of innovative, creative and economic activity. Such training could include how to register and manage their own copyrights, trademarks and patents more effectively; how to comply with laws protecting other companies' IP; and how to manage the business risks associated with infringement. Fee reductions and tax credits for all of the costs associated with acquiring patent protection should be available to SMEs.

- **Foster an SME community** by encouraging SMEs to form industry associations to expand SME networks, share knowledge and experience of domestic and international business, work with experienced banking-business-financial mentors to foster SME, raise common concerns with governments and, for example, work with banks and financial institutions to reduce transaction costs, structure better loan applications, and explore alternative financing structures such as club finance and syndicated loans across banks.

Recommendations for the Business Community

- Improve awareness of the range of financing options available from public programs, institutional lenders, private investors and banks, such as commercial bank SME business lines, innovative products and management for SME clients.

- Participate actively in programs to improve the access of SMEs to sources of finance and domestic and international markets by supporting initiatives such as matching programs between SMEs and large companies.

- Foster an SME community by working with SME industry associations to reduce transaction costs, improve the structure of loan applications, share best practices, work with experienced business and financial mentors, and explore alternative financing options.

CONCLUSION

The SME sector is vital to our world economy and the role of SME businesses is increasingly viewed as that of a powerhouse of employment, innovation and entrepreneurial spirit. They are also a large source of investment, particularly in emerging markets. Despite its commendable contribution to the economy, the SME sector does not get the support necessary from governments, the banking sector, financial institutions, capital markets and the corporate sector.

Therefore, while science and technology are the driving forces of innovation, it is of critical importance to encourage and develop entrepreneurial and innovative SMEs, including ventures, in order to vitalize the national economy and industry in developed and emerging countries.

SUPPORTING ECONOMIC GROWTH AND THE IMPLICATIONS FOR FINANCIAL SECTOR POLICY AND REGULATORY REFORMS

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INTRODUCTION

The recent crisis demonstrated how interconnected the financial system has become as a result of increased globalization. The financial crisis, which started in the Western world, sent shock waves around the globe. In 2009, world trade contracted by 12% in volume terms and 23% in value terms. Moreover, economic growth in emerging markets slowed to 1.2% from 5.8% in 2008. The G20 leadership, by first maintaining financial stability and then providing coordinated fiscal stimulus, was crucial in avoiding a sustained contraction of global trade. However, as regulatory reforms continue in the aftermath of the crisis, it is essential that global leaders "future-proof" new regulations by considering their impact on the future economic landscape, and not just the current global trade and capital flows. And they must seek to develop national regulatory regimes that are consistent with internationally agreed frameworks.

The Korean G20 Presidency has demonstrated its commitment to act as a bridge between developed and emerging markets to ensure that capital, trade and investments continue to flow into the emerging economies to support sustainable economic growth and development. This work will be particularly important as global capital and trade flows are set to significantly increase in emerging markets over the coming decades. G20 countries have a vital role to play in ensuring decisions made at the summits in October and November are beneficial to emerging and developed economies and supportive of continued global economic recovery.

It is essential that there is a clear and consistent global regulatory architecture and that governments remain resolute in their opposition to protectionism, not only in trade policy but also against the risk of protectionist regulatory policy that could make it more difficult to finance world trade. Protectionist policies may appear to protect national financial stability, but in reality they can inhibit economic growth and create sub-optimal solutions for the resolution of financial crises. Measures such as forced subsidiarization of banks, forced onshoring of activities, restrictions on market access or long-term indiscriminate capital controls, can all act to impede market entrance and preserve monopolies. Equally, inconsistent implementation of regulatory standards can create unlevel playing fields for international banks operating in a number of jurisdictions.

It is also critical to ensure that domestic insurance providers, including state-owned enterprises, are not given preferential treatment. All players competing in insurance markets should be subject to the same laws and regulations and be supervised in the same manner by the same regulatory authority. There is therefore a significant role to be played by international institutions to ensure that not only is policy development consistent on an international level but that there is similar consistency with the implementation of regulatory requirements.

Businesses with global markets are always seeking more efficient ways to raise capital, finance trade and manage their cash. Given the cross-border nature of today's markets, banks are providing increasingly complex products to meet the needs of businesses. It is absolutely essential that there is a greater harmonization of rules among national bank regulators. The recently published Basel III proposals for bank capital and liquidity requirements sought to establish a robust and stable financial system, an objective that business and banking communities support.

However, there still remain many areas of the Basel that are left to the discretion of national regulators.

Improving regulation will of course be key to addressing the problems highlighted in the financial crisis. In addition to regulatory reform, policymakers should also consider what reforms are needed to improve market efficiency. Financial markets must be allowed to develop so that they provide the maximum benefit for the countries in which they operate. Asia provides a good example of why these changes are needed. As the Asian Development Bank (ADB) recently noted in its 2010 Asian Development Outlook, "the region's financial systems still lag behind their counterparts in industrial economies and their own dynamic real economies. This matters because financial development has a positive effect on economic growth. More specifically, what matters for growth is the overall depth of financial development rather than the structure of the financial system."

In many emerging markets, the lack of fully developed capital markets holds back economic growth and makes it more difficult for these countries to absorb inflows of capital. By working now to address these issues, G20 leaders could help increase the economic growth in emerging markets while assisting with development objectives and helping to make these markets more resilient to financial stress. Such moves will be necessary over the coming decades as the pace of globalisation increases and we see the continued internationalisation of trade.

Forthcoming new research by the McKinsey Global Institute shows that the investment needs of both developed and emerging markets will increase sharply over the coming decades, underscoring the need for a fair and effective global financial architecture.[1] The McKinsey research also shows a considerable future shift in the balance of economic activity from the developed countries to the emerging markets as well as increased intra-regional trade within emerging markets. Investments in new infrastructure in emerging markets and the replacement of crumbling facilities in the developed world will require a significant increase and diversification of available investment capital.

Shifting patterns of savings (both corporate and household) will mean further diversification and internationalization of the sources of investment capital, such as increased flows within the regions. As policymakers develop a new regulatory framework, particularly a new system of global capital and liquidity standards, it is essential they consider how these new standards will enable global financial services to facilitate these significant investment requirements, including capital flows to support key areas such as world trade and infrastructure finance.

HOW FINANCIAL SERVICES REGULATORY REFORM CAN HELP ACHIEVE SUSTAINABLE ECONOMIC GROWTH

Supporting SMEs in Global Trade

It will be important to address the particular needs of small- and medium-sized businesses (SMEs) that contribute significantly to employment and economic activity. In seeking to achieve this objective, policymakers will need to consider how

1 *Farewell to cheap capital? The implications of long-term shifts in global investment and saving*, McKinsey Global Institute, 2010 (Report to be published in December, 2010)

the reform of financial institutions will impact growth. In particular, policymakers need to focus on the impact of new capital proposals on business lending and find solutions that make it easier for banks to assess the credit risks posed by SMEs.

SMEs, which have the potential to play a significant role in the global economy, face different opportunities and challenges in developed and emerging markets. In developed countries, one of the most significant challenges posed by globalization is how to enhance the participation and the role of SMEs in global value chains. In emerging markets, problems may range from difficulties operating in an informal environment, capacity constraints and ability to link SMEs into global markets. Increasing access to finance is a common challenge for SMEs in emerging and developed markets.

There are a number of factors that make it more difficult for SMEs to access finance and cause them to be seen by some lenders as "too risky." These issues include information asymmetries, the small scale of their activities, high transaction and administrative costs, high levels of non-performing loans, high capital requirements associated with SME lending and low collateral capacity.

When we consider the decline in the international financial flows to emerging markets in the aftermath of the global financial crisis, we see there was a disproportionate impact on SME funding, compounding the already existing problems they typically have in accessing finance. In Asia, more extreme impacts were only mitigated because governments in those countries stepped in to offer additional support to ensure the continued financing of SMEs and because of increased intraregional trade flows. During the crisis a decline in demand from developed countries, particularly Europe and the United States, adversely affected export-driven SMEs in emerging markets. As the economic recovery continues, it will be essential that banks are able to provide credit to SMEs. Banks' ability to do this will be constrained by increased capital demands and, in particular, by the regulatory capital requirements and the rules placed on trade finance.

Because the problems of SME financing aren't simply limited to the financial crisis, the need for a policy response will continue to exist even after the global economy returns to health. However, by starting to address the problems now, policymakers could help to improve the growth prospects for SMEs.

Financing of International Trade

Historically, growth in trade has out-paced growth in economies. In particular since 1990, trade has grown at 6.5% per year, led by strong trade growth between the emerging markets. Figures from the International Monetary Fund (IMF) show that trade between emerging markets has increased significantly in the last 20 years. In 1990, emerging market imports from other emerging markets accounted for a little over 5% of imports; now they account for over 20%.

Trade has been a key element in supporting the economic development of the poorer nations in the late 20th Century. As a result, trade funding needs to increase in order to support economic growth, alleviate poverty and address global imbalances by reducing trade deficits.

Financing Infrastructure Funding

Global investments declined over the three decades leading up to 2002, falling from about 24% of global GDP in the 1970s to a low of 20.8% of GDP in 2002. However, according to the McKinsey Global Institute, global investment, in real terms, look set to increase to approximately 25-26% of global GDP in 2030, a significant proportion of which will be driven by emerging markets led by China, India and South America. A substantial portion of investment will be in infrastructure, which will be essential in emerging markets to keep economies growing and moving up the economic value chain.

Infrastructure needs will also increase significantly with the rapid urbanisation of Asia, Africa and elsewhere, requiring huge investment to ensure reasonable living standards for the inhabitants of burgeoning cities. In Asia alone, the ADB has estimated annual requirements at $750 billion for energy, transport, telecommunications, water and sanitation. More infrastructure will also be needed to support the growing trade that should accompany and enable economic growth.

The demand for significant investment in new infrastructure in Asia compares with the need for reinvestment in old infrastructure in the West. For instance, in 2009 the American Society of Civil Engineers estimated that there was a requirement for an additional $1 trillion of investment over the next five years to bring all of the key infrastructure areas up to acceptable standards. Updating existing infrastructure (whether to renew legacy projects or to green existing infrastructure) poses significantly different requirements and constraints than the type of green-field investments that can be made in emerging markets. With different cost pressures, including significant fiscal constraints, the funding needs in the US are different from those in emerging markets. And the methods used, such as retrofitting a building to new standards, pose many challenges to financing; therefore, the financial solutions that emerge from the developed world may be different than those in emerging markets.

It is also clear that there will be further mismatches in the sources of capital, particularly private savings. Even if we see reduced government deficits and increased saving, many developed and emerging markets will experience shortfalls, particularly as investment will likely be cyclical.

THE IMPACT OF ECONOMIC TRENDS AND REGULATORY CHANGES ON THE DEVELOPMENT OF FINANCIAL MARKETS

Trade Financing

International capital rules have a significant impact on the ability of banks to finance global trade. Banks currently provide 30% of finance for world trade and, therefore, as countries seek to increase their exports markets, it is essential that the regulatory environment surrounding trade finance is appropriate. Currently under the New Capital Framework, often referred to as Basel III, trade finance has been grouped together with other corporate lending and off-balance sheet products and higher regulatory capital requirements have been imposed that could curb lending and leveraging in these areas. Trade finance has become caught up in the recent drive for regulatory reform and may be negatively impacted despite

SME FINANCE IN TURKEY

According to a World Bank study,[2] access to finance in Turkey is perceived as the single-most severe obstacle by firms of all sizes, but especially for medium-sized firms that find it most difficult to secure credit. The same study notes that SMEs account for 76.7% of employment, almost 40% of investments, 26.5% of total value-added and 25% of bank credit.[3] Therefore, SMEs account for a significant portion of economic activity in Turkey and increasing access to finance for SMEs could significantly contribute to higher growth and employment.

Emerging markets that seek high and sustainable growth for a relatively rapid catch-up to the developed world have to focus on policies that directly target the constraints faced by SMEs. The priority should be on the export sector as rapid growth requires access to foreign markets.

Recent Policy Initiatives in Turkey

The Turkish Government started an initiative, called the "Treasury Support to Credit Guarantee Institutions" in 2009, with the participation of the under secretariat of Turkish Treasury, the Credit Guarantee Fund (CGF) and 20 banks. The aim was to ease financing constraints faced by the SMEs in the post-crisis era. The Treasury committed to provide approximately US $650 million to the CGF, a credit-guarantee institution, that provides guarantees to banks that lend to SMEs.

The CGF, the first credit guarantee institution in Turkey, was established in 1991 with the aim of enhancing the financing opportunities of SMEs by providing guarantees for loans. Craftsmen, artisans, agricultural enterprises, farmers, women entrepreneurs and young entrepreneurs are among the SMEs from various regions of Turkey that are supported by CGF. The target group is enterprises with less than 250 employees and annual sales or total assets less than $16 million to $17 million. For each Treasury-supported loan, up to 65% of the risk is borne by the Treasury, with the remaining amount borne by the banks.

Although the cost of the initiative will be at most $650 million for the Treasury, it is expected to create credit volume of approximately $6.5 billion for SMEs. Due partially to this policy initiative and partially to the economic recovery, SME loans have increased by approximately 29% from July 2009 to July 2010, while non-performing loans have declined from 5.4% to 4.5% in the same period (for both cash and non-cash loans).

An Alternative Source of Finance for SMEs in Turkey

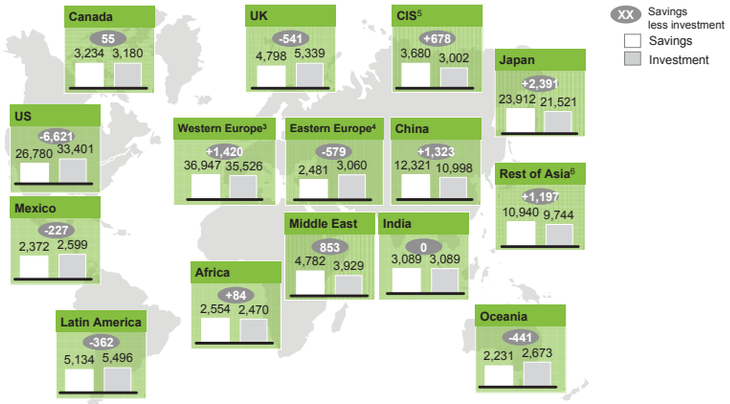
According to a recent policy initiative, an alternative financing mechanism for SMEs is being developed in Turkey. A new national stock market, the so-called "emerging company market" (ECM) for SMEs, is being introduced at the Istanbul Stock Exchange (ISE). Small- and medium-sized enterprises will be able to conduct initial public offerings for just 10% of the fees applied in the other ISE markets. Various advantages for SMEs to go public through the ECM process include cuts in fees, reduced requirements and incentives. Thus, the SMEs will have access to finance via an organized, transparent and reliable market through the ECM channel.

2 "Obstacles to Growth for Small and Medium Enterprises in Turkey" World Bank Policy Research Working Paper No 5323, Murat Seker and Paulo Guilherme Correa, p.10
3 Ibid, p.2

Exhibit 1. Over the last 20 years, Asia and Western Europe have funded saving deficits in the US, UK, Eastern Europe, and Latin America

Cumulative saving and investment by region[1, 2]

1990-2008, USD Billions, nominal values



1 Savings less investment do not equal current account balance due to statistical discrepancies in data collection
2 Based on analysis from the report *Farewell to cheap capital? The implications of long-term shifts in global investment and saving.*, McKinsey Global Institute, 2010
3 Includes Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, and Switzerland
4 Includes Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Montenegro, Poland, Romania, Serbia, Slovak Republic, Slovenia, and Ukraine
5 Includes Armenia, Azerbaijan, Georgia, Kazakhstan, Russia, Turkmenistan, and Uzbekistan
6 Includes Bangladesh, Hong Kong, Indonesia, Macao, Malaysia, Mongolia, Pakistan, Philippines, Singapore, South Korea, Sri Lanka, Taiwan, Thailand, Vietnam

SOURCE: McKinsey Global Institute

the fundamental role it has in facilitating international trade and commerce. For example, the Basel Committee proposes to increase the asset-value correlation (AVC) factor when applied to larger financial counterparties under the Internal Ratings Based (IRB) approach.

In trying to address interconnectedness between banks, the proposal creates a disproportionally negative impact for better-rated counterparties, which is in itself a perverse outcome. It also has a detrimental impact on trade finance: the increase in AVC will result in higher capital charges for trade finance transactions. This is despite the fact that trade financing tends to be a lower risk activity. According to the International Chamber of Commerce (ICC), even through 2008 and 2009—the worst economic downturn since the Great Depression—banks reported only 445 defaults out of just over 2.8 million trade transactions.

Savings

The supply of savings will increasingly come from emerging markets and household savings in the developed world are set to be a smaller proportion of the global pool of savings, although some increase in the medium term is likely. This will make it more important than ever for international banks to fulfill their essential role to mediate global capital flows. And this trend will be important as regulators place a greater reliance on banks taking deposits as opposed to what regulators have regarded as over-dependence on wholesale funding markets. The financial services industry should ensure developed countries have sufficient global capital to meet their growing infrastructure and investment needs while emerging markets have a way of productively investing their growing pool of savings (from both households and corporates).

Financial services companies play a critical role in providing the necessary intermediation to help countries meet their investment needs while promoting open global flows of capital. This will be particularly true for developed countries, where significant investment requirements and large deficits will place the focus of investment funding on private-sector solutions. However, some of the regulatory proposals currently being considered on forced subsidiarization or structural reforms will make it more difficult for these international capital flows to occur.

Longer Maturity Capital

Infrastructure investment generally needs to be long-term to match the long life of the assets and the characteristics of the cash flows (significant upfront costs and smaller payments spread out over time that can often result in decades to return a profit). The increased regulatory emphasis on liquidity reform and the higher liquidity standards now being adopted will have a particular impact on this longer-term funding. The financial services industry must provide affordable forms of long-term capital to meet the projected higher demand. The industry should consider how it can take advantage of the growing holding of corporate savings in the developed world, which has risen from 45% of total private savings in 1980 to 68% of savings in 2008 (compared with 44% in China, India and Mexico in 2007).

Commodities

As the balance of growth tilts towards emerging economies, there will be much greater consumption of commodities. As supplies try to match rapidly growing demand, there is likely to be higher volatility in commodity prices. To minimize the business risk and cost of capital for large corporations or SMEs, banks have to be able to offer reasonably priced risk management solutions to help clients hedge their risks. It is important for policymakers to understand that it won't be possible to clear all of these trades through exchanges because of the great diversity in products, delivery dates and settlement prices. Clearing all transactions on exchange would limit the options available to clients and reduce their ability to mitigate their risk. Policymakers should at the same time remain vigilant about attempts to manipulate or distort global markets in commodities and raw materials through export restraints and other unfair trade practices.

Deepening of Capital Markets

Along with the increased need for investment, the development of deep global capital markets will become increasingly important. Deep capital markets also contribute to economic and financial stability. Without reforms to ensure the growth of capital markets in emerging economies, pressures on credit supply will emerge in developed and emerging markets alike. Equally, without more mature capital markets, developing countries may find it more difficult to absorb significant inflows of capital, which could lead to asset bubbles in their economies.

International financial institutions should identify ways to increase liquidity in local-currency bond markets through such measures as strengthening market infrastructure and putting appropriate regulatory frameworks in place. Such a move would help to address the current dominance of the US, Japan, and three European countries, which account for nearly 70% of bonds outstanding worldwide. In addition to overall capital market broadening and deepening, there

THE IMPACT OF CAPITAL STANDARDS ON TRADE FINANCE

Given the international nature of trade finance, there is a need for a consistent global implementation of regulatory agreements where they apply to trade finance. There are examples where inconsistent implementation has led to increased problems in the facilitation of trade. For instance, Basel rules allow national discretion for the waiver of the one-year maturity floor rule. However, there are only three countries that have waived this rule: the UK (selected trade finance products only), Germany and Hong Kong. Industry data from the ICC has shown that the average tenor of trade transactions is 115 days (substantially less than one year). By insisting on a one-year maturity floor, regulators are requiring banks to maintain more capital than required by the risk that trade finance poses and clients are adversely impacted by paying more for trade financing.

The current Basel regulatory capital framework for wholesale banking uses a counterparty level default framework. This means that when a corporate/financial institution client defaults on the payment of one of the products, the rest of the products that the client has with the bank will be considered as defaulted as well. However, it has been observed historically that clients tend not to default on their trade finance facilities as it is an important form of working capital financing to keep it going as a viable entity. Therefore, a default regime set at the product level for trade finance facilities would be more appropriate given the historical precedent.

A recent survey from the ICC shows that trade off-balance sheet items, i.e., letters of credit and guarantees, have low conversion rates into on-balance sheet items, which in turn require funding from the banks. The 100% Credit Conversion Factor (CCF) currently imposed by Basel on trade contingents is not reflective of actual business reality. This will have unforeseen consequences on the financing of international trade and movement of goods and services. We recommend that Basel use a more realistic conversion ratio for its capital computation.

Short-term trade assets are paid off in less than 30 days and therefore could be considered as liquid assets and form part of the stable source of liquid assets for banks. Not recognising these assets will require banks to source other forms of liquid assets and increase the costs of financing.

There is a growing evidence showing that the treatment of trade finance, which is generally a low-risk activity, is disproportionately impacted by some regulatory requirements. To ensure consistent growth in international trade, which will be essential for fostering future economic growth, it will be essential to overcome these issues. A clear, strong global capital framework is essential, but it should target riskier activities and continue to allow important low-risk activities such as trade finance to grow.

is also a need for better capital market integration to facilitate cross-border capital flows, starting at the regional level. For instance, Asian markets are less integrated than those in the European Union and policymakers should consider realistic steps to achieve greater market integration in Asia.

RECOMMENDATIONS

Significant regulatory reform has already happened, with banks now holding higher capital and liquidity than before the crisis, even ahead of final agreement on

the New Capital Framework. Attempts to gain greater international consistency in regulatory regimes are welcome.

Financial services institutions have to be able to offer a range of financial solutions including trade finance, project finance, derivatives, government debt, asset management, principal finance, insurance and basic banking facilitates. Global financial services firms must also help countries to establish deep, liquid capital markets to help economies develop and meet their financing needs for sustainable economic growth.

To be able to achieve this, banks need to be well regulated—strongly capitalized and highly liquid—with good internal corporate governance and disciplined risk management. There will be no one single answer about how to regulate banks, but it is essential that the regulatory landscape be internationally consistent. Additionally, policymakers should encourage continued "biodiversity" in banking structures, ranging from larger international banks that are able to meet global financing needs, to smaller community banks. Systemically important financial institutions (SIFIs) have understandably received attention as part of global regulatory reform efforts.

The G20 needs to ensure that the definition of SIFIs and systemic risk and efforts to enhance loss-absorbing capacities are internationally consistent and undertaken in a fashion that does not distort competition. To avoid inconsistency, there should be general international agreement on the approach to systemic risk management, rules on SIFIs and loss absorbency. Also government, regulators and central banks should give due consideration to the differentiated nature of insurance when deciding upon any measures.

Regulations that could trap capital or liquidity, such as forced subsidiarization, capping private equity holdings or changes to bank structure, could restrict capital flows that are essential for global economic growth.

1. Reaffirm a commitment to global capital flows and consistent global regulatory standards and take steps to deepen and broaden capital markets while highlighting the risks of financial protectionism.

G20 governments should:

- **Task international financial institutions such as the World Bank, the International Finance Corporation and regional development banks to set out the steps that could be taken to deepen and broaden capital markets,** particularly in emerging markets, and draft a roadmap for achieving this. At each G20 meeting, world leaders should monitor progress to confirm there is sufficient capital market capacity as demand increases over the next two decades.

- **Commission international institutions such as the IMF, World Bank and World Trade Organisation to report on efforts to prevent financial regulation leading to protectionism.** Policy makers need to take a stand against protectionist solutions such as forced subsidiarization and increased structural changes to bank business models that could reduce global capital flows and make it more difficult for banks to fulfil their important function of intermediation. In addition, due consideration should be given to the differentiated nature of insurance when deciding upon any measures.

- **Ensure consistent implementation of the New Capital Framework rules.** G20 leaders should monitor the global implementation of the new rules and ensure, at the very least, that all G20 markets are on course to implement and ensure a harmonized approach.

- **Ensure international accounting-standard setters agree and implement a clear roadmap for achieving appropriately harmonized global accounting standards.** G20 leaders should monitor their progress and should receive updates at G20 meetings.

2. Work with the financial services industry to develop a policy environment that supports SME financing and further establishment of credit bureau in emerging markets.

G20 governments should:

- **Support the establishment of new credit bureaus in emerging markets.** Greater sharing of credit data in these markets will reduce the costs and increase the availability of SME lending.

- **Encourage governments to support SME access to finance, in partnership with banks, through risk participation schemes such as credit guarantees.** This is especially important in times of crisis or where governments want to drive direct investments to boost specific sectors, industries or geographies.

- **Increase the support provided by the international financial institutions to advise governments on the steps necessary to increase lending to SMEs** involved in international commerce using examples of existing best practice. This work should include a roadmap of actions required to address the problems SMEs have with accessing finance.

3. Incentivize world trade through the globally consistent implementation of regulatory reform measures and infrastructure investment through development of innovative solutions.

G20 governments should:

- **Ensure that regulations promote trade finance and infrastructure investment.** Specifically in the New Capital Framework, trade assets should not be subject to the increased correlation factor, because the business does not arise from similar risks to other interbank transactions and therefore any risks aren't nearly as significant. Policymakers should also replace the national discretion given to regulators to waive the maturity floor rule with a general exemption of trade products from the one-year maturity floor. Trade products are by nature self-liquidating, short term, non-revolving, uncommitted and do not form part of an ongoing financing of clients. As a result, banks should compute risk-weighted assets based on residual maturity for all trade products under the IRB approach.

- **Task the IMF to consider whether current regulatory reforms, which go significantly beyond just increases in capital levels, will inhibit growth based on the projections of how global capital flows are set to change in coming decades.**

In partnership with the financial services industry, G20 governments should:

- **Convene a task force of government and financial sector stakeholders, led by the World Bank, to consider how to broaden the base of private investors in infrastructure projects** for whom longer-term investment horizons may be attractive, such as life insurance companies, private equity, and sovereign wealth funds. The taskforce should identify the barriers to private sector infrastructure investment and address legal, tax and regulatory restrictions. Meanwhile, financial institutions should seek to devise financial solutions that attract a broader base of investors to enable private sector-led infrastructure and other capital intensive modernization projects.

- **Create a taskforce to explore solutions to mitigate risks (country, currency, credit) associated with long-term infrastructure projects.** For instance, the task force should consider whether governments should create or expand institutions to provide guarantees and insurance for infrastructure and cross-border trade financing. Importantly, the financial services industry should work with governments to find ways of providing these guarantees in a way that increases financial support, while at the same time minimizing individual fiscal commitments required by governments.

CONCLUSIONS

Over the next few decades, there will be a significant need for additional investment, both in developed and emerging markets. The increased demands for investment will place growing pressures on the international financial community to meet these challenges. It is imperative that policymakers consider this changing landscape now, while they are developing new regulatory requirements that will determine the framework within which financial institutions operate. The impact of regulatory proposals needs to be considered in light of the *future* and not the *past* economic landscape. In particular, policymakers need to find globally viable solutions to regulation of the financial services industry and to avoid protectionist measures that would inhibit the industry's ability to meet increased demands for investment capital.

Working together in this way, businesses and the financial services sector are committed to enable capital, trade and investment flows to both developed and emerging economies to help promote sustainable growth over the long term.

HOW BUSINESS VIEWS REDUCTIONS IN MONETARY AND FISCAL STIMULUS

Working Group V

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INTRODUCTION

In the wake of the severe financial and economic crisis that has engulfed the world economy since the summer of 2007, governments around the world have taken unprecedented policy measures, both in terms of scope and scale, to stabilize the global financial system, unfreeze credit markets and restore credit flows.

Governments have intervened in financial systems to provide fresh equity capital, asset purchase and insurance schemes and debt issuance guarantees that have amounted to more than 27% of 2008 GDP for the G20 countries, according to the IMF. Moreover, in many countries, governments have effectively, or even legally, nationalized financial institutions. Unlike in previous such instances, these moves have not been taken as fundamental economic policies (as, for example, in France in the early 1980s), but to prevent a meltdown of the financial system.

Similarly, in response to the severe recession that followed the financial crisis, governments around the world have adopted fiscal stimulus measures amounting to 3.4% (weighted average) of 2008 GDP for the OECD countries alone. In addition, central banks have loosened monetary policy using normal policy instruments and have taken extraordinary policy measures such as direct purchases of financial assets, including mortgage and sovereign bonds. As a consequence, the balance sheets of many central banks have exploded in size.

These exceptional measures have been successful in forestalling an even more severe recession. Arguably their greatest contribution has been that they have broken a potential downward spiral of negative sentiment, which could have made the crisis even worse. It is equally clear, though, that these unprecedented policy measures cannot last forever and must be withdrawn to smoothly transition from government-stimulated demand to private-led demand, and return to a more normal policy stance. In fact, there is a growing recognition that unintended side-effects could result if stimulus policies are in place for too long: Specifically, too loose a monetary policy course can undermine the credibility of low inflation policies and threatens to create distortions in the financial system as well as commodity and asset bubbles.

Similarly, ongoing fiscal stimulus risks overstraining budget positions in many countries that were facing long-term fiscal problems even before the crisis, and threatens the revival of economic growth. Finally, an exit from financial sector support is warranted to avoid competitive distortions and non-sustainable activities, as well as signifying support for the underlying stability of the system and boosting market confidence.

Against this background, this essay addresses the following questions:

- What should the exit strategy for the unprecedented policy measures look like, i.e., when and how should monetary and fiscal policies return to paths that are sustainable and do not cause undesirable side-effects?
- How much can and must exit strategies relate to country-specific circumstances and to what extent do they need to be coordinated internationally?

- How can we strike the right balance between a normalization of economic policies (i.e., an exit from extraordinary stimuli) and supporting a nascent and still fragile recovery?
- How will efforts to restore household, corporate and government balance sheets affect the economic recovery?
- How to insure the appropriate flows of long term financing to enterprises which they need to research, innovate, invest and put the economies back on a sustainable growth trend?
- Given that exit strategies as well as the long-term repercussions of the financial crisis will exert a dampening effect on economic growth, where—in terms of industries, regions and policy areas—could growth impulses come from?

WHERE WE STAND WITH THE GLOBAL ECONOMY

GDP forecasts have a disturbingly high margin of error, even in stable economic times. How much more unreliable forecasts have become in the aftermath of the economic and financial crisis can be seen by the forecasts of the major international economic institutions.

In an update to its World Economic Outlook in April, 2009, the IMF predicted that advanced economies would merely stagnate in 2010, with the euro area even suffering a 0.4% decline in GDP. One month earlier the OECD had published a virtually identical forecast. The European Commission expected the US to expand by 0.9%, but agreed that the GDP of the euro area was likely to shrink, although by just 0.1%. At the beginning of Q4 2010, the consensus expects US growth to be around 3% and euro-area GDP to rise 1.5%. The major reason for the poor forecast was actually not so much the misperception of the economies' momentum in 2010, rather it was the failure to recognize the strong economic rebound which had started already in spring 2009, at a time when these forecasts were compiled.

The crucial question for policymakers and businesses alike now is: How much of the previous momentum was generated by catching up effects and massive policy interventions and is, therefore, likely to peter out in the coming quarters? This debate is epitomized by the discussion about a possible US double dip recession.

In our baseline scenario, we expect GDP growth in the industrialized economies to slow in the coming quarters, but to avoid recession. The deceleration in global growth, however, will be rather small, as emerging markets, which were much less affected by the financial crisis, continue to post solid growth rates. Global GDP growth should fall from 4.5% to slightly less than 4% in 2011. Over the medium term, growth in the industrialized world should be hampered by consolidation of private and public balance sheets and the need to find alternative uses for resources previously employed in bubble sectors such as construction and parts of the financial sector.

The uneven nature of the global recovery raises additional policy challenges. Divergent growth paths result in an increasing divergence of policies designed to ensure recovery of national economies. The lack of synchronization in economic policies might, in turn, foster undesirable capital flows, with a risk of higher

economic volatility. Better coordination of economic policies within the G20 is therefore required.

It is obvious that withdrawing monetary and fiscal stimuli in an environment that is still marked by considerable uncertainty and muted private sector activity in many countries is not without risk. What should the exit strategy for the unprecedented policy measures look like, and when and how should monetary and fiscal policies return to paths that are sustainable and do not cause undesirable side-effects?

PRINCIPLES FOR EXIT STRATEGIES

Monetary and fiscal policies can stabilize an underutilized global economy, in which aggregate demand by private actors has slumped, leaving the economy with a huge output gap—as has been the case in the wake of the financial crisis. However, fiscal and monetary stimuli cannot create sustainable growth. Long-term economic growth results from improvements in productivity and growth in the labor supply.

Ultimately, the growth impulse will come from the private sector, which is the major engine of the economy. It creates jobs and income, invests in productivity enhancing machinery and equipment, innovates, generates wealth and provides governments with tax revenues to fund essential services and infrastructure development.

Exiting Monetary Stimulus

The global economic slump in H2 2008 and Q1 2009 triggered an unprecedented policy response. Major central banks cut their key interest rates to the vicinity of zero percent, extended the range of participants and the volumes of their refinancing operations. In addition, they embarked on unorthodox measures, such as purchases of bonds or other securities in order to influence the long end of the curve and fight congestion in specific markets like mortgage-backed securities and covered bonds. Compared to pre-crisis levels, the balance sheets of the Fed and the Bank of England increased by 250% and the ECB's balance sheet almost doubled.

These extreme measures were aimed at counteracting the massive reduction in liquidity that resulted from the deleveraging of the financial system and the collapse of money multipliers. The ultimate goal was to ensure the survival of the financial system.

Although there was probably no alternative at the peak of the crisis, these measures could potentially result in serious negative side effects. Besides moral hazard problems, they are likely to hinder structural adjustments of the financial sector. From a macroeconomic perspective, they could pave the way for substantial acceleration of inflation over the medium term. Therefore, it is key that central banks exit these policies as soon as is reasonable.

Accomplishing these exit strategies will be a herculean task for central banks for a number of reasons.

The global recovery, which started in Q2 2009, has turned out to be much more dynamic than expected, not least because of the decisive policy measures enacted on a global scale. Nonetheless, cyclical uncertainty has increased again, particularly with regard to the US economy, as catching up effects, the inventory

cycle and fiscal stimuli are fading out. In order to define the true cyclical status, central banks would need to separate these effects in their economic analysis. Unfortunately, this distinction is impossible in practice. In the Taylor rate approach, which is used by most central banks, the key economic variable is not the growth rate but the output gap. Unfortunately, the financial and economic crisis has massively increased the uncertainty of output gap estimates, an exercise that even during more stable economic times is notoriously revision-prone.

There is a good argument to be made that the potential growth rates in many countries have fallen, implying that output gaps might be smaller than previously thought. Last year's slump in investment spending has resulted in a smaller and more outdated capital stock. In sectors that contributed heavily to value-added in the pre-crisis years, such as construction and financial services, some of the business models have disappeared, which could also increase structural unemployment. Finally, general risk aversion among investors and banks could result in fewer higher-risk investments, putting a lid potentially on productivity growth. Tighter regulation works similarly, with substantial uncertainty regarding the size of the drag it might create.

With regard to the inflation outlook, it could be misleading if central banks rely too heavily on the currently still-depressed inflation measures, in particular measures of core inflation and the available measures of inflation expectations. Implied US inflation rates of a good 2% over the next 10 years are certainly an aberration, caused by the Fed's purchases of plain vanilla Treasuries. If output gaps are indeed smaller than widely assumed, upward momentum on inflation could develop quickly, easily un-anchoring inflation expectations given the current high uncertainty about the medium-term outlook and make it expensive for central banks to rein them in again.

Given that the nonstandard measures of monetary policy are aimed at cushioning the effects of falling monetary multipliers, such as weak monetary and credit growth in the G3 and the still depressed alternative-funding markets, a recovery in these aggregates should be a prerequisite for a policy change. Unfortunately, the financial crisis has most likely impaired the models central banks used for estimating money and credit demand.

During the crisis it has become clear that central banks are not only in charge of price stability but are also called upon to bear responsibility for the stability of the financial sector in times of stress by providing liquidity to the system as a whole. As far as the exit strategy is concerned, this could create trade-offs, with the risk that, if push comes to shove, the more short-term target of financial sector stability might dominate the more medium-term inflation concerns. For example, the massive increase in European monetary financial institutions' holdings of government securities could result in substantial write-downs if the ECB changes policy. In addition, concerns that the bidding behavior of banks that are dependent on the ECB as the sole source of their funding might push up interest rates much more than intended by the ECB, making a transition difficult to refinancing operations with variable rates.

The effects of monetary policy changes are non-linear, even within their normal fluctuation band. With the current level of central bank rates and the massive extension of balance sheets, the use of non-conventional instruments is to a large extent uncharted territory. The effects of a 50 basis point rate hike, for example,

could differ widely from the past average effect derived from econometric models. In particular, the fragility of parts of the European banking sector might have altered the relative weights of transmission channels. Regulatory changes and differences in bank business models will result in overlapping effects, complicating the analysis further. The experience of previous tightening cycles will be of little use to market observers. This means that uncertainty about exit strategies, in particular the relationship between rates and unorthodox measures, will be substantial. The response of bond markets, with their unresolved debate between the deflation and inflation camps, will be extremely difficult to predict for central banks. Depending on the news flow, markets might be quick to conclude that central banks are seriously behind the curve, or that they might have choked off growth.

Fiscal policy is the first area where the exit from stimulus is taking place. This leaves central banks in the position of having to integrate the economic effects of expected fiscal consolidation into their assessment of the economic outlook and adjust the timing and pace of their exit accordingly. However, central banks' ability to react to fiscal policy could be impaired by the fact that time lags with monetary policy are usually larger than those with fiscal policy. Therefore, consultation between fiscal authorities and central banks is necessary.

Central bank rates in industrialized economies are currently more or less at the same rock-bottom level. If central banks' exit strategies differ substantially concerning timing and speed, massive exchange-rate movements could follow.

RECOMMENDATIONS

- Where appropriate, an exit from highly accommodative policies should be smoothly accomplished and monetary policy gradually returned to a neutral stance to prevent inefficient capital allocation and new asset bubble.
- Central banks should communicate their outlook and policy intentions as clearly as possible. At the same time, we recognize that it may be difficult to convey concrete policy intentions with sufficient precision and conditionality in an environment of unusual uncertainty.
- While there has traditionally been a division between central banks' responsibility for overall liquidity in the system and supervisors' oversight of solvency of individual institutions, the collapse of interbank lending, which precipitated the crisis, has demonstrated that the two are inextricably linked. Central banks should find ways to deal with banks that have become reliant on central bank support outside of regular repo operations, so as to reduce potential trade-offs between price stability and financial market stability.
- International coordination and communication between governments and central banks is more important than ever because of the interaction between monetary and fiscal policies. However, this should not jeopardize the independence of monetary policy.

Emerging Market Reductions

Most major emerging markets cut interest rates aggressively in the midst of the global financial crisis. In some countries like China, nominal interest rates

remained stable, while stimulus took the form of a large government-directed expansion in bank lending.

The swift recovery in major EM economies, as well as the rise in commodity prices in the second half of 2009, led to a relatively early start of exit policies in emerging markets as well as developed markets, such as the Nordic countries and Australia and New Zealand. As many as six countries in Asia and three in Latin America, as well as Israel have hiked interest rates by 25–125 bps since the second half of 2009. Further hikes are on the cards, although the pace of tightening has decelerated due to the resurgence of fears about a double-dip recession. China, meanwhile, has raised interest rates for the first time in three years, the extension of new loans has declined significantly and the government has allowed for some (small) currency appreciation.

Actual rate hikes in emerging market countries will likely be smaller than predicted by Taylor rules. Because of current low interest rates in developed markets, large rate differentials would exacerbate portfolio inflows to emerging economies, which are already climbing fast because of the favorable EM outlook. Fast-growing EM economies thus face a dilemma in trying to combat overheating and inflationary pressures while at the same time discouraging excessive capital inflows. Some countries, such as Brazil, have opted to introduce controls on certain types of inflows, while others have relied on prudential measures to limit foreign currency inflows. The IMF believes that in countries where the exchange rate is not overvalued, the economy is not overheating and foreign exchange reserves are judged to be adequate, capital controls or prudential measures may indeed be helpful.

RECOMMENDATIONS

In many emerging markets (and some developing countries), the recovery has been robust, and the exit from emergency stimulus measures has already started. Additional policy tools could be considered by these countries if the interest rate differential leads to undesirable levels of capital inflows. The use of such policy tools must be consistent with the maintenance of a level-playing field.

Exiting Fiscal Stimulus

With the historical lessons of the Great Depression of the 1930s in mind, during the recent financial crisis governments around the world launched fiscal stimulus packages to stabilize their economies and cushion the impact of the sudden drop in private domestic and foreign demand. The expansionary fiscal stance was welcomed even by those economists who used to be sceptical about Keynesian-style fiscal policy.

According to the IMF, the impact of fiscal stimulus from the crisis measures in the G20 economies was roughly 4% of GDP in 2009 and 2010.[1] While the volume and composition of fiscal support packages have varied across countries because the underlying problems were different in each nation, the packages generally included an increase in government final consumption, cuts in direct taxes and new public infrastructure projects. They also contained measures to boost or bring

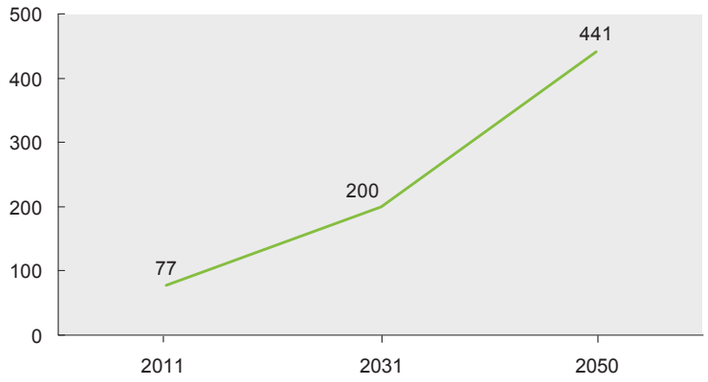
1 IMF, Navigating the Fiscal Changes ahead, Fiscal Monitor, May 2010

forward private demand, direct lump-sum income payments to households and temporarily reduce indirect taxes and housing tax credits.

The fiscal stimulus measures have left their mark on public budgets. For OECD countries, the accumulated budgetary impact of stimulus packages from 2008 to 2010 amounted to 3.4% of GDP. Since budget discipline has been weak in most of the major industrial countries, even during the boom before the crisis, budget deficits increased: in OECD countries, on average, from -1.1% in 2006 to -3.3% in 2008. In the eurozone, the economic and financial crisis developed into a crisis of sovereign bond and bank funding markets in a couple of member states, endangering the financial stability of the European monetary union itself. The massive need for sovereign bond redemption will pose a challenge to capital markets. This might enlarge the risk of crowding-out corporate capital financing.

As a result of the large budget deficits, government indebtedness is set to reach all-time highs in several countries in the near term. If not corrected in due time, it will develop into a long-term liability. In the G20 advanced economies, general government debt surged from 78% of GDP in 2007 to 97% in 2009. IMF projections foresee a further increase to 115% of GDP by 2015 and for G7 government debt, assuming policies from 2010 are unchanged, rising to 200% in 2030 (see Exhibit 1).[2] Historical evidence suggests that there is a strong relationship between high government debt and low real GDP growth if the debt/GDP ratio exceeds certain thresholds, although this differs between emerging and advanced countries.[3]

Exhibit 1. General government net debt scenario under 2011 policies
In percentage of GDP, including estimated increase in ageing-related spending



SOURCE: IMF

With the global economy recovering, though at different speeds and with risks ahead, policymakers need to formulate and implement appropriate exit strategies from crisis-related intervention policies. Exit strategies should at least aim to bring government debt ratios back on a sustainable path in the medium term, which

2 IMF, Long Term Trends in Public Finances in the G-7 Economies, Staff Position Note SPN/10/13, Sept 2010
3 Reinhart and Rogoff, Growth in Time of debt, NBER Working Paper No 15639, January 2010

requires ambitious action over many years. In some countries, economic conditions and fiscal positions will allow for a rapid improvement towards sustainability, while in several other large economies neither economic conditions nor fiscal positions can be sufficiently stabilized in the short run.

An ideal mixture of exit measures does not exist. But a common feature of exit strategies should be to reassure investors and the public that there is a commitment over the medium term to achieve a sustainable fiscal position that is consistent with underlying potential growth. Policymakers need to devise exit strategies that are coherent, credible and clearly communicated. Fiscal consolidation plans need to be formulated in conjunction with a broader exit strategy that will have to involve simultaneous actions across different policy domains. Fiscal consolidation should also focus on instruments that minimize adverse impact on trend growth and make sure that business is not negatively affected.

The timing of the exit, both on a national level as well as in the global context, is probably the most delicate in the discussion of fiscal exit strategies. Here again, clear-cut answers do not exist. The appropriate timing and pace of the exit from crisis-related policies depends on the state of the economy (i.e., the level of indebtedness, the magnitude of the downswing, the state of industry and demographic development) and on the health of the financial system. Countries with weak demand growth and policy interest rates at close to zero should consolidate at a slower pace to minimize the risk of another downswing, whereas countries with high growth and greater scope for further relaxation of monetary policy should improve budgets more quickly, if necessary.

RECOMMENDATIONS

- Fiscal consolidation is no growth killer; rather, it should be regarded as a precondition for a sustainable recovery. Fiscal exit strategies should be focused on spending cuts, avoid tax increases unless they prove unavoidable to forestall an acute fiscal crisis, and be credibly communicated to improve public confidence.
- The timing and pace of exit strategies should reflect the overall state of each country's economy, the health of the financial system, debt levels and debt dynamics and take into account the implicit budget burdens such as pension and health care costs.
- An understanding among G20 countries about the global sequencing of fiscal exit strategies would be helpful because the recovery has lost momentum.

Exiting Fiscal Stimulus in Emerging Market Countries

The Emerging Market Economies in the G20 applied crisis-related discretionary fiscal stimulus of a similar magnitude to the level applied by the developed countries, about 2% of GDP on average in 2009–2010. The largest stimulus packages as a percentage of GDP were put in place by Russia (3.6%), Saudi Arabia (3.4%) and China (2.9%). On average, EMs ran a fiscal deficit of 5% of GDP in 2009. Mostly driven by a strong economic recovery, the deficit is expected to decline this year by around 1%, and by another 0.8% in 2014.[4]

4 IMF Fiscal Monitor, May 2010

Several EMs have explicit fiscal deficit targets for the medium term. Moreover, fiscal consolidation is much less urgent in EMs than in developed markets because of a more favorable pre-crisis fiscal situation, tailwinds from economic growth rates that are expected to be high and lower age-related fiscal costs in many, if not all markets.

RECOMMENDATIONS

- On average, emerging market countries came out of the recession with much better balance sheets than many industrial countries. However, fluctuations in interest rates and exchange rate movements could have a major impact on emerging market debt dynamics. As a result, comprehensive budget, fiscal and social security reforms may be necessary.

- Emerging markets must not fall into complacency. They must pursue further reforms, improve institutions and the "doing business" environment.

Exit From Government Support of the Financial Sector

Government intervention in the financial sector, if maintained over an extended period, has the potential to create severe policy distortions in terms of capital allocation, competitive distortions between financial instruments and financial institutions, including across borders, and a reduction of economic efficiency. As a general rule, those policy measures that create the greatest distortions should be removed first.

In our view, distortions from public sector intervention in the European Union has so far been limited thanks to the strong surveillance carried out by the European Commission, which has evaluated all support programs initiated in EU member states with a view to their potential distortive impact on financial sector competition. This has resulted in strict limitations on the scope, size and time-length of public support measures.

Exit from public sector guarantees—Public sector guarantees have been issued in essentially two forms: Guarantees for financial bonds issued by financial institutions and deposit guarantees beyond the limits set by traditional deposit guarantee schemes.

Public guarantees for financial bonds issued by financial institutions are of limited concern because they expire automatically as bonds issued under such guarantees mature and end dates have been set to these plans. On the other hand, there is a worrying tendency for such schemes to be extended and for the guarantees to become more concentrated on a smaller number of issuers. The latter is of particular concern as it shifts the nature of these plans from an instrument of general support in times of market dislocations into one of implicit support for specific, weak institutions. However, if financial institutions are unable to raise money in financial markets without government support for an extended period of time, this is a sign of fundamental weakness that needs to be addressed by different kinds of supervisory and regulatory action extending, ultimately, to the winding down of such an institution. Governments should therefore aim at ending guarantee schemes for financial bond issues and address remaining problems in individual institutions by means of other policy instruments.

As regards deposit guarantee schemes, the unlimited guarantees issued at the height of the crisis must be withdrawn at some stage as they create distortions in relation to other financial assets. Withdrawing these unlimited guarantees, which require taxpayers to guarantee the claims of depositors (groups that have large overlap), should be possible at some stage without causing uncertainty. Deposit guarantee reforms, which aim to increase confidence by raising guarantee sums and reducing pay-out periods, have either already been made in many countries and are forthcoming in others. Moreover, phasing out unlimited deposit guarantees should be seen in the context of various other measures, such as higher capital ratios, that are currently being undertaken to bolster confidence in the financial system.

Exit from asset purchases and insurance programs—The exit from asset purchase and asset insurance programs tends to be included automatically in the establishment of these plans. There is either a natural end as the assets mature, which can take a long time in the case of such things as mortgages or structured assets, or an end-date has been set for the programs. For instance, the German "bad bank" program extends, at most, to 20 years. If the winding down of an asset purchase program is made by the gradual sale of a portfolio, a suitable balance has to be struck between accomplishing that and avoiding depressing prices.

Public ownership in financial institutions has increased substantially in the course of the crisis. Research has shown that substantial public ownership of financial systems, if maintained over a long period, can lead to severe distortions in capital allocation and can have detrimental effects on long-term economic growth. In this light, we welcome the fact that governments have indicated that they regard the ownership stakes that they have taken as only temporary.

In principle, the exit from equity stakes can be taken in different ways, which have different advantages and disadvantages. Exit strategies include:

- A public sale, in which the equity stake is placed in the stock market
- A private placement, where the equity stake is sold to one or more strategic investors
- Merger
- Dilution over time in the course of raising fresh private capital.

	Advantages	Disadvantages
Public sale	• Broad investor base • Difficult to manipulate by governments with a view to shaping future ownership structure	• Price probably lower than in private placement and uncertain ex ante • Cumbersome process
Private placement	• Strategic investors willing to pay higher prices • Quicker than public sale	• Risk of governments trying to misuse sale for industrial policy objectives, including keeping financial sector in national hands

Merger	• Could strengthen financial sector if FI that has been nurtured back to health in period of government ownership is a sound supplement to business strategy of the merger partner	• Suitable merger partner may be difficult to find • Government would, at least initially, retain ownership
Dilution over time	• Gradual, non-disruptive evolvement	• Time consuming • Investor appetite for FI, in which government has stake, is low, resulting in low price • Depending on size of initial stake, public ownership may last very long

When setting exit strategies, clear and unequivocal policy objectives are needed. Policy objectives must not contradict each other. For instance, governments must clearly decide whether the equity stakes should be sold for the best price possible or whether other policy objectives, such as maintaining specific lending targets or industrial policy objectives, should be met simultaneously. If so, that would reduce future levels of profitability and the price attainable. In an environment of deteriorating fiscal balances, achieving the best price possible is arguably the policy objective that will be most in line with voter preferences. [5]

However, there remains a concern that at least some of the equity stakes taken by governments may remain in public sector hands longer than intended and longer than would be desirable from a public policy perspective. In previous crises, equity stakes were held for longer than even liberal-minded governments originally intended. The Swedish government, for example, still has an equity stake in Nordea dating back to support for Nordbanken in the early 1990s. More importantly, the concern is that governments may be particularly reluctant to sell their equity positions after the current crisis for two reasons: Because of newly enacted regulations, financial services profitability may be reduced, and governments may face taxpayer opposition to selling their equity stakes at a reduced profit. In addition, because of the politics involved in the large-scale public sector involvement in the rescue of the financial system, the financial sector may be subject to more direct intervention.

RECOMMENDATIONS

- An early exit from financial sector support is warranted to avoid competitive distortions, a perpetuation of non-sustainable activities, signify confidence in the underlying stability of the system, and boost market confidence.

5 Incidentally, it might be helpful to draw attention to the fact that governments have, at least so far, made a small profit for taxpayers from their policy interventions. While this is to some extent normal at an early stage of financial sector recovery, as the soundest institutions repay capital injections in an environment of recovering stock-markets, expectations are that the final direct fiscal costs of the crisis may indeed be comparatively small. (Schildbach (2010))

- From the range of support measures, public guarantees for the issuance of financial sector bonds should be ended first.
- Policy objectives for the exit, especially from equity stakes, must be clear and unequivocal. Reducing costs to taxpayers should be the overriding policy objective for the exit.

RESTORING BALANCES: A DRAG ON GROWTH?

Restoring Household Balances

In many euro-area countries, low interest rates as a consequence of convergence prior to the launch of the euro and rate cuts by the ECB between 2001 and 2003 led to rapidly rising demand for credit from private households. That boosted demand for real estate demand and led to rising house prices. Private household debt in the euro area surged dramatically from 2000 to 2008, fuelling private consumption. Private consumption was further stimulated by wealth effects, which promoted economic growth and import demand and led to large current account deficits.

Prominent examples of what happened are eurozone members Ireland, Greece, Portugal and Spain. In Spain, for instance, private household debt rose from 54% of GDP in 2000 to almost 90% by the end of 2008. Over the same period, house prices climbed by 145%, private consumption expanded by an average of 3.5% a year, the same rate as GDP. The current account deficit, which had been just under 3% of GDP in 1999, widened to roughly 10% of GDP in 2007 and 2008.

There were similar developments in Portugal, Greece and Ireland. In Ireland, private household debt has surged by 62 percentage points to 113% of GDP from 2000 to 2008. In Greece, the debt-to-GDP ratio for households tripled to 60% in this period. The build-up in debt was mirrored by declining or even negative savings ratios in these countries. In Ireland, for instance, savings as percentage of disposable income declined from 8% in 2000 to below 2% in 2007 but increased to 4% during the 2008 recession when real GDP shrunk. The Greek savings rate became more and more negative between 2000 and 2008. The buildup of private household debt in such countries as Portugal, Italy, Ireland, Greece and Spain was on average a good 30 percentage points to 72% in 2008.

In Germany, by contrast, monetary union did not generate any monetary stimulus or any excessive demand for credit. Unlike many other European countries, German household debt fell from 73% to 64% of GDP between 2000 and 2008, while the savings rate increased from 9.2% to 11.2%. At the same time, the real estate market showed an extremely subdued performance. Given the decline in Germany, private household debt in the eurozone has risen on average by only 13 percentage points to 68%.

Credit demand was also exuberant in Anglo-Saxon countries. In the run-up to the subprime debacle, US households increased their liabilities by 36 percentage points to almost 140% of GDP in 2008 because of a surge in mortgage debt. The debt-to-GDP ratio in Britain has risen from 75% in 2000 to 107% in 2008.

The need for rebalancing sector balances is limited to a few, but economically important countries, and to the household sector in particular. Corporate balance sheets are roughly in good shape. Consolidation of household balance sheets

will reduce private consumption and, consequently, lead to reduction of current account imbalances.

Restoring Corporate Sector Balance

A development similar to the one in the household sector has been seen at nonfinancial corporations in European peripheral countries. Nonfinancial corporations' debt in these countries has increased by 24 percentage points to 223% of GDP from 2000 to 2008. The biggest increases occurred in Spain and Ireland, where corporate debt surged by 55% and 50% of GDP, respectively. Due to the deep recession in 2009, when economic activity dropped by more than 7%, the debt of Irish nonfinancial corporations surged a further 100 percentage points to 445% of GDP by the end of 2009.

In Germany, by contrast, nonfinancial corporations' liabilities declined by 20 percentage points to almost 160% of GDP in 2008. The debt-to-GDP ratio has declined also in the bigger EMU countries such as France (-24 percentage points) and the Netherlands (-79 percentage points). In the UK it was -52 percentage points, while it was more or less stable in the US at 94% of GDP, reflecting the relatively sound financial situation at US companies.

RECOMMENDATIONS

- In principle, the distribution of consumption and investments and the resulting debt levels should be the free decision of private agents. However, both fiscal policy (through tax incentives) and monetary policy (through interest rates) can strongly influence these decisions
- If price and income expectations move strongly out of sync with fundamentals and trigger herd behavior and bubbles, policy should act
- Fiscal and regulatory policy provide better tools such as transaction taxes, speculation taxes and capital requirements for mortgages than the broad brush of interest rate adjustments available for monetary policy.

Although there is broad agreement that private sector financial balances in many countries need to be restrained, it is far from clear where the new equilibrium should be. Optimal debt-to-GDP and debt-to-income levels will certainly be lower than during the bubble years, but may well be higher than the historical average because of a secular trend towards lower interest rates and structural changes allowing for lower financing costs.

Restoring Public Sector Balances to Ensure Sustainable Growth

In light of recent economic research,[6] concerns that fiscal adjustments may harm or even reduce growth and might be counterproductive may be overstated. The main reason for this seemingly counterintuitive result is that the effects of confidence and interest rates on private demand triggered especially by government spending cuts can offset or even exceed the direct effect lower government deficits has on

6 Alberto Alesina and Silvia Ardagna, "Large Changes in Fiscal Policy: Taxes versus Spending", NBER WP 15438, October 2009

aggregate demand. Whether fiscal adjustments may be followed by higher rather than lower growth depends crucially on how the changes in the fiscal stance.

Restoring public sector balances in industrialized countries—For OECD countries, there is economic evidence that adjustments based on spending cuts are more likely to reduce deficits and debt-to-GDP ratios than those based on tax increases. That's because tax hikes are usually followed by an increase in government spending as soon as the pressure on budgets weakens.

Countries and regions that have been highly dependent on credit financing might suffer from a long period of weaker growth, while others will recover more quickly, especially the emerging market nations. For them, low government indebtedness and healthy pre-crisis fiscal balances have created fiscal space for raising expenditure. This will work towards reducing global imbalances.

A large share of stimulus spending is temporary.[7] Unwinding fiscal stimulus measures should not be the most challenging component of fiscal adjustments. According to the IMF, only one-fifth of stimulus measures is permanent. This is especially true for expenditure items in advanced countries. Tax measures, in contrast, tend to be permanent.

In the medium-term perspective, policies should aim at more prudent levels that are consistent with underlying demographic and economic challenges. This is because debt ratios at their post crisis levels would be insufficient to create the fiscal scope for a flexible response in the event of future crises in most countries. In addition, higher debt levels would create greater vulnerability to crises in countries where the risk of even partial default is tangible. There is also evidence that the effect of weaker fiscal accounts on interest rates is greater when it occurs in many countries at the same time because a larger fiscal deficit in a limited number of countries can be more easily financed abroad. The widespread indebtedness now being experienced increases the risk of crowding-out corporate capital financing because of higher interest rates.

Sound fiscal adjustments also require the improvement of primary balances, which is quite difficult to achieve because it is correlated with structural reforms. Social security systems in industrial countries account for a sizeable share of total spending and reforms in this area may contribute to fiscal adjustments. The problem in those countries is that expansion of the welfare state in the 1960s and 1970s created unfunded future liabilities for pensions, health obligations and long-term care. These liabilities have to be added to the explicit debt. In several countries, the cost of these outstanding liabilities—the implicit debt—dwarfs the outstanding explicit debt.

In some fields such as health care, reforming entitlements seems to be a difficult task. But gradually changing public retirement plans by implementing PAYGO systems often cut long-term implicit debt levels substantially, as has been proven by several pension reforms in recent years.

Demographic pressure is intensifying fiscal problems because it increases age-related expenditures. The European Commission estimates that age-related public expenditure in the EU will increase on average by 4.6 percentage points of GDP by 2060, but with marked differences in impact across member states (-1 to

7 IMF, Exiting from Crisis Intervention Policies, February 2010

18 percentage points).[8] The IMF projects expenditure on pensions and healthcare in advanced countries to increase by 4.5 percentage points of GDP over the next 20 years.[9] Delays in implementing entitlement reforms increase the ultimate political costs. But selling fiscal consolidation to the public can be difficult when it involves redistribution among current taxpayers and between current and future taxpayers. Protection of acquired rights will involve higher taxes if benefits are to be maintained.

Implicit debt has built up over a long period of time without much public awareness of the problem, which has only recently begun to change. Stabilizing or reducing the debt-to-GDP ratio with fiscal consolidation depends not only on improvements in the primary fiscal balance, but also on growth, inflation and interest rate developments. Consequently, even though expenditure cuts are needed, fiscal retrenchment should preserve pro-growth programs. This includes spending on such things as education, research and development and infrastructure, all of which are expected to be growth enhancing in the longer term. Education policies have an effect on growth through productivity gains arising from human capital accumulation. Support for innovation, including through tax expenditures on R&D, has the scope for creating new sources of growth by enhancing labor and multifactor productivity.

Fiscal adjustment may be delayed in several OECD member states due to political and institutional obstacles, weak economic performance or persistent problems in the banking sector. Comprehensive post-crisis adjustment strategies typically depend on strong executive leadership, majorities in the legislature (particularly in two-chamber systems) and appropriate institutional set-ups for medium-term fiscal planning. There are several industrial countries where these political conditions don't exist. In the United States, in particular, the political risks to fiscal adjustment are severe, and the economic risks are substantial as well.

Apart from the policy course, some institutional establishments work better toward sustainable fiscal performance than others. An independent budget office, for example, helps to assess the magnitude of required fiscal adjustment, devises a credible consolidation strategy and monitors its implementation. Some industrial countries have such an institution, while others have established them in the aftermath of the crisis. Still, there is scope for more strengthening of budget institutions in most countries. Comprehensive reporting is still limited, as few countries include a statement of fiscal risks in their budget document. Only a few countries, mostly in the G20, have developed comprehensive and binding medium-term budget frameworks that are needed to translate fiscal objectives into budgets. Procedural or numerical rules can strengthen the achievement of these objectives once the consolidation effort is under way.

Countries are absorbing the substantial shock of the financial crisis on economic performance differently. It depends partly on the regional effects of depressed output growth caused by adjustments in asset markets such as real estate, construction and industrial activities. Southern Europe may face such a combination of circumstances. In many countries, the cleanup of banking systems, the recognition of losses and write-downs by financial institutions from both structured securities and traditional

8 Cf. European Commission, Public Finances in the EMU 2010
9 Cf. IMF, From Stimulus to Consolidation: Revenue and Expenditure Policies in Advanced and Emerging Economies, Staff Paper, April 2010

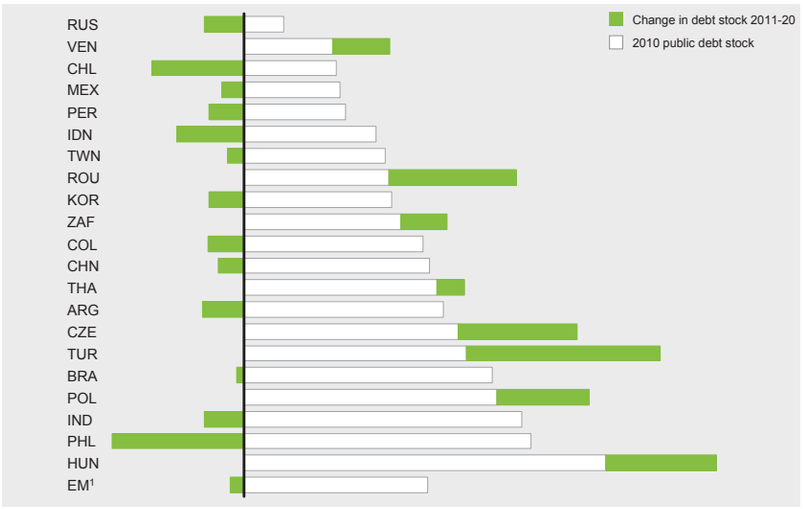
lending is not finished. These are clearly risks for the fiscal outlook in countries such as the United States, where there is a risk of further fiscal costs for resolution of Government Sponsored Enterprises; Germany must resolve the Landesbanken issue; and Spain needs to recapitalize parts of the banking system.

RECOMMENDATIONS

- Public expenditure needs to be critically evaluated to insure that it encourages private investment and enhances growth prospects
- Demographic trends that have an impact on household expenditures and on revenue sources should be taken into account
- Institutional or procedural changes that encourage fiscal solidity and constrain debt financing need to be considered.

Restoring public sector balances in emerging markets—The need for fiscal adjustment in emerging markets is much more limited than in developed economies, both in terms of the number of affected countries and with respect to the size of the required adjustment. For EMs as a whole, the IMF expects debt-to-GDP ratios, which average 37% for the G20 EMs, to start declining beginning in 2011. A recent paper[10] estimated that emerging market debt-to-GDP ratios would decline to 35% in 2020 from 46% in 2010 (see Exhibit 2). Both projections are predicated on EM GDP growth rates remaining higher than the interest rates EMs pay on their debt. This is a likely scenario given the robust growth outlook for EMs, but there are other possibilities. A faster-than-expected increase in G3 interest rates, a surge in global risk aversion or country-specific stress could lead to higher interest rates and lower growth in EMs, and to a less favorable debt picture.

Exhibit 2. EM: Public debt outlook
Public debt, percentage of GDP



1 GDP-weighted
SOURCE: IMF, OECD, DB Research

10 Public debt in 2020, Deutsche Bank Research, Current Issues, March 2010

According to calculations[11] by Deutsche Bank, only a few EMs need to embark on large fiscal efforts. The largest effort is needed by Romania, the Czech Republic, Hungary and Poland. Romania has a relatively favorable starting position, with public debt below 40% of GDP. In the CEE-3—the Czech Republic, Hungary and Poland—closer scrutiny is warranted, not only because the countries have already sizeable debt, but also in light of negative demographic developments that will materially increase age-related spending over the next few years. The Czech Republic has recently shown the will to embark on substantial fiscal consolidation, with a plan focused on expenditure cuts in the social security system. If successful, it could lead to a better medium-term debt outcome than predicted in the study cited above. Effects on growth would be mildly negative. In Hungary, the structurally weak fiscal situation has led to periodic bouts of market concern, resulting in pressures on the currency and bond yields. This in turn has acted as a dampener on growth by constraining monetary policy's room for maneuver. For this reason, a credible fiscal adjustment in Hungary could have a positive or at least neutral effect on growth. Poland has the largest structural fiscal deficit among large EMs at 4.5% of GDP[12] and the IMF forecasts the need for a large adjustment over the next decade. The plans announced so far by the Polish government do not contain large consolidation efforts, and center around privatization and efficiency savings, raising no concerns about negative effects on growth. However, adjustment will be unavoidable eventually because a large share of the structural deficit will remain unchanged. The presence of a public debt rule as well as pressure from rating agencies will likely be the catalyst factors for adjustment. This could then lead to slower growth over 2011–2012.

Turkey, Brazil and India face some fiscal challenges, too. Turkey and Brazil need significant fiscal adjustment in order to preserve debt sustainability, but these efforts look achievable given their fiscal track record in recent years and the presence of fiscal rules that provide an institutional backbone to consolidation. India has a very weak fiscal situation: Public debt is 79% of GDP and the primary deficit is 3.6%.[13] Nevertheless, the high GDP growth expected for India over the next few years, roughly 8% annually, means it is possible the country will be able to sustain or even reduce its public debt stock.[14]

While on average the fiscal challenge in EMs is manageable, country positions differ widely. Deeper scrutiny of the structure of public debt is necessary. Beside fluctuations in interest rates, exchange rate changes could have large repercussions on EM debt dynamics. Large fiscal adjustment is needed only in a handful of EMs, but a far larger group needs more comprehensive budget, fiscal and social security reforms. Those reforms could have positive effects on their medium-term growth.

Addressing External Imbalances

Global economic imbalances and misaligned exchange rates no doubt played a role in the run-up to the financial and economic crisis of 2007–2010. Foreign financial flows aggravated deep domestic imbalances in countries facing substantial asset market overvaluations, real estate credit booms and regulatory deficiencies.

11 Public debt in 2020, Deutsche Bank Research, Current Issues, March 2010
12 IMF Fiscal Monitor, May 2010, p. 59
13 IMF Fiscal Monitor, May 2010, p. 59
14 Public debt in 2020, Current Issues, March 2010

Misalignments of exchange rates were at play as well. Since the onset of the crisis, however, the current account positions of some major economies have been adjusted, and corrections to real effective exchange rates have occurred.

The most significant adjustment occurred in China, which witnessed a decline from a current account surplus of above 10% of GDP in 2007 to less than 4% today, according to a 2010 forecast by Deutsche Bank. The US current account deficit also shrank from 6% in 2005–2006 to below 3% in 2009. A slight widening of the deficit in 2010–2011 seems likely, however. The current account positions of the countries in the eurozone remained close to balance at the aggregate level, but diverged strongly among individual members. While Germany recorded high surpluses, the peripheral countries such as Greece had deficits of up to 15% of GDP. Japan continued recording stable surpluses. In addition, many emerging economies underwent adjustments, in most cases in a desirable direction.

Both the crisis and the macroeconomic policy responses in major economies had a strong impact on the real effective exchange rates of the dollar, the renminbi, the euro and the yen. While the Chinese currency and the yen appreciated by 20% and 15%, respectively, from their previous lows to current levels, the dollar experienced a slight depreciation after the onset of the crisis and remains some 15% below its level 10 years ago. The euro exchange rate appreciated in the early 2000s and only underwent a significant swing in 2010, with a strong depreciation during the Greek and eurozone crises followed by appreciation since May. The broader picture reveals a strong real effective appreciation of the currencies of developing and emerging regions, and a strong correction of current account imbalances globally.

The strong divergence in growth prospects between industrial and emerging economies will also contribute to a further correction of imbalances. High import growth by major emerging economies that are experiencing substantial economic growth will narrow the combined current account surpluses of the emerging and developing world from about 3.5% of GDP in 2008 to about 1.5% of GDP in 2011, according to the IMF World Economic Outlook published in October, 2010. Even without strong further corrections of nominal exchange rates, the continuing real appreciation of emerging market currencies in the wake of substantial increases in domestic prices and wages in some major emerging economies seems a likely outcome. Inflationary pressures in the G7 countries will probably remain muted in the short-term: Deutsche Bank expects inflation to average 1.4% in industrial countries and 5.3% in emerging countries in 2010. In the medium term, inflationary pressures arising from difficulties in sterilizing the accumulation of large foreign exchange in several emerging economies reserves may well lead to adjustments in nominal exchange rates as well.

In addition, macroeconomic and structural policies in several major economies are increasingly oriented towards rebalancing the sources of economic growth. In China, the large countercyclical spending package was only one element in a strategic shift towards stronger emphasis on domestic consumption, investment, infrastructure, housing and urbanization, income distribution and environmental protection. This would imply a shift towards a growth strategy reflecting a lower GDP target, a better domestic balance and lower foreign economic imbalances. In the United States, the policy emphasis has been put on strengthening domestic savings over consumption and achieving a substantial increase in net exports. In many eurozone countries, fiscal adjustments and structural reforms targeting the growth

of tradables in deficit countries, while promoting the growth of non-tradables in surplus countries, are contributing to a more balanced policy approach as well.

In many countries with a legacy of substantial external economic imbalances, the implementation of policy reforms face political and economic hurdles. From a business point of view, success in overcoming these difficulties will be important, but remains uncertain as long as domestic political coalitions of parties and interest groups are not firmly aligned behind strategic shifts in growth policies. A return to higher global economic imbalances could result from a failure to achieve these reforms.

At the international level, it remains of paramount importance to manage the transition to new growth paradigms in a cooperative fashion and to avoid a major escalation of political conflicts among G20 countries on nominal exchange rate policies, protectionist trade measures or other large-scale state interventions into trade, investment and capital flows. As indicated by the analysis of underlying adjustment patterns, further adjustments of international monetary policies seem warranted and should be designed according to a common set of macroeconomic analyses that will be made by the IMF. In trade policy, the right course of action is clearly not a resort to protectionist measures, but a substantial commitment to complete the Doha Round of the World Trade Organization in 2011, thereby opening new trade and investment opportunities in both developed and developing nations. A sensible approach towards domestic macroeconomic adjustment, a better alignment of nominal exchange rates and greater openness in trade and investment would help to lift the growth potential in the world economy and support the correction of previously large foreign economic imbalances in the medium term.

RECOMMENDATIONS

- As extraordinary fiscal and monetary stimuli are withdrawn and macroeconomic normalcy is restored, it will be imperative to avoid a perpetuation of the current account-financial account imbalances that have marked the past decade. These imbalances pose a risk to global economic and financial stability. This correction must be supported, inter alia, with policies aimed at achieving, where needed, a consolidation of public and private sector balances in advanced economies, and a shift from export-oriented to domestic-driven growth through appropriate policies in countries with large current-account surpluses.
- Central banks should coordinate to avoid excessive exchange-rate volatility, and to promote exchange rates that would pave the way for sustainable growth and a reduction in balance of payment imbalances.
- An open, rules-based playing field should be maintained and a retreat into protectionism should be avoided.
- G20 governments should make it a priority to conclude the Doha Round of trade negotiations by the end of 2011.

Deleveraging of the Financial Sector

The financial sector in most developed countries grew strongly in the years preceding the crisis. The total assets of US and EU 15 banks more than doubled in

the decade to 2008. This was driven by a benign macroeconomic environment and low interest rates, which led to mortgage booms and burgeoning lending to private households in many countries. In addition, financial innovation resulted in thriving capital market activities. The leverage of commercial banks, as measured by balance sheet size relative to their equity base, rose in some countries (UK, Switzerland and Spain) in the years prior to the crisis, yet decreased in others (US and Germany). The main increase in leverage took place in the shadow banking system, at investment banks, off-balance sheet vehicles and in the hedge fund/private equity industry.

All this came to an abrupt halt in autumn 2008. Since then, banks' total assets have declined slightly. They fell by 2.1% in the EU and 3.5% in the US, which is not a dramatic decrease yet still is a sharp change from the sustained and strong growth up to the beginning of the crisis. Taking into account the recession, credit to the private sector is currently not even lower than before the crisis: In the EU, loans to companies and households stand at 112% of GDP, compared with 100% in December, 2007. In the US, lending to the private sector eased somewhat from 51% to 49% of GDP.

While lending has not declined substantially overall, bank leverage has fallen far below pre-crisis levels because of a surge in total equity. Risk-based, as well as nominal capital ratios, both show a marked strengthening of buffers. The Tier 1 ratio of US banks has been growing rapidly, from a low of 9.8% in Q3 2008, to a current 12.1%. The Tier 1 ratio of the 20 largest European banks has grown from 8.2% to 11.0%. Total equity-to-assets expanded from 9.6% to 11.1% in the US over the same period and by nearly 1 percentage point to 6.6% in the EU. This reflects equity capital increases of US $174 billion (or more than 13%) and even €488 billion (almost 20%), respectively, despite enormous losses on "toxic" assets.

Deleveraging has progressed even faster in the shadow banking system. Off-balance sheet assets have in many cases been brought back on banks' own books, hedge fund assets under management are still 15% below their summer 2008 peak of US $1.93 trillion and investments by private-equity firms have fallen to a fraction of pre-crisis levels: Global expenditure on new deals slumped from US $889 billion in 2007 to US $153 billion in 2009 and US $107 billion in the first seven months of this year. Stand-alone investment banks have either disappeared or considerably shrunk in asset size, with the two remaining bulge-bracket Wall Street firms now operating balance sheets that are on average nearly 30% smaller than at their peak. Overall, the US shadow banking system has contracted by about US $4 trillion, about 20%, since the beginning of the financial crisis.

There have been several drivers for this marked deleveraging, both internal and external. Banks have grown more aware of the risk of high leverage, while debt and equity investors have become more risk averse and supervisory authorities have demanded greater cushions against unexpected losses in an environment characterized by greater volatility of asset prices. The accepted level of Tier 1 capital has jumped from about 6–8% before the crisis to above 10% in the "new normal." In addition, banks have taken measures in anticipation of new and considerably higher capital standards that the Basel Committee (and national rule-setters) are expected to require from banks in a few years' time.

Banks have had to accomplish a delicate task: balancing the need for credit by the real economy with a build-up of stronger capital buffers to increase the shock resilience of the financial system. At the same time, they have to prepare for a

tougher set of regulatory standards, while sending a credible message to their shareholders and bond investors that the industry will be able to deliver decent and sustainable returns again.

Macroeconomic Implications of Regulation of the Financial Sector

There is a broad consensus that financial regulation is in need of a fundamental overhaul in response to the financial crisis. Significant and comprehensive efforts are currently underway to create a more resilient financial system that is less prone to shocks and better able to absorb the failure of individual financial institutions. Major regulatory initiatives include the passage of the Dodd-Frank legislation in the U.S. Congress, revisions of the EU's Capital Requirements Directive, pending EU legislation on, e.g., financial supervision, derivatives markets, alternative investments and deposit insurance and the proposals by the Basel Committee on capital and liquidity requirements that are scheduled to be finalized by November.

While the proposed measures are conducive to bolstering financial stability, achieving one policy objective usually comes at the price of impairing another. In the case of tighter financial sector regulation, the economic price for (hopefully) greater financial stability is a reduced ability of the financial system to support economic growth and employment. The pace of financial sector innovation and financial sector productivity are likely to slow as a consequence of financial regulatory reform.

There are two transmission channels that need to be kept in mind when formulating regulatory policies. The first are direct transmissions channels.

Higher capital and liquidity requirements increase the resilience of financial institutions and the financial system as a whole, but because of constraints on their ability to raise capital, restrict the capacity of financial institutions to grow their balance sheets and may even force them to make a reduction. This may translate into financing constraints for companies and households, which may be forced to cancel or postpone investment projects and consumption. Moreover, higher capital and liquidity requirements may also cause distortions in capital allocation between sectors. For instance, if banks are required to hold more high-quality assets as a liquidity reserve or if capital charges are significantly lower for higher-quality assets, less capital will be available for riskier economic activities, such as start-ups. In light of these problems, it is welcome that the Basel Committee has modified its proposals and now proposes a longer transition period for the implementation of a new regulatory regime.

Another direct way negative effects can be created is the regulation of specific instruments. For example, the proposed reform of derivatives markets may result in a significant reduction in the availability of bespoke derivatives contracts that companies use to hedge specific risks. This may cause companies to refrain from some business activities. Similarly, restrictions on the ability of banks to invest in hedge funds and private equity firms may result in less money being made available to corporate finance.

The second kind of transmission is indirect, the primary example of which is financial sector profitability. As in any other industry, there would be a case for

public policy intervention in the financial sector if profit levels were inflated due to market distortions such as anti-competitive behavior. Also, overall profitability in the financial sector can become a public policy concern if low levels of profitability exert a negative impact on financial stability, such as when banks are not able to build sufficient capital reserves in the course of their normal business activities.

Financial sector profitability is important because financial institutions need to attract sufficient levels of capital to meet regulatory capital requirements and support business expansion. For this to happen, investments in the financial industry must, on a risk-adjusted basis, be as attractive as competing investments.

However, the widely shared assumption is that the regulatory measures currently being proposed or implemented will reduce financial sector profitability. A report by McKinsey[15] suggests that profitability in the European financial sector will be lower by a third in future. Undoubtedly, this will reduce the ability of the financial sector to attract equity investors.

RECOMMENDATIONS

- New standards for banking regulation and supervision must be sufficiently strong and responsive to avoid another financial crisis, while still encouraging growth and financial innovation. Many of the proposals currently discussed, including the Basel III framework, are conceptually conducive to achieving this aim.
- The macroeconomic impact of financial regulation must be fully taken into account. It is not sufficient to analyze each regulation in isolation; policymakers must also consider the cumulative impact of proposed regulations. All policy measures should be subjected to comprehensive cost-benefit analyses and quantitative impact studies.
- The proposed new financial regulations will make companies' long-term financing more difficult and more expensive, whether it comes from banks or financial markets. Ways should be found to provide companies with access to the long-term funding they need.
- The impact of financial regulation on the attractiveness of regulatory capital instruments, such as equity, contingent capital and debt securities issued by financial institutions, should be kept in mind to maintain their ability to attract investors in light of competing assets and higher capital requirements.
- A global tax on financial transactions as a means of generating revenue to cover the cost of any future bank bailouts should be avoided at all costs. Such a tax would lower market liquidity, seriously harm investment and hinder still fragile economic growth. Moreover, even if such a tax was implemented by G20 countries, other jurisdictions would not follow suit, leading to the offshore migration of financial transactions and increases in regulatory "dead zones."

15 *Basel III - What the draft proposals might mean for European banking*, McKinsey & Company, April 2010

DRIVERS OF GROWTH

The exit from stimulus measures and the restoration of private- and public-sector balances will not necessarily represent a drag on growth, but there is a likelihood that it may have a dampening effect, at least in some countries.

As a result, it is important to identify potential sources of sustainable, long-run growth in the global economy. Historically, such growth poles have always shifted between regions and industries, reflecting innovation, shifting demand structures, external influences as well as geopolitical changes. For businesses and governments, it is important to identify such growth poles as early as possible so they can take appropriate action to fully benefit from them.

According to a World Bank study, about half of the transnational differences in per capita income and GDP growth are due to differences in total factor productivity (TFP). Technological development, innovation and R&D are in turn the most important drivers of TFP growth. Not only R&D spending, but also institutional factors, such as the conditions for doing business or the quality of tertiary education, play a part.

In times of crisis, innovative activity typically experiences a backlash as governments and business cut back on R&D spending. Historical experience suggests that corporate R&D spending not only follows but overshoots the business cycle. A statistical analysis of the relation between growth and R&D spending for all OECD countries between 1982 and 2007 shows that, on average, a 1% decline in GDP results in a cut in R&D spending of 1.1%.

With finances strained in many developed countries, a number of governments will be tempted to slash R&D spending. Thus, in these countries, the importance of R&D spending by business will increase in the next couple of years. The positions of developed countries differ substantially: nations such as Sweden and Finland, which have a relatively high share of R&D spending in percentage of GDP, profit from substantial business sector contributions—about two-thirds of overall expenditure. By contrast, countries hit hard by the financial sector crisis, such as Greece, Spain and Portugal, spend substantially below the OECD average on R&D and rely heavily on government spending. For these countries it is especially important to strengthen their national innovation systems and the private sector's ability to innovate. Pressures to consolidate national budgets should strive to exempt public-sector R&D spending, as these should be considered an investment in economic future growth.

A major conclusion drawn from international comparisons of innovation policies is that countries need to tailor national innovation systems to their specific needs and their specific economic and technological environment. There is no one-size-fits-all policy approach to foster innovation. Against the backdrop of strained government finances and a cutback in direct funding of strategic and basic research in a number countries, successful policies to promote innovation and research could be geared towards fostering networks and other system linkages, reconfiguring institutions to work effectively with innovation systems and enhancing innovation competencies in firms.

As innovation processes become more open and increasingly networked globally, simplistic national policy approaches are no longer suitable. Multinational

enterprises tend to leverage their global presence and establish international R&D cooperation projects, often with companies or institutions in other developed markets. Some emerging markets have recently become attractive innovation partners as companies utilize R&D capacity there to improve their products and technology, while trying to access fast-growing local markets. Germany, for example, has teamed up with companies in China and India in the last couple of years and has substantially increased R&D imports from those countries.

International components of the innovation system should receive policymakers' particular attention. Among the things to consider are inward flows of technology, business collaboration along the global value chain, collaboration with foreign R&D partners (companies and scientific institutions), FDI flows and migration of qualified human capital.

Future Growth Sectors

Global manufacturing output excluding construction expanded between 1990 and 2008 by roughly 3.5% a year; including 2009 and 2010 would reduce global annual output growth by 30 bps a year. The growth performance of the industries was inconsistent: the real value-added output of the clothing industry shrank by roughly 1% per year, while telecommunications equipment manufacture increased by almost 7% and the semiconductors industry grew by 11%. Though global growth does not only rely on a handful of booming industries, some sectors have clearly performed better than others.

Growth of manufacturing has also been unevenly distributed. In the 10 years before the recession, US manufacturing increased by only 0.6% a year, which was similar to growth in Western Europe. At the same time, emerging Asia increased its output by roughly 10% a year. While manufacturing in the developed world decreased significantly in the course of the recession, emerging Asia managed to increase industrial output throughout the downturn. A mixture of catch-up effects and the restructuring of global production patterns has led to different growth trends in emerging and developed countries. These drivers will continue to shape the growth paths in the future.

It is therefore necessary to distinguish the processes by which emerging markets catch up with richer countries from what happens in developed countries. Furthermore, it makes sense to differentiate short-term adjustments to the crisis from long-term trends.

For industrialized countries, short-term development is still determined by the adjustment processes, not only to the output decline in 2009, but also to the various fiscal stimulus packages that led to a strong recovery in some countries, especially export-oriented countries with a strong manufacturing base such as Germany. They will continue to benefit from replacement investment. But growth momentum will come down significantly and might even turn negative, depending on the timing of the exit from stimulus programs.

Additionally, many OECD countries will continue to suffer from a weak residential construction sector. Even though there will be positive momentum after severe adjustments, we will not see the high growth numbers in the US, Spain or some Eastern European countries in the near future.

Two important global trends—global warming and aging—will keep energy-efficiency, clean-tech and health-related industries on an elevated growth path over the long term. However, there are some possible intra-sectoral changes related to consolidation pressure. Costly measures to reduce the carbon footprint, such as solar energy and e-mobility, could face lower subsidies in the near future. Cheaper measures like renovation and engine energy-efficiency might benefit because they have negative abatement costs. It is also important to scale up public investment in fundamental research in areas like energy efficiency, renewable energy production and energy storage to increase opportunities for breakthrough technologies.

For emerging markets, the short-term trend is largely defined by the catch-up effect—closing the wealth gap—and the global restructuring of production processes. Two aspects are important. First, the restructuring process has not necessarily come to an end. With labor costs rising in some of the most important emerging markets such as China, this opens growth potential for emerging markets in the next tier of development, not only in Asia.

Second, global competition in knowledge-intensive industries will increase significantly. The demand for services will increase similarly to the development in industrialized countries in the last four decades. Emerging market growth industries are therefore to a large degree the old growth industries of the developed world. This includes construction- and building-material sectors, as the shifts imply strong urbanization trends.

For emerging markets, more traditional infrastructure sectors will remain a strong growth driver for the next few decades. A big challenge will be to leap-frog environmentally dangerous production methods and safeguard basic environmental and health standards. Investment in water systems, both provision and sewage, are crucial, as are investments in urban transport and energy infrastructure. An important long-term driver for industrialized countries also plays a big role for emerging markets, but this will require significant transfers from west to east and from north to south.

RECOMMENDATIONS

- Successful policies to promote innovation and research could be geared towards fostering networks and other linkages, as well as enhancing innovation competencies in firms. Government support for fundamental research is crucial. Support for business R&D activities in the form of tax credits and other support measures remain important, too.

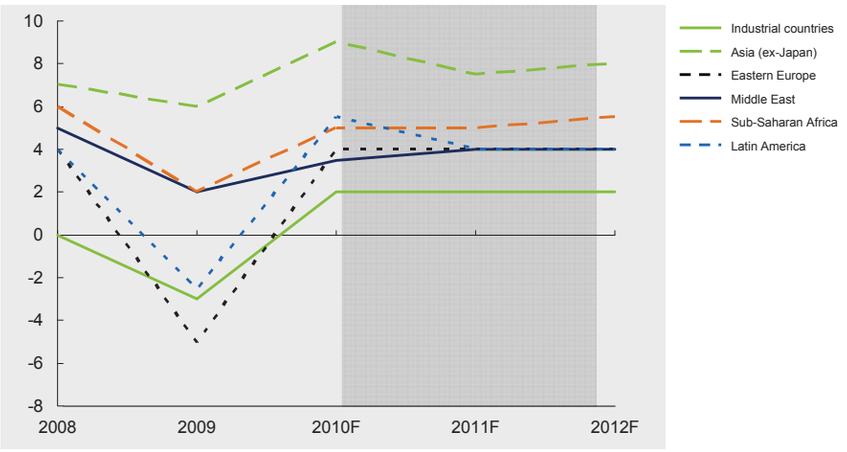
- International components of the innovation system should receive policymakers' particular attention. They include inward flows of technology, business collaboration along the global value chain, collaboration with foreign R&D partners (companies and scientific institutions), FDI flows and migration of qualified human capital.

The New Geography of Growth

The best growth performance and outlook is in the emerging markets. They have exhibited much higher growth rates than the developed markets over the past decade, and they are expected to continue to do so (see Exhibit 3). But emerging

markets were not immune to the Great Recession. GDP growth slowed down and is some cases sharp recessions ensued, mainly due to the collapse in global trade that took place in the fourth quarter of 2008 and first quarter of 2009. The effects on financial market prices were temporary but very sharp, and some countries had to resort to IMF programs, Fed swap agreements, or other official support in order to address acute foreign exchange liquidity shortages. But no major emerging market suffered a full-blown financial crisis or reversed prudent macroeconomic policies. This resilience paved the way for a continuation of robust growth, although growth rates are expected to be somewhat lower than in the pre-crisis years due to weaker demand from the US and Europe, and less buoyant cross-border bank lending.

Exhibit 3. Growth is in the EMs
% yoy



SOURCE: Deutsche Bank

By 2010, the emerging markets'[16] share of the world economy, as measured by purchasing-power parity, crossed the 50% mark and is likely to reach 60% by 2020.

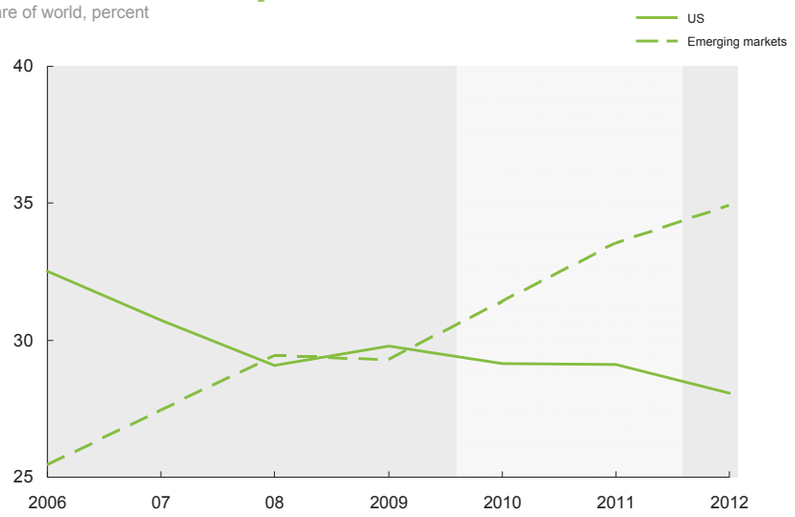
The favorable outlook for emerging markets is underpinned by several structural trends. These include: 1) Pro-growth demographics and urbanization. The population in the 15–64 year-old segment will continue to grow in EMs over the next decade, but will start declining in mature markets. 2) Positive developments in per capita income. Large parts of the population are being lifted out of poverty and others are crossing consumption-relevant income thresholds, especially in the middle class segment.[17] 3) Openness. Countries are increasingly integrated into global production networks, either in manufacturing or services. While this trend may increase EM exposure to global slowdowns, it will also help generate further productivity improvements, which are important to growth.

For emerging markets to become a standalone engine for global growth, these countries need to increase their share of economic activity driven by domestic

16 Includes IMF's WEO country groups "Emerging and Developing Economies" and "Newly Industrialized Asian Economies"
17 Current Issues Asia's Middle Class and Understanding China's consumers, McKinsey Quarterly "Capturing the world's emerging middle class", 2010

consumption and non export-related investment. They are on a good course already—the EMs' share of global consumption is 30%, which since 2009 is higher than the US share (see Exhibit 4). However, further progress is needed. China contrasts with other emerging markets and the US because of its low consumption rate, less than 40% of GDP. Higher consumption in China would generate higher "domestic" imports, lower trade surpluses and result in smaller accumulation of foreign exchange reserves.

Exhibit 4. Private consumption
Share of world, percent



SOURCE: IHS Global Insight

Given China's large share of the global economy, an improvement in consumption would go a long way towards reducing global imbalances. The Chinese government has made economic rebalancing one of the main tenets of its development strategy, including an improvement in the social safety net and the introduction of somewhat higher exchange-rate flexibility. This should gradually help reduce precautionary savings, and reorient part of the country's manufacturing activity towards locally consumed goods.

An improvement in the business environment is needed in several emerging markets to boost domestic investment, both by local and foreign firms. Of the top 20 countries in the "Doing Business" ranking, just five are emerging and developing countries.[18] Similarly, governance indicators for the largest emerging markets still lag those in the developed world. Domestic regulation plays a significant role, too. OECD indicators on product market regulation show a relatively high level of barriers to trade and investment in emerging markets (see chart). Barriers to entry in services are also relatively high, although for this indicator performance differs more widely.

18 IMF classification

RECOMMENDATION

- Recognize the need for further productivity improvements so that emerging markets can catch up with developed markets and developed countries can sustain high living standards. International exposure and a competitive domestic manufacturing and services market are key ingredients to achieving these goals.

Financial Services as a Growth Sector?

Measuring the size and importance of the financial sector in relation to the overall economy is always complicated. Due to the nature of their business, banks command huge balance sheets, yet produce meager returns on assets compared with other industries in the real economy. Moreover, traditional measures underestimate the role of the financial industry by far: It provides capital to *all other* sectors, serves as a safe store for excess money, and services profitable financial investments in all other parts of the economy. Banks keep the money flowing among households, private firms and governments, as well as across borders, exercising a vital, central function.

Before looking at whether the financial sector can still be a growth sector post-crisis, it is necessary to examine whether it has ever been one. In the past two decades, gross value-added in the financial industry, including banks, insurance companies, exchanges and related service providers, has been broadly stable as a share of national output, often between 4% and 6%.[19] At the same time, the industry's size relative to the total economy has grown impressively: banks' total assets relative to GDP rose from 74% in 1999 to 93% in 2009 in the US and from 251% to 383% in the EU 15. In the US, the share of corporate profits coming from the financial industry surged to an average of 36% between 2000–2006, up from just 16% in the 1980s. On the other hand, employment hardly increased at all, providing evidence of large productivity gains, most of which were linked to advances in technology and operations.

Thus, the financial industry has a mixed picture as a growth sector prior to the crisis. In addition, the data doesn't show how much of the apparent growth was sustainable and how much was only the temporary buildup of a bubble (or even several bubbles).

When assessing the growth perspectives of finance after the crisis,[20] an important distinction has to be made between industrialized and emerging countries. For most developed markets, deleveraging and anemic growth may be the only realistic outlook for the financial industry. The banking sector's size is linked to the development of the overall economy. Since balance sheets and off-balance sheet assets expanded much more rapidly than the real economy in the years leading up to the financial crisis, their growth may have to slow down now.

Indeed, the pre-crisis growth drivers for many national banking sectors may not be able to provide the momentum for further dynamic growth. While the structural

19 Of course, for some countries, finance plays a much greater role, e.g., for Luxembourg, Switzerland and the UK with shares of 29%, 13% and 9% of gross national value-added, respectively

20 In the short- to medium-term, on which this paper focuses; in the long run, fundamental trends such as demographic change, including the aging of Western societies, and climate change, will offer the financial industry new and important growth opportunities

decline of interest rates over the past three decades gave interest income a major push, rates are now at historically low levels and cannot fall significantly any more. Volume growth in lending to private households and non-financial companies is also likely to be considerably lower than in the boom years, due to greater prudence and risk aversion on both sides of the loan contract, as well as the need to reduce client debt levels. In addition, very low loan losses over many years despite strong growth in business volumes gave a boost to banks' net profits that may not be repeatable in the foreseeable future. For now, loss provisions, though falling, remain on elevated levels and it might take one to three more years for them to moderate to their long-term average. Furthermore, a return to the benign pre-crisis situation is not in sight because of a weaker growth picture and the implementation of fiscal austerity programs. In short, financial sector growth in most developed markets may be rather sluggish for a considerable period.

The outlook is different in most emerging markets, where finance should remain a prominent growth sector. In many countries, enterprises, as well as private clients, continue to be underserved and lack access to credit and sophisticated asset management services. With the banking industry relatively smaller than in industrialized countries relative to GDP, there is substantial growth potential. Emerging markets can now afford financial growth rates that would be considered excessive in developed markets. Even more, higher trend GDP growth will provide opportunities for emerging markets to catch up in absolute size with the financial sectors of developed countries, though this may take time.

RECOMMENDATIONS

- For developed countries, balanced and sound reregulation of the financial industry will be crucial, including appropriate phasing-in periods for new standards. Capital and liquidity requirements should consider both the need for capital by the private sector, especially in the context of the current fragile recovery, and the need to strengthen banks' shock resilience and financial stability. Where rulemakers consider bank levies and taxes appropriate with a view to national circumstances, such levies and taxes should be narrowly defined. Proceeds should be used to accumulate funds for resolution schemes in potential future crises.

- For emerging markets, sound macroeconomic policies, further institution-building and increased openness towards foreign investment may continue to foster growth of the financial sector. They will encourage competition, increase bank efficiency and improve the quality and scope of products and services available to clients.

CLOSING THE GAP IN INFRASTRUCTURE AND NATURAL RESOURCE FUNDING

Working Group VI

Convener

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INTRODUCTION

Ports, airports, roads, energy supply and power generation, telecommunications, and water systems form the complex infrastructure that supports modern life. Funding to build this infrastructure and deliver modern services around the world has long been driven by government spending and private sector investment from various sources such as private equity investors, pension funds and banks. Worldwide, investments in these infrastructure systems have averaged around 3% of global GDP over the past 30 years, with signs of an increase since the 1990s.

Over the coming decades, however, trillions of dollars in new money will be required to build or replace global infrastructure and to provide adequate energy and water supplies for the growing world economy: As much as $3 trillion will be required per year to (1) Upgrade aging infrastructure in developed countries, (2) Meet the demands of urbanization and increase living standards in developing countries, (3) Build transportation infrastructure to facilitate growing international trade, and (4) Achieve sustainable development goals.

Certainly, governments and the private sector need to invest together in infrastructure. China and India provide examples, with infrastructure investments growing from 29% to 44% of GDP in China since 1970, and from 15% to 40% in India over the same time period. Private sector infrastructure financing has been in the market for many years. It is a rapidly developing asset class that continues to develop new markets and there is strong interest from private equity investors, pension funds and banks.

However, the question is whether this supply of funds will meet the growing demand for infrastructure investment and natural resource supply. The answer to that question is uncertain, and the uncertainty is compounded by widespread government budget deficits and a variety of private investment risks. Experts put the projected shortfall on a global basis at $400 billion to $600 billion per year.

Against this backdrop, the role of private financing is becoming increasingly critical to ensuring that inadequate infrastructure and natural resource supply do not become a bottleneck for economic growth and social progress. This working group suggests that investors will allocate sufficient funding for global infrastructure projects—if governments, led by the G20.

- Facilitate collaboration with business to ensure that the "right" infrastructure investments are undertaken, such as defining a standard, global model for public-private partnerships that will facilitate participation of private investors to infrastructure projects.

- Ensure a stable and transparent regulatory framework, including a peer assessment mechanism, where national governments assess each other's regulatory framework for stability, transparency, adherence to rule of law and other conditions necessary to attract private investment in large, long-term, high-risk infrastructure investments.

- Mitigate the risk and increased costs of financing projects, by allowing for modern investment vehicles and corresponding risk management processes to be developed, such as innovative project management and cost cutting techniques, permitting insurance and other financial hedging,

clarifying rules on sustainable development goals such as greenhouse gas mitigation, and promoting transparency and predictability of energy availability through a strengthened cooperation with IEF-IEA.

- Support development of alternative and innovative sources of funding such as: using infrastructure assets as collateral for new loans, working with institutional investors to gain access to private and corporate savings, creating liquid secondary markets, and expanding the use of innovative financing such as Green Bonds.

- Multi-lateral development banks should be strengthened to facilitate increased public and private investment in infrastructure, such as collaborating on large-scale, cross-national projects and facilitating knowledge-sharing to accelerate development. New regional development banks may be more efficient than existing ones in dealing with conflicting political issues and financial projects in a specific region. Region-wide development plans should be developed to distribute funding effectively. Additionally, more governments should explore the establishment of state infrastructure banks.

Businesses can also play a role.

- Contributing experiences and best practices for agreeing upon common features for a more effective PPP system

- Providing input to government reviews of countries' regulatory stability and efficiency

- Providing data and analysis on how modern investment vehicles can help mitigate project risks

- Contributing to improve the dialogue between producing and consuming countries in the energy sector.

- Cataloging and communicating alternative and innovative funding best practices.

By putting in place the right conditions for investment, the G20 can make sure that the availability of capital keeps pace with capital requirements and that investment in infrastructure will continue to deliver modern conveniences, improve living conditions and reduce income inequality.

Moreover, G20 attention to this issue helps to leverage the group's wider goals of jump-starting the global economy and putting in place the conditions for long-term economic growth. Investment in infrastructure is one of the strongest stimulants of economic development. Estimates by Moody's Investors Services and other economists indicate an economic multiplier effect for infrastructure of 1.6, which means that each dollar spent on infrastructure yields a GDP increase of $1.6. Similarly, the World Bank has estimated that for every 10% increase in high-speed Internet access, overall economic growth rises 1.3%. These multipliers are more than the impact of trade on GDP growth and double the impact of tax cuts and household savings. Notably, infrastructure investments with higher GDP multipliers can be found in emerging economies.

INFRASTRUCTURE AND ENERGY AVAILABILTY DRIVE LONG-TERM GROWTH

Research shows that infrastructure investments to deliver telephones, electricity, petrol, roads and water are necessary ingredients for sustained economic growth and demonstrate positive effects on long-run economic activity and reducing income inequality. Here are some of the ways that infrastructure investment benefits a country's economy:

Transportation

Transportation infrastructure has the ability to spur development in emerging economies by improving access to markets connecting people, goods and services and opening up global trade and services. The Asian Development Bank Institute (2008 online) states that narrowing the gap in basic infrastructure and income in the Asia requires the development of soft infrastructure—institutions as opposed to physical infrastructure such as docks—to support cross-border transport facilities. "[S]oft infrastructure may often be more important than physical infrastructure for increasing trade and its profitability," the report says. "Logistics services are a vital component of Asia's global competitiveness." Business costs including logistics are too high in many less developed countries, a factor that suppresses economic growth and trade in the region.

Telecommunications

The OECD finds that in high-income countries, a 10% increase in broadband subscriptions corresponds to a 1.2% increase in per capita GDP. Broadband networks are key to economic and social development. They serve as communication and transaction platforms and can improve productivity in all sectors of the economy. They also improve the living standards of many communities.

Estimates indicate that access to mobile broadband could boost global GDP by 3–4%, with the industry forecast to invest $550 billion in mobile broadband to connect 2.4 billion people to the Internet. Global broadband access will also contribute to combating climate change, potentially cutting as much as 15% of total CO_2 emissions by 2020.[1] This would be achieved, for example, by automated management of heating of facilities; lower congestion; video conference systems that replace business travel; linking globally dispersed students; providing e-government services; and electronic versions of publications formerly produced on paper.[2]

Energy

Energy is a fundamental driver of socio-economic development. The adequate supply of energy is essential for raising living standards, is an integral part of all industrial processes and is complementary to other sectors such as telecommunications. Even with significant improvements in energy efficiency, world economic growth will continue to require increasing energy availability. World energy demand will continue to grow by as much as 40% by 2030, driven by non-developed countries whose own appetite for energy will soar by 70% in the

1 Global e-Sustainability Initiative, Smart 2020 Report 2008
2 Source: Ovum for G20, http://www.globaltelecomsbusiness.com/Article.aspx?StoryID=719049

next two decades. The present price equilibrium won't last without more effective cooperation in development and management of supply and sharing of data along the supply chain and information about policies affecting long-term energy demand. There is a pressing need to allow operators to obtain reliable energy resources by increasing global cooperation in regards to supply.

Water and Waste Management

The principle that infrastructure drives economic growth and income equality is especially true for clean water and sanitation services, which help to lay the groundwork for more productive, healthy populations capable of contributing to sustained economic growth.

INFRASTRUCTURE INVESTMENTS STIMULATE INNOVATION

In a 2009 survey of over 1,000 executives,[3] providing infrastructure was the government activity executives deemed to have the most positive impact on their business. They ranked it ahead of more direct interventions, such as "Purchasing our products/services" or "Reducing cost of capital by offering loans or loan guarantees." The importance of infrastructure was even stronger in developing regions.

Demands for greater infrastructure investment will drive innovation, spurring efficiencies and productivity gains. This will lead to lower costs and risks, increased transparency and cooperation and more efficient use of natural resources and capital assets.

The scarcity of natural resources such as oil and water also stimulates technical innovation. For example, unlocking unconventional natural gas resources or deeper oil reserves prompts oil and gas companies to create innovative drilling techniques. Similarly, the scarcity of water resources motivates water companies to invest in water recycling systems. In addition to technological innovation, the scale and complexity of many infrastructure projects drive other innovations—in business models, logistics, services, and market organizations.

By collaborating with the private sector along the lines recommended in this paper, governments can contribute to spurring innovation and ensure necessary scale in new technologies and techniques. Advancements can also be facilitated through broader cooperation between companies on an international scale.

Research and Development (R&D) and technical advances can also drive productivity gains. One example is new construction methods that increase the value contribution per hour worked. R&D can also drive more efficient use of materials; develop technologies that widen the availability of natural resources; and give birth to new sources of energy. In short, the demand for infrastructure drives R&D over the long run. And, not surprisingly, the long-run nature of R&D investment requires government involvement to facilitate or bear some of the development risks. These include, large upfront investments over an extended

3 *How business interacts with government: McKinsey Global Survey results*, McKinsey Quarterly, January 2010.

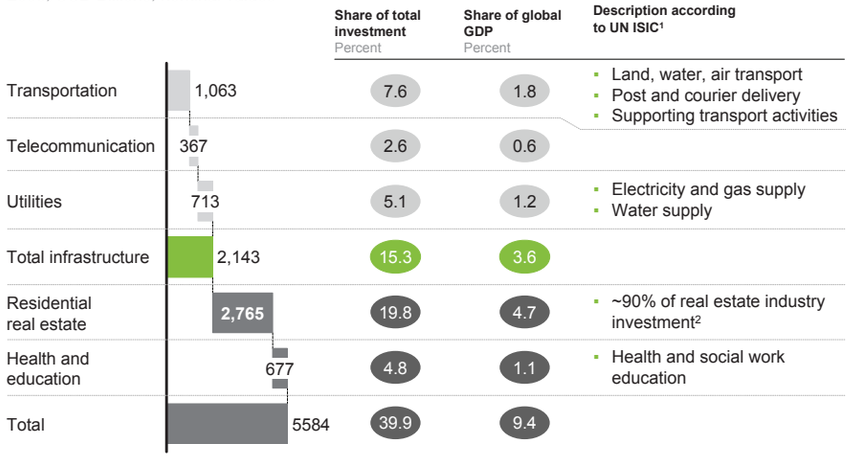
period of time, establishment of political stability and stable regulations, and the risks of external events lowering the attractiveness of investments.

Based on these similarities, there is a clear synergy where policy and systems improvements facilitating infrastructure investments will also, to a large extent, facilitate long term R&D and technology investments.

INFRASTRUCTURE SET TO BOOM—ESPECIALLY IN EMERGING ECONOMIES

Estimates[4] show that over the past 30 years, investments in infrastructure have been fairly stable at around 3% of global GDP, or an estimated $2.1 trillion in 2008 (Exhibit 1). This level of investment needs to be sustained (and even increased) going forward—estimates put the need for infrastructure investments during the next two decades at $3 trillion per year. The need for investments comes from: Upgrading aging infrastructure in developed countries, urbanization and increased living standards in developing countries, increasing international trade, and sustainable development.

Exhibit 1. Global investment in infrastructure, residential real estate, and health and education
2008, USD Billions, nominal values



1 United Nations' International Standard Industrial Classification of All Economic Activities, Rev. 3.1
2 According to EU Klems Capital database ~90% of investment in the real estate industry is in residential structure, the remaining 10% is in companies operating in the real estate industry such as agents, brokers, real estate developers, etc.

SOURCE: EU Klems; World Industry Service by Global Insight; McKinsey Long-term Growth Model v1.0; World Bank Development Indicators of The World Bank; UNN ISIC; MGI team analysis

Upgrading Aging Infrastructure in Developed Countries

Much of existing transportation and utility infrastructure in developed economies was built during a boom in the 1960s and 1970s. This is especially clear in the UK where the level of infrastructure investments during the 1980s and 1990s was 10–40% lower than in the preceding decades and only recently has recovered to previous levels. With transport and utility infrastructures having a useful life of 35–45 years,

4 The McKinsey Global Institute

this means assets now need upgrading, renovation and potentially replacement. For example: For example, much of the existing water infrastructure in the United States was built over 50 years ago. It will take an estimated $250 billion to replace thousands of miles of leaky water pipes lines and aging filtration plants over the next 30 years.[5] In addition, energy infrastructure requirements for Eastern Europe and the former Soviet Union over the next 20–25 years will amount to about $3.3 trillion.[6]

Telecommunication assets have a shorter useful lifespan due to the rapid development of new technology and the need for constant upgrading of networks. In the US, the 2011 Federal budget includes $4 billion to build infrastructure banks to help achieve these ambitions, and the Liberal Democrats in Britain have been calling for the establishment of a UK infrastructure bank.

Urbanization and Increased Living Standards in Developing Countries

One billion people in developing economies have moved into cities in the past 20 years. This trend will continue with another 700 million people expected to move into urban areas in developing economies over the next decade. Public policy goals for increasing living standards create demand for improved infrastructure. In China, where a third of the population drinks substandard water, the government is investing $125 billion over the next few years to improve water supplies and waste-water treatment.[7]

Much of the world's population still remains without basic access to information and communication technology. Service penetration of broadband, regardless of the technology used, is very low but there are exponential possibilities. Access to broadband services (fixed or mobile) in rural areas of developing countries such as Latin America or Africa has been shown to contribute to the economic and social development of the area and also improves the general welfare of the population. A fundamental shift in deployment is required to enable countries to achieve the access targets set out by World Summit on the Information Society by 2015.[8]

The northeast Asia region, rich in natural resources and low-cost skilled labor, has huge potential to grow. However, the Asia Development Bank has estimated that northeast Asia needs $7.5 billion annually in infrastructure investment to achieve its full potential. As a result, the creation of a northeast Asia Development Bank to facilitate investments has been discussed for some time.

Energy penetration is currently woefully underdeveloped in many emerging economies. In Africa 60% of the population doesn't have access to electricity. In rural areas this share can exceed 90%. In the rapidly developing economies of Brazil, Russia, India and China, per capita oil consumption is one fifth of that in the Unites States. In some Latin American and African countries (even those with huge hydrocarbon reserves), per capita consumption of energy is even less. Total global energy sector investment is estimated by the International Energy Agency at $1.1 trillion per year with an additional $500 billion per year potentially needed to meet ambitious CO_2 mitigation targets.

5 American Water Works Association
6 Lights Out? The Outlook for Energy in Eastern Europe and the Former Soviet Union
7 CIBC World Markets report, 2009
8 Connect Africa Summit, Creating an Enabling Environment for Investment

Increasing International Trade

Across both emerging and developed economies, the growth in international trade is creating demand for more transportation infrastructure. Global manufactured goods trade has grown twice as fast as GDP over the past 15 years. For example, despite a 70% increase in road travel in the US over the past 20 years, road systems have only been expanded by around 25%, or one third the amount needed.

In many developing economies, rail density is typically one fourth to one half the levels in the developed world. In the emerging markets of Asia, for example, economic growth is reduced by the costs of logistics because they represent a greater burden than trade tariffs. According to the ADB, Asia needs to invest $8 trillion in national infrastructure over the next 10 years to sustain the region's high rate of economic growth.

Sustainable Development

The demand for more sustainable development is also spurring the need to upgrade infrastructure with technology that contributes to resource efficiency and reduces adverse environmental impacts. For example, organization of traffic and travel has become a critical concern in urban environments. It is estimated that the amount of fuel wasted by congestion in US urban areas alone has increased 480%, from 500 million gallons to 2.9 billion gallons in the period from 1982 to 2005. Information and communications technology can help to optimize traffic flows, reducing energy waste. Technology-based improvements in supply chain logistics can also minimize travel in distribution networks.

Fuelling sustainable economic growth will demand much from the energy sector, where current upstream capital expenditures of $400 billion to $500 billion per year will increase as natural resources are depleted or are more difficult to access, as is the case with oil. In addition to conventional energy, more investment in the infrastructure for renewable and alternative energy is needed to foster sustainable development. And as most infrastructure is very long lived it is important to deploy best available technologies in this infrastructure boom window of opportunity.

THE WAY FORWARD IS NOT FREE OF CHALLENGES

While nations must meet a growing demand for infrastructure, there are a number of constraining factors that need to be considered. Out of the $3 trillion per year in required infrastructure investments, there is an estimated shortfall of $400 billion to $600 billion per year. This funding gap results from various market and systems failures, not the least of which is widespread government budget deficits and a variety of private investment risks stemming from the global financial crisis.

Governments are Running Budget Deficits

Years of overspending and under saving, compounded by the recent economic downturn, have left many national governments facing large budget deficits. Developed countries have been especially hard hit with budget deficits. And governments hold less than 4% of total global savings, making it hard to fund investments. With corporate and household savings at 23% of GDP or $10 trillion, there are large sums available for investment if governments can adopt the right incentives.

A number of options for private investment in infrastructure began to take hold before the financial crisis erupted. Private investors were hit hard by the downturn and there were delays in project financing. Going forward, here are some of the potential sources of private capital that could be tapped:

- Public Private Partnerships (PPP) grew at 69% annually from 2003 to 2007, when they reached $139 billion. This form of partnership opens up new sources of funding and delivers a better product. Many types of PPPs have been successful, achieving significantly lower development time and project cost than the average traditional arrangement with public management alone. Evidence from the UK National Audit Office (2003) shows that construction delays are significantly lower in PPPs (24%) than in normal public procurement (70%). Statistics also indicate that construction cost overruns are quite low for PFI/PPP projects (22%) whereas cost overruns in public procurement projects are common (73%). And, given that the concessionaire in a PPP project is responsible both for the construction phase and the operational phase, PPPs typically deliver better quality and avoid conflicting incentives for the construction phase versus the operational phase.

- Pension funds have been more active in infrastructure finance recently and can be good candidates for a substantial source of funding for PPPs and private projects. In some cases they invest through infrastructure funds and in some cases run their own fund. Pension fund assets are estimated to be $29.5 trillion in 2009. Infrastructure provides long-duration, low volatility cash flows, and are a good match for pension funds' investment needs. Infrastructure is still a new asset class and pension funds need to gain familiarity and experience with reducing risk before increasing their involvement.

- There is large potential to involve private equity firms in infrastructural investment. Standard & Poor's estimate that private equity firms were responsible for half of infrastructure deals in 2006–2008.

- Asset packagers are another potential source of funding. Asset packagers create a fund to buy the infrastructure assets, often utilizing a large component of debt.

- Infrastructure funds, including private equity, have been growing in recent years, although investments declined after the crisis. By 2008, there were 38 infrastructure funds that raised commitments of $35 billion globally. Infrastructure funds invest in both public-private partnerships and private projects.

- Banks loans—banks are among primary sources to provide debt especially at the start of infrastructure projects.

- Bonds could be an appropriate solution given the stable, long-term cash flows typically generated by infrastructure assets. Banks can structure debt package with views that it could be refinanced by bond issuance.

- Private cash flow could be better utilized. Private operators of telecommunication networks have been investing heavily to expand capacity and enable new high-bandwidth services. Telecommunication

operators historically have had strong cash flow positions during economic downturns but may now face increasing difficulties raising capital.[9]

Asymmetric Project Risk

In addition to the benefits of investing in infrastructure projects, the financial crisis also revealed that asymmetric risks exist for private investors. Estimates for Britain's M6 toll road PPP, for example, indicate a potential revenue decline of 25% from a 1 percent reduction in traffic growth, but only a 2% upside from a 20% reduction in operational costs. In projects with asymmetric risks, it may be advantageous for governments to share the risk, as was done in the Republic of Korea's Pyeongtaek-Siheung highway project, where the government assumed the partial burden of supplementary financing in case of cancellation.

Risk of Not Prioritizing the Highest Impact Projects

Recent data shows that infrastructure generally has a positive effect on GDP growth. However, a study of infrastructure assets between 1960 and 2005 by the OECD also revealed that as many as 44% produce zero, or negative growth. This type of "roads to nowhere" investment has been undertaken by many countries and creates a public distrust of infrastructure investments and hostility toward the public companies that make a profit. This in turn reduces interest from private investors in participating in infrastructure finance projects. Policy-makers deciding whether to use public funds to invest in infrastructure could avoid these problems by working with industry to identify a full range of project characteristics, such as those used in telecommunications industry investments: connectivity, competition, innovation/growth and social benefit. Projects that focus on one aspect and exclude the others will likely not be optimal for taxpayers and are likely to generate negative opinions.[10] Moreover, establishment of a Global Investment Knowledge Sharing Center can be an efficient channel for sharing best practices in infrastructure investment and would be a useful undertaking by multi-lateral development banks.

Regulatory Risk

It is already a major challenge for non-institutional investors to participate in infrastructure investments due to the huge size of the investments needed and the long-term commitments required. This is compounded by political risk and the lack of transparency. And, unfortunately, areas with the highest investment potential are usually those with the highest regulatory instability. In addition, regulatory changes that may occur during the investment period can significantly impact project profitability and may make private investments unprofitable. For example, some governments review prices on water and energy efficiency of power transmission assets only every three to five years, or six to eight times during the lifetime of these assets. Furthermore, political uncertainties can result in a reduction in private-sector investments. Approval times for large infrastructure projects, for example, can be very long, sometimes lasting up to 10 or more years.

In the telecommunications industry, the borders between different market segments are becoming increasingly hazy. One example is how internet firms

9 Source: OECD
10 Source: OECD

are changing the telecommunications industry by offering voice-over-internet protocol phone calls in competition with traditional landline telephones. Regulations in many countries are still fall far behind technological and market developments. In the view of some investors, this adds to instability, which leads to slower and fewer investments.

Risk in Uncertainty of Commodity Prices

Fossil fuels make up around 80% of the primary energy consumed in the world today, and the International Energy Agency expects this share will be sustained through 2030. To support future growth, greater investment in the search for fossil fuels from more remote and complex locations will be necessary because of the higher costs of extraction and technological challenges. Even though recent oil market volatility seems to have diminished, the situation can change suddenly. The present price equilibrium won't last without more effective cooperation in development and management of supply, sharing of data along the supply chain. Better oil price predictability enables energy planners' to take long-term investment decisions. The single most important physical factor influencing oil price is the level of unused capacity available to be put in production (the so-called "spare capacity"). This capacity must be adequate to contribute to market stability (at least 5–6% of global demand). If uncertainties hamper investment, unused capacity will dry up, pushing up prices and creating uncertainty and instability. One example includes the predictability of future environmental regulations which will underpin required massive energy investments, many of which require a decade of planning. Furthermore, as oil prices also reflect market expectations about future oil demand and supply, inadequate information about market fundamentals can significantly increase oil price volatility.

Need to Ensure Sustainable Development of Resources

Demands on natural resources like water, primary energy, arable land, and non-renewable materials are approaching levels that may no longer be sustainable. In many regions, water withdrawals are already higher than the sustainable supply, and, with demand expected to outgrow supply, a water deficit of 40% on average is expected in 2030. Similarly, although the need to reduce greenhouse gas emissions will require significant investments in low-carbon energy technologies over the coming decades, the policy and market signals to support these investments are not in place. More efficient use of natural resources would also be enhanced by cross-border collaboration on infrastructure projects to eliminate overlaps and increase utilization of existing assets. One good example of efficient use of resources is Nord Pool, a joint Scandinavian energy market, which allows the region to share excess capacity and saves each country from building additional reserve generation capacity.

RECOMMENDATIONS

Given the challenges described above, we propose a number of steps that will enable countries to undertake the infrastructure investments needed to sustain long-term growth. The recommendations are: (1) facilitate a higher degree of collaboration, (2) ensure regulatory stability, (3) help to better quantify and reduce project risk, (4) develop alternative sources of funding.

1. Business and governments should collaborate to ensure that the right infrastructure investments are undertaken. Collaboration should take place at the national level and also between national governments and business, between government and government and within the private sector. This could include creating a class of public professionals who specialize in private investment in infrastructure.

- **Working groups of key government officials and business leaders should be formed to define a standard, global model for public-private partnerships** that will facilitate private investment in infrastructure projects. The PPP model should ideally: balance long-term interests of both public and private parties; make clear prioritizations of investments; simplify existing models of investment; aim to build long-term relationships; have a transparent incentive system; properly appraise and allocate risk; ensure long-term stability for both parties. In order to evaluate the relative strengths of a proposed PPP and communicate the social value of the project, the model should include comparative performance with private-only and public-only project models. The model should, in addition, allow international investors to participate in infrastructure projects. While PPP systems are likely to have domestic characteristics, an agreement between the government and private sector on the necessary features of a PPP system would ease decision-making. Regional and global collaboration should be used to ensure sustainable development of scarce resources such as water and non-renewable materials. The model can also facilitate the development of harmonized standards for infrastructure development, such as standards for project criteria and selection, standards for policy transparency, and standards for technologies.

- **Governments should also strive to develop harmonized standards for infrastructure development,** such as standards for project criteria and selection, standards for policy transparency, and standards for technologies. For example, a standardized, publicly-available and exhaustive list of infrastructure projects and publicly available criteria for selection of private partners will help private companies plan and prepare for bidding processes and help raise more funds. An agreed standardized approach to estimate the impact on infrastructure of new policies and regulations will help reduce uncertainties and perceived risks for private companies and investors. In the area of technology harmony, the guidelines put forward by the ITU (UN Agency for Information and Communication Technology) exemplify enhanced interoperability between different countries' telecommunications systems, leading to a more substantial scale of economy for investment, increased convenience for end users, and reduced environmental impact (e.g., less construction and energy consumption).

- **Governments should encourage collaboration between businesses to explore areas where infrastructure can be shared.** The benefits of collaboration within the private sectors are not only cost savings. They also include significant contributions to the environment by minimizing duplicated hardware investments and to the industry itself, by directing the investments into more and quicker upgrading efforts rather than basic coverage efforts. To some markets, this will also help to elevate the industries from infrastructure-based competition to service-based competition, creating more sustainable growth. Sharing resources will

become particularly valuable in the energy sector because backup systems for intermittent, renewable energy sources will be needed.

2. Ensure a consistent regulatory framework. The countries that have been most successful in attracting finance have established a clear and transparent investment framework and established explicit investment priorities. Without a stable and transparent regulatory framework private project participation is extremely difficult, especially for large, long-term, high-risk infrastructure investments. Governments need to create an investment environment that demonstrates clear political support, provides a proper legal and regulatory structure and secure ownership rights, is subject to the rule of law, fosters transparency, and enables reasonable risk mitigation.

- **Industry expertise should be consulted on regulatory proposals.** Governments should involve the private sector and create regular reviews of countries' regulatory stability and efficiency. In addition, by adopting a standardized framework for policy transparency governments could help speed up the process of getting input from the private sector. The framework should ideally assess the impact of the policy on infrastructure returns and risk and be developed in collaboration with private infrastructure investors and companies. Policies and regulations under development that are likely to affect infrastructure should ideally be publicly announced and private infrastructure players invited to comment.

- **Improve adherence to standards for institutions involved in infrastructure development** by creating a peer assessment mechanism, similar to that of the OECD, where member countries assess each other's economic performance and compliance. The experience from OECD is that public exposure applies positive pressure to comply.

- **Governments and companies should discuss barriers to investment,** for both domestic and foreign players. For a PPP to be successful, governments must secure equal access for them to public infrastructure projects. This includes compiling a transparent, prioritized list of infrastructure, a set of criteria by which operators are evaluated, elaborating guidelines for all major infrastructure investments and establishing a cross-border regulatory framework.

3. Help to better quantify and reduce infrastructure and natural resource project risk to fully utilize private funding and lower investment costs. As the New Capital Framework, often referred to as Basel III, will increase the costs of financing projects it is especially important to mitigate the risks involved. Business will play an important part in assisting the public sector in this work. For private investors to become involved the risk/return tradeoff for infrastructure investments should be comparable to other investments.

- **Private sector knowhow should be leveraged to take advantage of innovative project management methods and cost cutting techniques.** Private sector players often have insights into the latest project management, procurement and deployment techniques that reduce risk by reducing delays and costs.

- **Permit insurance and other financial hedging to allow investors to more effectively mitigate, allocate and share risks.** For the market for infrastructure investments to be fully efficient all modern investment vehicles and corresponding risk management processes need to be developed e.g., futures and options. Improper regulations of these instruments could hinder investment.

- **Business and governments should collaborate to identify and quantify potential (e.g., asymmetric) risks in infrastructure investments.** Governments can reduce risk by purchasing services directly from suppliers; being the first investors in a particular field of infrastructure; sharing project risk through such measures as guaranteed supplementary financing in case of cancellation; and providing tax incentives such as benefits for publicly traded infrastructure funds.

- **Create clarity on the future greenhouse gas mitigation architecture.** Energy investments are currently dampened by the uncertainty concerning future greenhouse gas mitigation. It is for governments to decide on overarching goals but governments and business should work together to establish the most effective ways to deliver these goals.

- **A new collaboration should be established to increase transparency, pricing efficiency, and public understanding of energy markets,** and in particular the oil market. The G20 should urge the International Energy Forum and the International Energy Agency to expand their efforts, foster greater collaboration among major energy-consuming and producing-countries and companies, gather and share reliable, timely and globally extended data on energy, and implement mechanisms to improve the predictability of energy availability. Moreover, the G20 should encourage the IEF and IEA to play an active role in improving energy access for developing countries and promoting domestic use of natural resources.

- **Governments and business should work together to widen the possibilities for developers to pursue alternative revenue** through such measures as developing property around assets and selling advertising.

4. Develop alternative sources of funding. Government and the private sector should cooperate to make infrastructure investments more attractive.

- **Standardized investment instruments should be established** to enable liquid secondary markets and reduce the risk and financing costs. Infrastructure investments have long maturities, and with a non-liquid secondary market, investors are locked in for the life of the investment contract.

- **Include infrastructure assets, such as roads, on national balance sheets to serve as collateral for loans to finance new investments.** For example, Sydney airport was reappraised at a higher value, enabling it to be refinanced.

- **Governments and institutional investors such as Pension funds, private equity funds, asset packagers, and clean energy funds should work together to identify and mitigate barriers to investment.** Governments should also consider making injections into infrastructure funds. The

European Union, for example, could facilitate the establishment of PPP funds by using European structural funds.

- **International development institutions and as the Asia Development Bank, International Bank for Reconstruction and Development and the European Bank for Reconstruction and Development should be strengthened to facilitate increased public and private investment in infrastructure.** Development banks should collaborate on large-scale cross-border projects and facilitate knowledge-sharing to accelerate development. New regional development banks may be more efficient than existing ones in dealing with conflicting political issues and financing projects in a specific region. Region-wide development plans should be developed to distribute funding effectively. Additionally, more governments should explore the establishment of state infrastructure banks.

- **The use of innovative financing such as 'Green Bonds' to support investment in low carbon energy technology should be expanded, and other investments which increase the sustainable use of natural resources (water, land, eco-systems, etc.) should also be encouraged.** Applying a regulated asset-based approach such as those often used by utilities may mobilize more private investment. A regulated approach reduces long-term risk transfer to the owner or operator in exchange for limiting the upside of investment return. This may be attractive to many investors though governments will have to consider the risks they themselves will then incur. The specifics of each project and the policy priorities of governments will determine whether this approach will be appropriate.

RECOMMENDATIONS FOR BUSINESSES

- To contribute experiences and best practices for agreeing upon common features for a more effective PPP system.

- To provide input to government reviews of countries' regulatory stability and efficiency.

- To provide data and analysis on how modern investment vehicles can help mitigate project risks.

- To share energy data and support and contribute to a stronger IEF-IEA dialogue between producing and consuming countries.

- To catalog and communicate alternative and innovative funding best practices.

HOW CAN COMPANIES CONTRIBUTE TO IMPROVING ENERGY EFFICIENCY

Working Group VII

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INTRODUCTION

In the past, discussions of national energy policy have been dominated by concerns over the security of energy supply. This is changing as the demand side of the equation looms ever larger. With global energy demand set to double before 2050, energy efficiency is becoming a top priority. Governments, businesses and individuals all seek to ensure security of supply, limit potentially damaging effects on the environment from greenhouse gases (GHG), and insulate themselves from the effects of rising and volatile energy prices. Improving energy efficiency is the cheapest, fastest, and best way to address these urgent challenges.

Under the IEA reference scenario,[1] global energy demand is forecast to increase by ca. 40% between 2007 and 2030 as a rising world population seeks better living standards. This reference scenario assumes no significant legislative changes beyond what is already planned and that growth in energy demand in developing countries will follow the earlier path of the developed economies.

In theory, there are sufficient sources of energy available to meet this demand, but they are overwhelmingly carbon energy sources, specifically coal, oil and gas. Renewable energy sources (e.g., hydro, solar, wind) may be growing faster, but they do so from a very low base. The status quo, therefore, would result in a substantial increase in GHG.

In order for GHG emissions to be held to today's levels, energy demand has to grow at less than half the currently expected rate, and for that to happen, we need a major transformation in the mix of energy sources.[2] Achieving this would require coordinated actions from the top GHG emitters, as well as significant investment in green power generation and in energy efficiency to reduce energy usage in developed economies.

Improving energy efficiency is a major lever to reduce energy-related GHG emissions. While the opportunity is large, it is fragmented across many sectors of society and may require significant investments. Although companies have a financial incentive to act, they also need a global and comprehensive strategy for energy efficiency, one that takes the whole energy life cycle into account. Potential gains have to be assessed along the entire value chain, reflecting geographic disparities in demand and production processes.

Beyond improving energy efficiency on their own balance sheets, businesses also have an important role to play in reducing the energy consumption of society overall. This happens when steel companies develop lighter alloys and oil companies strive for more efficient fuels; it happens when the power sector embraces smart grids and electrical engineering firms trim waste in manufacturing or in server banks; it happens when information and communications technology companies design and deploy new applications to help users reduce emissions; it happens when energy-efficient design and technology are brought to bear in building design and management. But all of these activities take place in a context where the role of government policy is central.

1 Source: IEA "World Energy Outlook 2009"
2 For reference, IEA 450ppm scenario

Thought leaders in business and government will need to show how irresponsible it is to continue on a business as usual path, since we already have key enabling technologies at hand to improve energy efficiency and reduce carbon emissions.

THE CHALLENGE OF ENERGY EFFICIENCY

The IEA reference scenario offers a sobering picture of the need for change. It suggests that global energy demand will increase by ca. 40% between 2007 and 2030. The chief driver of this increased demand is a growing global population improving its living standards through urbanization and industrialization. World population is forecast to increase from 6.5 billion to 8.2 billion in that period, with 95% of the growth coming from non-OECD countries.

When people move up the Human Development Index (HDI), their demand for primary energy increases. Urbanization drives construction, transportation of people, goods and services, and automobile and appliance ownership. The share of the world's energy consumed in cities will grow from two-thirds to almost three-quarters by 2030. Industrialization itself is also energy intensive as raw materials are extracted, refined and transformed, usually through electricity.

These immense changes are daunting, but they also represent an opportunity. In India, for instance, 60–80% of the commercial and residential floor space that will be there in 2030 is yet to be built. The country will need the equivalent of one new 600 MW power plant every week for the next 20 years. If countries like China and India meet such needs by following the western model for development, the increase in GHG will likely be precipitous. For that reason, it is important that the world work together to meet this new demand more efficiently. India can't afford to have glass skyscrapers that consume 250 kWh/m2; neither can the rest of us. And no one can continue building data centers that consume twice as much energy as they put out in computing power.

Developing countries now drive growth in primary energy consumption. China, India, the Rest of Asia and the Middle East are forecast to double their energy consumption by 2030. Just five sectors within China—residential, commercial, steel, petrochemicals, and light vehicles—will account for more than one quarter of global energy-demand growth in the next 20 years. Other sectors predicted to make a large contribution to such demand growth include India's light vehicles, residential and steel sectors, as well as light vehicles and petrochemicals in the Middle East. Yet it is important to remember that developed economies, despite their low growth, will continue to consume the most energy per capita, meaning that higher efficiencies there are vital, too.

This massive increase in demand can be met, but only with overwhelmingly carbon-based energy sources, specifically coal, oil and gas. Renewable energy sources such as hydro, solar PV, solar thermal, and wind power, are generally growing at a faster clip than fossil fuel sources, but they do so from an extremely low base that can grow only through substantial investment and deliberate government policy. The problem, therefore, is that meeting new demands for energy the way we meet current ones would result in a substantial increase in GHGs.

Following the work of the Intergovernmental Panel on Climate Change (IPCC), a growing consensus has arisen around the need to stabilize CO_2 levels at around

TO EACH INDUSTRY, ITS OWN ENERGY EFFICIENCY

The first step in improving energy efficiency is knowing where to look. One major steel manufacturer found that just seven energy-intensive processes account for 80% of its energy costs. By focusing efforts there, the company can cut its overall energy consumption by 15%. Some measures are relatively inexpensive, while others—such as major gas recovery systems also widely used by Japanese and Korean mills—require significant investment.

For the oil and gas industry, an especially high-yield target is flaring, or burning off gases associated with crude oil production, a practice one major oil company found was responsible for almost a third of its overall greenhouse gas emissions. Through major investments in facilities throughout the world, such emissions can be halved by 2014. Internal competition can also be an effective way for a company to maximize energy savings. One oil company used a multi-year benchmarking process at its eight refineries to reduce energy consumption by 27% in the last seven years, to levels well below industry averages. Last year, another set up among eight facilities its own internal cap-and-trade system, which trades emissions online in monthly sessions, promotes employee awareness of GHG reductions and awards incentive bonuses to the best performers.

450-550ppm in order to limit the damaging effects of GHG on the environment. The IEA, in turn, has created a scenario that highlights the challenges of doing so. In order to hold CO_2 levels to 450ppm,[3] energy demand must grow at less than half the currently expected rate, and we would need to effect a major transformation in the mix of energy sources consumed.

Achieving this would require coordinated actions from the top GHG emitters, and significant investment in energy efficiency to reduce usage in developed economies, and in green power generation. Indeed, any reduction in demand can bring about a threefold reduction in production, once network losses are taken into account.

In the absence of a GHG concern, businesses would simply look at energy efficiency as a matter for their own balance sheets and act accordingly. But in light of the climate challenge, energy efficiency is now regarded as a key way for reconciling the requirements of business (i.e., profitability) with environmental targets (i.e., GHG emissions reductions). Energy-reduction processes and technologies are now widely available to help industry, especially energy-intensive companies, better manage their energy usage and therefore improve their energy efficiency. In some heavy industry sectors, progress has been such that optimally performing operations are nearing the thermodynamic limits of current technology.

As a result, energy efficiency is becoming a key competitive lever for companies. Thanks to many success stories, there is now broad recognition that significant savings can be achieved through energy efficiency. The scope of action ranges

3 According to the U.S. National Oceanographic and Atmospheric Administration, CO_2 concentrations were 388ppm in August 2010 as measured at the Mauna Loa Observatory in Hawaii.

from switching to energy-efficient lighting and efficient home appliances to major retooling of plants and their operations.

However, businesses and individuals face a number of constraints and obstacles that complicate decisions that would otherwise promote energy efficiency:

- Today's increasingly volatile economic performance makes any investment evaluation more complex and increases the risks associated with capital-intensive and long-life investments. To minimize risks, many companies are limiting investments to those with shorter payback opportunities instead of considering energy efficiency improvements, which often require large, up-front investments in exchange for savings that accrue over the longer term.
- Differing regulatory environments and standards can create competitive distortions, which may result in less efficient use of energy. Legislative uncertainties also impact demand characteristics (e.g., growth of electric vehicles), energy pricing and price volatility, and energy supply (e.g., infrastructure and type of energy).
- Technological breakthroughs for improving energy efficiency often come only as the result of substantial investment over long periods of time. Such commitments can be difficult to sustain amid shifting regulations and volatile pricing. Uncertainty in technology can have the knock-on effect of delaying the adoption of energy-efficient solutions.
- New technologies can create supply constraints for both components/equipment and talent.
- Efficient information systems and expertise are now widely available through published benchmarks, consultants, investors, governmental programs, and suppliers. But these resources are not always available internally, and smaller companies may have difficulties accessing this knowledge externally.

Moving towards a less energy-intensive business environment will require significant changes at all steps along the value chain. In addition to their own energy efficiency improvements, businesses play an important positive role through innovation to develop more energy-efficient products. Examples include high-strength-to-weight materials that reduce the weight of transportation vehicles, more aerodynamically efficient designs, and technologies and components that enable smarter grids and energy-efficient buildings.

Energy efficiency is one lever within the control of businesses, but energy demand patterns depend also upon the behavior of other stakeholders, especially governments and individuals in society.

RECOMMENDATIONS

The solution space for companies to improve energy efficiency should reflect what can be done over differing time horizons. There are some "no regret" actions companies can take, but others require the active involvement of governments or other stakeholders. Not all companies start from the same position, and the challenges differ across the world.

Short-Term, "No Regret" Actions for the Private Sector

Benchmarking within and across several sectors indicates that most companies can still make significant improvements to their energy efficiency with relatively small investments. But they have to incorporate energy efficiency into their existing approaches to lean operations and cost-cutting, as well as into their investments for growth and for corporate social responsibility. As with any operational improvement program, companies will need to do the following:

- **Provide leadership from the top.** Energy efficiency, like all other forms of cost reduction, must be seen as something to which management attaches consequential importance.
- **Invest in necessary knowledge.** Just as with other technical requirements, companies have to build an understanding of energy usage, waste and improvement options within the company's sphere of operations.
- **Extend awareness.** Efforts to make buildings more energy-efficient, along with the best practices of traditional energy-intensive sectors with a few large sites (such as steelmaking, oil and gas, pulp and paper, glass, and chemicals), could be broadly pursued with great impact in other sectors that require significant energy usage over smaller sites, such as data centers, food and beverages, retail, and water distribution networks.
- **Establish the right metrics.** Only what gets measured gets acted upon. By obtaining relevant, accurate and timely information about consumption levels and cost allocation, energy metering enables better problem-solving. Improved metrics can help identify short-term productivity gains that prepare the ground for medium-term actions, both at corporate and public policy levels.
- **Harness progress in information and communications technology to maximize energy savings.** The ICT sector accounts for only some 2% of the world's carbon emissions, but enhanced access to and use of broadband networks in other sectors, coupled with real-time control of energy loads through use of energy management software, can indirectly reduce carbon emissions through smarter controls and more efficient power use. One recent study[4] calculated that ICT solutions can cut GHG emissions by as much as 15% by 2020 and save up to $750 billion. Other studies[5] show potential savings of up to 30% in buildings alone.
- **Promote energy efficiency not just internally, but in society as a whole.** Energy efficiency is good for more than just the bottom line. Making it a guiding principle for product development, too—for instance by developing stronger, lighter alloys and both more efficient fuels and more fuel-efficient vehicles—helps give business a positive role in the global discussion on building a more sustainable world.

4 SMART 2020: Enabling the Low Carbon Economy in the Information Age, Report by GeSI and Climate Group, 2008.
5 WBCSD (World Business Council for Sustainable Development), Report on Energy Efficiency in Buildings, June 2009.

ENABLING ENERGY EFFICIENCY FOR OTHERS

By bringing innovative energy-efficient designs and technologies to bear, energy management companies can help companies and individuals locate major energy efficiencies by setting up precise energy metering regimes and control systems that optimize consumption of heating, lighting, and other energy, and that tailor demand to varying electricity tariffs. Such finely tuned controls can improve the power efficiency of buildings, where as much as 40% of energy is consumed, by 30% or more, and are delivering similar yields in industrial applications. Industrial firms can also enable energy savings by, for instance, developing lighter alloys and more energy-efficient fuels and lubricants.

The ICT industry currently accounts for only about 2% of global carbon emissions, but the sector is exploding as millions of new users adopt smart phones and other communications devices. GreenTouch™, a global research consortium, including industry, academia and government laboratories, aims to make communications networks 1,000 times more energy efficient than they are today—in effect, running a future communications network for three years on the same amount of power it currently consumes in a single day. By reinventing the network as we know it, GreenTouch™ will deliver radical approaches to energy efficiency, laying the groundwork for tomorrow's sustainable networks and opening new areas of enterprise in the process. (www.greentouch.org).

Where the G20 Governments Come in: Longer-Term Recommendations

In the longer term, companies face the challenge of larger capital investment to upgrade to the best available technology, and then to push beyond that towards radical or breakthrough technologies. Such medium- and longer-term investment can happen only if governments encourage it through policies like the following:

- **Establish clear, consistent standards.** Mechanisms that better measure energy opportunities can ease knowledge transfer and give small and medium enterprises access to information they can act on. Governments should also support schemes aimed at improving data availability and reliability. This may be extended to support for benchmarking efforts and technological cooperation mechanisms. Enforcing clear standards also tends to reduce conflicts between different stakeholders, such as the short-term cost interests of building developers versus the long-term operating-cost interests of tenants.

- **Develop long-term energy policies.** To reduce uncertainty in long-term investment, governments need to be mindful of how their legislative actions can radically shift demand, change energy supply requirements, and alter pricing mechanisms. They should consider, for instance, regulations that promote "negawatts"—energy saved through efficiency measures—as a generating resource. A clearly laid-out policy path helps narrow the decision-making space for companies and gives them more confidence to pursue bold investments.

- **Provide new financing solutions.** Companies need help overcoming the funding barrier for high investment and/or long payback actions. These may include performance contracting or low-interest loans to enable upfront funding or tax regimes that support energy investment. Developing countries like India, for instance, offer major opportunities for carbon abatement, but only 10% of them can be seized, largely for lack of capital expenditure. A clear policy challenge is to avoid establishing market distorting mechanisms between sectors, companies or countries.

- **Support education, energy services and R&D.** Society needs to build new skills in order to develop and adopt new technologies. One approach would be to launch a publicly supported and funded body to finance a portfolio of technology development initiatives. Not all such initiatives will yield results, but only a broad approach will foster breakthrough technologies. Governments should also encourage and support businesses that provide expertise and services aimed at improving energy efficiency for third parties.

Global Policies

While individual companies can strive to improve their energy efficiency, and governments can pursue policies that foster such improvements, the energy challenges posed by the GHG problem call for **cross-border collaboration and global frameworks**.

In particular, a global framework like the G20 is crucial to coordinate national legislative approaches in a way that overcomes "free rider" problems. The ambiguous outcome of the Copenhagen summit on climate change demonstrated how hard it is to meet the needs of a range of stakeholders across different economies in one grand bargain, but international efforts to address this issue must continue.

Indeed, to tackle today's sustainability challenges, we need to think about new frameworks for leadership from corporations, governments, academia and civil society. One of the main conclusions coming out of Copenhagen, and more recently from the World Economic Forum's Global Redesign Initiative Report,[6] is that key non-public global stakeholders, including the private sector and civil society, need to provide much more initiative and leadership. Governments can then respond by putting in place the appropriate enabling policy framework. The private sector shouldn't wait for government, but rather should provide important momentum for this process by leading iconic projects or joining into major consortia. This must be done in close coordination with existing leadership structures.

Only through global agreements can fair and transparent standards be set for market-based trading mechanisms, which would encourage an economical allocation of resources.

6 Ashok Khosla and Caio Koch-Weser, "Everybody's Business: Strengthening International Cooperation in a More Interdependent World- Ensuring Sustainability", World Economic Forum (WEF)'s Report of the Global Redesign Initiative, May 2010, pg. 8-9. http://www.weforum.org/en/events/ArchivedEvents/GlobalRedesignSummit2010/GlobalRedesignInitiativeReport/index.htm

CONCLUSION

Many quick wins of energy efficiency are available today, but they are not enough to address the massive challenge at hand. What's needed is a broad but flexible road map that helps narrow the multiplicity of uncertainties faced in regulation, in technology, in energy sources and consumer demand. Public authorities have a clear role to play in coordinating and establishing targets that meet the future needs of society. However, they need to do so in conjunction with the various stakeholders, while carefully evaluating the economic implications and drivers. To work, the road map should consider the second- and third-order effects of policies so they do not lead to unintended distortions. Only by focusing on coherency and consistency can we avoid the kind of policy overload that erects obstacles to change instead of fostering it.

Companies have to embrace energy efficiency with courage, clarity and a sense of urgency. But the long-term investment needed to address a challenge of this magnitude is today beyond the funding ability of companies alone. This funding question has to be resolved if the world is to make the step-change required to limit growth in energy consumption and keep greenhouse gases in check.

ENCOURAGING SUBSTANTIAL USE OF RENEWABLE AND LOW-CARBON ENERGY

Working Group VIII

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INTRODUCTION

ECONOMIC GROWTH, ENERGY SECURITY AND CLIMATE CHANGE

We are persuaded that concerted global efforts to develop and deploy renewable and low-carbon technologies are imperative to addressing concerns about economic growth, energy security and climate change. A momentous change is needed, fostered by governments and private sectors in a spirit of partnership.

Concerns over energy security are deepening largely because of rising energy demand resulting from economic growth and our continued heavy dependence on fossil fuels. Coal, natural gas and oil still generate more than two thirds of the world's power. Further undermining energy security is the fact that fossil fuel prices are volatile—and trending upwards in the long term—because of increasing energy demand, higher extraction costs, inadequate investment conditions, and geopolitical tensions.

The salient point of the Copenhagen Accord, agreed at the 15th Conference of the Parties to the UN Framework Convention on Climate Change and reaffirmed in the G20 Toronto Summit Declaration, is to limit global temperature increase to no more than 2°C above pre-industrial levels. In order to achieve that target, it is necessary to reduce global CO_2 emissions by 50 percent from their 1990 level by 2050. However, the current global energy mix runs directly counter to this ambitious emissions reduction target.

The combination of eroding energy security, disruptive climate change and slowdown in economic growth presents a compelling opportunity for the renewable and low-carbon energy industries to become new engines of sustainable growth.

All Technologies Making a Full Contribution

We need to fully utilize and develop all technologies in the low-carbon portfolio if we are to deal effectively with the intertwined challenges of economic growth, energy security and climate change. The portfolio consists of renewables, nuclear power, improved efficiency and fuel-switching, more efficient end-use of fuel and electricity, carbon capture and storage, smart grids and electric vehicles.

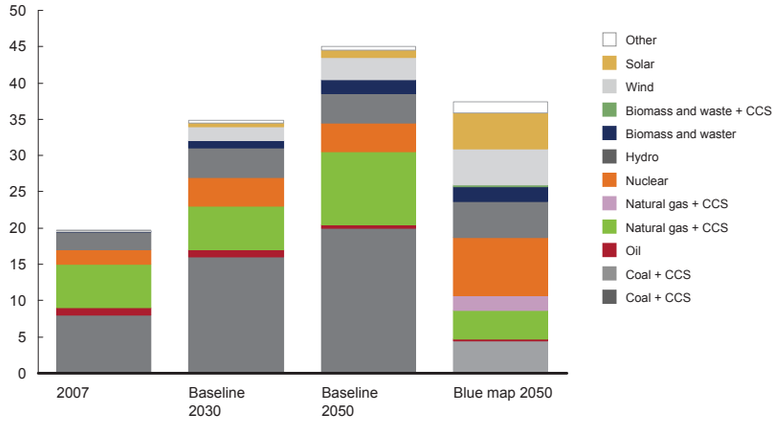
The key steps are:

- **Promote renewable energy and energy efficiency as long-term energy solutions.** The International Energy Agency's Energy Technology Perspective 2010 emphasizes that under the Blue Map Scenario, renewables need to account for almost half of total global electricity production in order to tackle energy insecurity and climate change. Accordingly, it is of special importance to encourage the substantial use of renewables. Yet in the near and medium term, efforts to increase energy efficiency are expected to contribute more towards reducing greenhouse gas emissions than any other energy option.

- **Enhance renewable and low-carbon technologies through the use of baseload nuclear, gas and coal with CCS.** Considering that most renewable energy sources are intermittent due to weather conditions, base load low-carbon energy sources will remain irreplaceable. In that respect, nuclear

energy can be considered an important one of those sources. The IEA's Blue Map scenario shows nuclear energy accounting for 24 percent of the global power generation in 2050. High efficiency natural gas power generation will also be relevant as a transitional technology, and given that coal will continue to be used in many countries, it is critical to develop technologies to make carbon capture and storage (CCS) more commercially viable.

Exhibit 1. Global electricity production by energy source and by IEA's scenario



SOURCE: IEA, Energy Technology Perspectives 2010

- **Focus on enabling technologies, including smart and interconnected grids and electric vehicles, as a means of transitioning to low-carbon energy.**

  Smart grids represent an important enabling factor for the transition to a low-carbon society. Grid enhancement and interconnections are required to integrate renewable energy, to manage multi-directional flows of electricity, and to give consumers an active role in energy efficiency. In addition to reducing transport emissions, electric vehicles connected to smart grids will increase storage capacity associated with intermittent renewable generation. To promote the introduction of new vehicles, particularly electric and plug-in hybrids, it is necessary to improve vehicle technology, lower the cost and extend the range. It will also be necessary to design recharging systems and business models that support them.

- **Two Challenges—Economic Viability and International Collaboration**

  1. **Technology development for renewable and low-carbon energy sector is at its early stage and most renewable energy sources have not achieved cost-competitiveness against fossil fuels.**

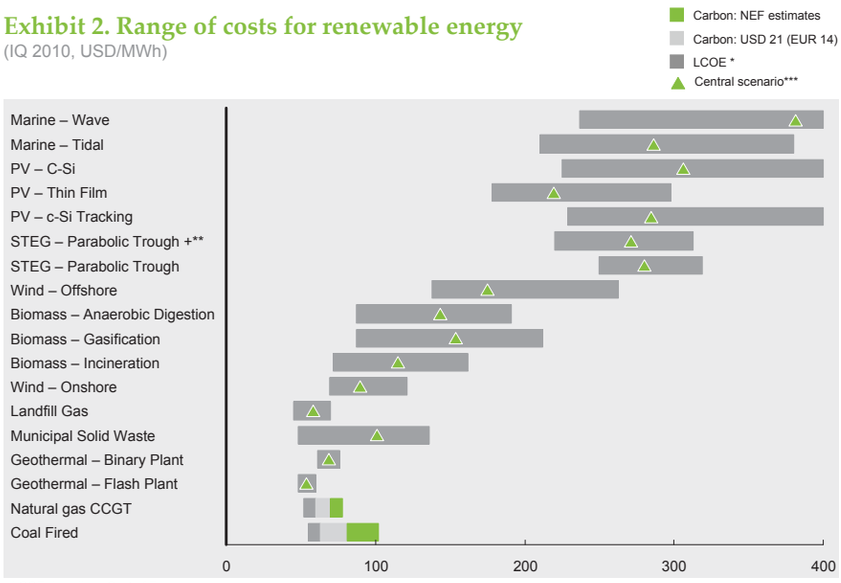
     The renewable energy industry has been growing rapidly. Some sources have reached or are on the brink of grid parity. However, many technologies still rely on governments' direct or indirect support.

Significant economic and technical hurdles remain for these technologies to achieve sustainable growth. For example:

- Solar PV faces a limit in the high price of polysilicon as a base material for the crystalline silicon PV cell, still the most prevalent technology. Costs are relatively lower for newly developed thin-film PV cell technologies, but they are still less efficient than the standard crystalline silicon PV cell.
- Grain-based production of biofuels can drive up the cost of alimentary crops such as corn. A new generation of biofuels needs to be developed from non-food feedstocks to ensure sustainability. Internationally recognised procedures and standards for certifying sustainability need to be developed.
- Carbon capture and storage (CCS), another example of low-carbon technology, remains expensive and requires integrated development along the entire chain of capture, transport and storage. CCS is likely to be an important technology in the future, given that energy cost and security concerns will encourage many countries to continue using coal as a fuel source.

Therefore, most renewable and low carbon energy sources still cannot compete on price with existing fossil fuels. The recent range of costs for renewable energy, compared to coal and gas, is shown in the table below. There is a wide spread of costs for most technologies, depending on their level of market readiness and the particular project applications.

Exhibit 2. Range of costs for renewable energy
(IQ 2010, USD/MWh)



* LCOE: Levelized Cost of Energy
** STEG-Parabolic Trough + : STEG-Parabolic Trough and Storage
*** The Central Scenario is based on a 10% equity IRR (Internal Rate of Return) as a hurdle rate for all technologies
SOURCE: Bloomberg New Energy Finance

2. **Global cooperation to expand the role of renewable and low-carbon energy has been insufficient.**

   Without the support of government policies, it is difficult to promote technological development in renewable and low-carbon energy and to cut production costs. It is often difficult for an individual country to take on large-scale R&D projects with the associated high costs and steep demands in technology and human resources. Global cooperation needs to be intensified along three dimensions:

   - **Joint efforts to develop technologies through shared research and initiatives such as technology centers.** Numerous bilateral arrangements exist, and the UNFCCC is discussing the establishment of technology centers globally. Better global and regional coordination would establish a more efficient framework for setting up and executing research and deploying the resulting technologies.

   - **Intensify regional cooperation to balance supply and demand issues, particularly in electricity production.** For example, the Desertec project in North Africa, and cooperation among Mekong countries in hydroelectric power initiatives. Regionally interconnected grids, such as Critical Infrastructure Partnership Advisory Council (CIPAC) in North America, will be important in balancing supply and demand equations.

   - **Support deployment of clean technologies in developing countries.** Developing countries still have significant energy demands to support domestic growth, and they often lack suitable technologies for renewable and low-carbon energy to cover that demand and create long-term self sufficiency. Developed countries must help them to bridge this gap.

RECOMMENDATIONS

Conscious of the role and responsibility of the private sector in the development and deployment of renewable and low-carbon technologies, we recommend that the G20 heads of government take the following three actions.

1. Pursue Market-Based Carbon Pricing.

There are two effective means of closing the cost gap between energy produced from fossil fuels and energy produced from renewable and low-carbon sources:

- **Phase out fossil fuel subsidies.** G20 leaders have already committed to phase out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption. We believe that these subsidies should be phased out as soon as possible in order to add to the efficiency and security of energy supply.

- **Set a price for carbon emissions.** The IEA's Blue Map scenario predicts that an extra $45 trillion of investment will be needed from now to 2050 if the 450ppm (2°C) scenario cited in the Copenhagen Accord is to be

achieved. Business has always been the largest investor in clean energy. Of the estimated $142 billion invested globally in clean energy in 2008, only around $8.2 billion came from government R&D funding. The bulk came from private sector sources such as venture capital, corporate R&D, asset finance, and public markets. Participation from the private sector is vital, and business prefers to invest through market-based systems.

— *The most cost-effective pricing mechanism is an emissions trading system based on cap-and-trade.*

In this model, a cap is placed on the emissions that an economy or sector can produce, and businesses are able to trade amongst themselves in order to achieve the necessary cuts at the lowest cost. This form of market-based solution is familiar to business worldwide, and will leverage the largest effort and capital from the private sector. To achieve a globally consistent carbon pricing model, existing carbon markets can be extended by enhancing carbon crediting mechanisms and trade between regional markets.

— *Carbon taxes may be an alternative in some countries or sectors.*

Although taxes are not as effective in allowing industry to make rapid resource allocation decisions and in providing a good basis for long term price projection, they can be easier to administer and sometimes more politically acceptable. If a taxation approach is adopted, the revenue raised needs to be dedicated to investment in development and deployment of renewable and low carbon technologies in order to replicate the investment that would flow under a market-based system. Where feasible, revenue raised from a particular sector should be recycled into the same sector.

Governments need to send consistent policy signals about how far and how fast they want to move towards a low carbon economy. G20 countries should take the lead in pricing carbon emissions within the context of their own national circumstances.

2. Mandate Regular Meetings of Energy-Related Ministers.

International cooperation is needed to accelerate the global uptake of renewable and low-carbon technologies. The G20 can encourage concrete consensus by mandating regular meetings of energy-related ministers, taking into account the UNFCCC and Kyoto Protocol negotiations on limiting global climate change. Energy ministers should keep government leaders advised on the promotion of using renewable and low-carbon energy, progress in research and development, and international regulatory issues relating to renewable and low-carbon technologies.

- **G20 countries should develop aspirational targets for the deployment of renewable and low-carbon technologies.** As a prerequisite to policy coordination, each country needs to set its own targets for renewable energy usage and expanding low-carbon technologies. Each country should also present systematic and consistent policy details for reaching those targets.

- **Establish roadmaps and action plans for the development and deployment of renewable and low-carbon technologies.** Regular meetings of energy-related ministers should aim to develop technology roadmaps that elaborate policy support for renewable and low-carbon energy sources. Consistent and clear enforcement of the policies laid out by such roadmaps would help companies not only to decide when, where and how much to invest, but also to mobilize private capital.

- **Address regulatory barriers to the widespread deployment of renewable and low carbon technologies.** Energy-related ministers should also discuss regulatory issues, including:

  — *International standards for renewable and low-carbon technologies*

  International standards make it possible to develop regional policy decisions, reduce companies' investment risks and expand market scale.

  — *Tariff and trade barriers*

  Tariff and trade barriers hamper the expansion of the global market in renewable and low-carbon energy, and should be reduced.

  — *Protection of intellectual property rights*

  Protection of intellectual property rights is key to ensuring that innovation is fairly rewarded.

3. Strengthen International Public-Private Partnerships (PPP).

Support for research and development needs to be organized among government institutes and private sector companies, and funding needs to be provided to accelerate progress along the learning curve of the most promising technologies. Coordinated action on a global or regional level will assist businesses to invest, as it mitigates the risk of first-mover disadvantage. In return, business can focus its expertise on public-private partnerships to speed renewable and low-carbon technologies from demonstration to commercial deployment.

G20 governments should encourage PPP to help develop appropriate energy sources for developing countries and underserved populations. Partnerships should cross international boundaries, and be aimed at helping to deploy renewable and low-carbon technologies in emerging and developing economies as well as in developed countries. Such partnerships are vital to the massive task of providing universally accessible energy. Around 1.5 billion people—over one-fifth of the world's population—still have no access to electricity, and at the current rate this number will have fallen by a mere 200 million people by 2030, and will even increase in Africa. Some 2.5 billion people don't use modern fuels for cooking, which gives rise to major health and environmental problems. And this number will soar to 2.7 billion by 2030. Bringing modern energies to the world's poor has to be a priority. The wide deployment of renewable and low-carbon technologies through international public-private partnerships can be an effective way to provide modern energy to many developing communities. Helping the energy poor has been actively promoted by the United Nations Global Compact.

Some specifics:

- **Ensure that public funding is made available and complements private sector investment in an efficient manner.**
  - — Governments should honor their commitments in the Copenhagen Accord to fast-start and long-term financing.
  - — It is important that financing be made available as soon as possible to begin the task of deployment of clean technologies to developing countries. COP 16 should put in place the necessary funding and administrative arrangements for this to happen.
- **There must be a place for the private sector in financing arrangements.** It is important that these arrangements be investor friendly, in order to encourage the private sector to participate. Public money can leverage much more private sector investment if it is appropriately administered.
- **Existing international financial institutions should play a major role in administering existing and new funds for technology development and deployment.** Multilateral development banks are best placed to deal with the private sector and leverage more investment to complement public funding.
- **Improvement and expansion of carbon crediting mechanisms can unlock further private sector investment in clean energy projects.** Governments should foster the use of crediting mechanisms to mobilize private capital for emission reduction projects in developing countries, while streamlining them and making them more efficient and investor-friendly. Crediting mechanisms have significant potential to promote technology transfers, finance sustainable development, optimize overall costs of reducing emissions and link different carbon trading systems.

CONCLUSION

Only through coordinated and concerted effort on a global level can we foster a meaningful expansion in the use of renewable and low-carbon energy. The G20 leaders are singularly well placed to lead the world, firmly and step by step, toward achieving this key point on the global agenda. It will take considerable effort to reach a consensus among the G20 countries on issues where national political interests diverge. The first step, then, is for each member country to be as transparent as possible in articulating and implementing new energy policies on a national level with an eye to how they can best mesh into a global consensus. It will be only through a combination of individual, corporate, national and international efforts that we can move towards a greater use of renewable and low-carbon energy sources and technologies, and thus towards a sustainable society.

CREATING GREEN JOBS

Working Group IX

Convener

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SUMMARY FOR ALL SECTORS*

If G20 leaders are serious about generating green growth and the jobs that go with it—as well as ensuring their countries' energy security and conserving the environment—they need to adopt, with urgency, a broad set of new policies and measures. Simply stated, policymakers must strike a new balance between incentives and disincentives for investment that indisputably favors green growth, and foster the market conditions to enable industry to do what it does best: forge innovative, efficient, and profitable solutions that yield durable employment for the future. And as a global deal on climate change looks as distant as ever, the G20 should step up and provide the strong leadership needed to create a more resource-efficient world.

The upside is enormous. Countries that have been fastest to embrace the green economy have already created millions of green jobs and new economic growth engines that are not dependent on fossil fuels or scarce natural resources. In China, investments in renewable power have generated employment for more than one million people, and the industry continues to grow at a rapid pace. In California, which enacted innovative policies in the 1970s to spur energy efficiency in the building sector, some 1.5 million jobs have been created and $1.6 billion worth of energy saved every year that continues to boost other parts of the economy. Germany has pursued consistent, long-term policies to promote renewable energy, the result of which is more than 340,000 people being employed in that sector, the largest in Europe.

Even though we are facing a global economic slowdown and financial crisis, policy makers should continue—and where possible, expand—the policies that have created these types of results. Maintaining a long-term, stable policy framework is essential for industry to make the necessary investments and create urgently needed green economy employment. Furthermore, to help finance the power sector's progressive evolution towards a decarbonized economy at a realistic pace while making use of the full clean energy mix, we encourage states to cooperate with multi-lateral institutions to mobilize financial packages that promote clean energy and contribute to the rapid scaling up of innovative start-ups within that domain.

KEY RECOMMENDATIONS

Economy-wide

We urge G20 leaders to adopt four economy-wide policy interventions and a number of sector-specific measures that are fundamental to achieving green growth and job creation.

- **Set a robust price on carbon.** Carbon pricing is the foundation on which a truly successful green economic and job creation revolution must be built. Consumers and industry at large will respond rationally and efficiently to the carbon price signal, but to motivate investment on the scale needed, the carbon price must be transparent, long-lived, and certain (TLC). Emissions

* *This document has been compiled by multiple working group members and collaborators, and does not necessarily represent in every aspect their individual views or those of the companies they represent.*

trading systems such as the EU-ETS are not currently delivering these objectives. New measures are needed to provide more certainty (e.g., a floor price) and longer horizons (e.g., carbon price contracts for targeting key long-term investments such as renewables). In some regions, a carbon tax could be considered. Even without a global climate deal or a global carbon market, much can be done on a national and regional level in G20 countries. Over time, as carbon prices stabilize and converge, carbon markets can further integrate to create even greater market certainty and efficiency.

- **Dramatically scale up research and development.** R&D spending needs to be increased by a factor of four in order to get anywhere near the optimal level. This will create highly skilled jobs directly as well as generate positive ripple effects in other parts of the economy through faster uptake of more advanced technologies, leading to lower costs and increased efficiency. A range of delivery approaches will be needed, including public subsidies, grants, partnerships, and co-investments. And we need market-based technology transfer agreements to maximize the impact of this spending, particularly in the developing world.

- **End fossil fuel subsidies.** The G20 leaders have already committed to phasing out over the "medium term" some of the US $557 billion spent annually (2008) on fossil fuel subsidies. While this is an important start, we believe faster and broader action is required in light of the clear economic and environmental benefits. We urge G20 leaders to end all such subsidies within the shortest possible time frame, and not more than five years. Equity issues need to be addressed, but a number of countries have already proven it is possible to protect the poor without simultaneously encouraging over-consumption of fossil fuels.

- **Allow free trade in environmental goods and services.** Existing tariff and non-tariff trade barriers restrict free trade in green goods and services and thereby increase prices, reduce competition, discourage innovation, and inhibit green job growth. Eliminating tariff and non-tariff trade barriers on environmental goods and services will accelerate diffusion of green technologies, increase economies of scale, lower prices, encourage competition and innovation, and result in faster job creation. Therefore we urge G20 leaders to create a safe haven for the free trade of environmental goods and services by urgently agreeing first to eliminate such trade barriers among the G20 countries, and then using the power of that leadership example to expand such a free trade safe haven to an ever-greater number of countries.

Buildings Sector

- **Promote energy efficiency in the buildings sector** through a) high energy-efficiency standards for home appliances, new builds, and existing buildings (retrofitting); b) policies to align incentives, so that when landlords install energy efficiency measures, for example, they rather than tenants reap the savings; and c) information for prospective homebuyers and tenants about building energy performance, and for homeowners on how they can improve it.

- **Create publicly funded incentives for green investments**, potentially from carbon revenues or energy-climate fiscal policy (taxes or tradable certificates) elsewhere in the economy. These include tax breaks and subsidies for "one-off" investments such as insulation retrofits and heating upgrades. Government has a readily accessible opportunity to lead the way by retrofitting their own buildings and offices, and requiring them to be powered by green energy sources.

Power Sector

- **Implement policies to accelerate the uptake of renewable and other clean energy technologies.** Whether ambitious renewable energy targets, portfolio standards, feed-in tariffs, tax-based incentives, or other measures that have proven effective, policies should be designed to spur the development and installation of ever more efficient clean energy sources (for example, by gradually reducing tariffs or other incentives year-on-year to spur technological development and reduce costs) and allow consumers to pro-actively choose clean energy options.

- **Streamline and expedite administrative processes** like planning and permitting to more quickly secure the employment benefits of green investments.

- **Expand and upgrade grids** so that green energy is guaranteed priority access to well-developed, robust, and sufficiently built-out electric grid transmission networks.

Industrial Sector

- **Devise targeted incentives for energy efficiency** in manufacturing equipment and processes to reduce costs and thus increase competitiveness, growth, and employment.

- **Broker sectoral agreements for energy- and carbon-intensive industries** such as steel, aluminum and cement to prevent carbon 'leakage'—that is, businesses relocating to less regulated countries.

- **Enhance market-based technology transfer**, particularly between the developed and developing world. New mechanisms such as technology centers of excellence could also encourage mutually beneficial improvements in training and skills transfer, coupled with other forms of capacity-building.

Transport Sector

- **Introduce fuel efficiency standards that ratchet up over time.** These have substantial near-term potential to reduce the energy consumption of conventional vehicles by up to 25% through highly efficient combustion engines, innovative powertrains, light-weighting and other measures.

- **Support new technologies such as electric vehicles,** both on the supply side (e.g., R&D subsidies, infrastructure) and the consumer side (e.g., tax breaks to electric vehicle owners, congestion charging exemption). Smart grids greatly enable an electrified transport fleet by allowing charging to

take place at optimal times. Smart grids also create tremendous synergy with renewable power by providing distributed energy storage.

- **Invest in energy-efficient public transport.** This creates local jobs, reduces congestion, improves local air quality, and lowers energy consumption.

These policies are essential to accelerate the transition towards sustainable, resource-efficient growth. Each G20 government should establish its own national plan to reach firm 2020 targets for its priority sectors incorporating policies such as those described above, and should evaluate progress toward those goals every two to three years.

The G20 leaders should commit in Seoul to this goal-setting and evaluating approach, which should then be formally agreed upon at the next G20 Summit in France. At that Summit, leaders should seize the opportunity to discuss best practices and share experiences regarding the measures they have undertaken. By demonstrating such leadership, G20 countries can set the pace in the global race to create jobs and foster a truly resource-efficient way of living.

If the G20 leads, the rest of the world will follow.

GREEN JOBS

With economic growth expected to double global output every 20–25 years and many natural resources already straining under existing demands, it is clear that action is needed to shift to a more sustainable model of growth. The atmosphere's ability to store our carbon dioxide pollution is already overstretched, and only made worse by rampant deforestation as pressure on land use intensifies. Demand for water is rapidly outstripping supply, and groundwater is being depleted at alarming rates. Biodiversity is in rapid decline.

But the argument for action is not just environmental. Left unaddressed, it is only a matter of time before resource constraints severely impact welfare and economic growth. Finite fossil fuel stocks cannot provide cheap energy forever. And we are already experiencing the ill effects of overstretched natural resources that will only get worse in the future: high and volatile commodity prices; local air and water pollution leading to poor health; rising costs of adaptation to climate change; food shortages; and other negative impacts.

In the short term, as governments across the world deal with sluggish growth and stagnating unemployment, creating jobs in a resource-scarce environment is a key challenge. Globally, the current macro-economic situation has a potential to slow down and delay new investments in green growth and green job creation. Timely and effective policy interventions can remedy this situation. Failure to act now, however, risks significantly delaying the green industrial revolution, the consequences of which will be much higher societal costs in the long run as well as missed opportunities for economic growth and job creation in the short run

***

With this report, the Working Group on *Harnessing Green Growth—Creating Green Jobs* seeks to initiate a substantive, solutions-oriented dialogue between business and industry and the leaders of the G20 countries. Our aim is to articulate, from a

business perspective, specific, achievable recommendations that will point the way toward a greener economic future and drive sustainable growth and job creation.

The Working Group on *Harnessing Green Growth—Creating Green Jobs* adopts the United Nation's Environment Program's definition of "green jobs," as

> "work in agricultural, manufacturing, research and development, administrative, and service activities that contribute substantially to preserving or restoring environmental quality. Specifically, but not exclusively, this includes jobs that help to protect ecosystems and biodiversity; reduce energy, materials, and water consumption through high-efficiency strategies; de-carbonize the economy; and minimize or altogether avoid generation of all forms of waste and pollution."

This report focuses on identifying barriers and proposing solutions to overcome them in four broad sectors: Buildings, Power, Transportation, and Industry. It is in these areas where the greatest gains can be achieved in the shortest time, in terms of sustainable growth and green jobs creation. The report also highlights illustrative examples of country-specific experiences that are succeeding in creating a green growth track record and that could potentially be implemented more broadly.

BUILDINGS SECTOR

INTRODUCTION

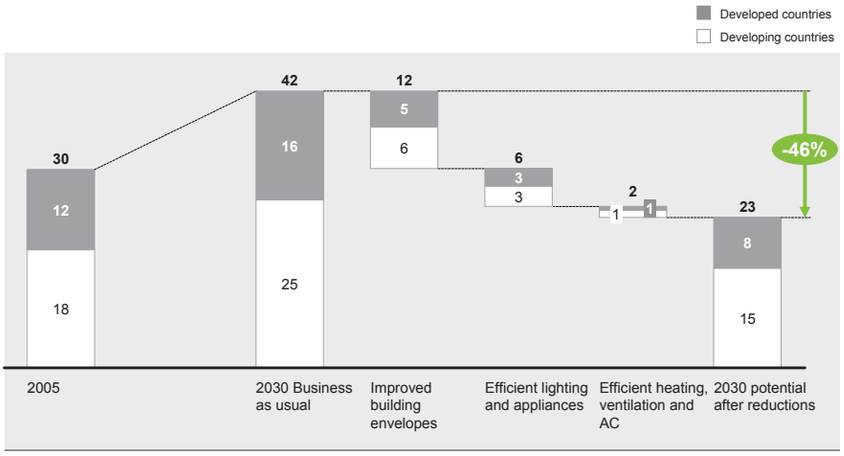
In 2009, 40% of global energy consumption originated in the building sector, making it the biggest energy consumer of any sector.[1] Energy consumption in the building sector is also growing rapidly. By 2030, it will, under a "business as usual" scenario, increase by 20%, driven by the ever-increasing appetite for heat, light and electrical appliances that comes with increasing wealth.

Much of this energy consumption is wasted. Poorly insulated buildings alone account for 79 Mtoe of wasted energy every year, with inefficient lighting, heating, air conditioning and other appliances accounting for a further 49 Mtoe.[2] The building sector has more potential to reduce energy consumption than any other sector, and at the least cost, with most investments paying back within less than 2 years.[3]

There is evidence that investing public money in energy efficiency is money well spent. Governments looking to stimulate the economy and accelerate economic growth through fiscal stimulus would be hard-pressed to find better ways to do so than energy efficiency in the buildings sector for a number of reasons. Firstly, each dollar of public money that is invested—be it as cash grants, tax incentives or subsidies— creates a "multiplier effect", where the improved returns can lead to additional private money being invested.

1 IEA, WBCSD, on a final energy basis
2 Based on savings calculations 2015, McKinsey GHG Abatement Cost Curve 2.1
3 Bressand et al., *Curbing Global Energy Demand Growth: The Energy Productivity Opportunity*, McKinsey Global Institute, 2007

Exhibit 1. Global Energy Consumption in the Buildings Sector
Thousands of TWh



SOURCE: McKinsey GHG Abatement Cost Curve 2.1

Secondly, for each dollar of capital investment, energy efficiency in the building sector creates more jobs than money spent in other sectors. Not only that, but most of the jobs tend to be in construction, and so benefit the local economies directly where the money is invested.[4]

Finally, for each dollar invested, significant energy consumption is avoided. This not only reduces carbon emissions and improves energy security, but reduces energy costs by as much as $130 per person per year in the buildings sector.[5] And money not spent on energy can be spent elsewhere in the economy, boosting growth and jobs in other sectors. Jobs created (both in construction and indirectly elsewhere in the economy) will, particularly in times of high unemployment, reduce unemployment payments. In Germany, €1 billion of public subsidies invested in energy efficiency since 2001 has to date stimulated €5 billion in total investment and added €4 billion to public funds through additional tax revenues and savings in unemployment benefits.[6]

BARRIERS

There are a number of reasons why capturing these opportunities is difficult, and why investments are not already made if the returns are positive. These include:

- **Capital cost**—Retrofitting almost the entire existing stock of buildings with improved insulation, phasing out existing household appliances, heating and air-conditioning systems with more expensive alternatives, and imposing higher energy efficiency standards on new builds will require significant

4 Campbell et al., *Comparative Analysis of Employment from Air Emission Reduction Measures*, The Pembina Institute for Appropriate Development, Environment Canada Global Air Issues Branch, 2007
5 McKinsey GHG Abatement Cost Curve 2.1
6 *Green jobs: towards sustainable work in a low-carbon world*, prepared by the Worldwatch Institute with technical assistance from Cornell University Global Labor Institute for the UNEP, ILO and ITUC Green Jobs Initiative, 2007

volumes of incremental capital investment over the inefficient alternative—globally as much as $217 billion per year on average to 2010.[7] In the aftermath of the global financial crisis, funding investments on this scale is especially challenging as government deficits are already stretched and finance can be difficult to raise privately. At a household level, despite the short payback periods that often exist, householders are often unable or unwilling to make such investments.

- **Lack of information**—Householders may not be aware of the saving potential that exists or how to capture it.
- **Principal/agent issues**—Misalignment of energy bills and capital rights between economic actors, primarily between landlord and tenant, discourage investments in energy-efficient buildings. Furthermore there is an ownership transfer issue when the current owner cannot capture the full duration of benefits of the initial investment.
- **Lack of technology and R&D capacity**—Especially in developing countries, energy-efficient devices may not be widely stocked or available through customary purchasing channels, and skilled service personnel may not be available in markets. In addition, improperly installed devices do not achieve savings.[8]

JOB CREATION POTENTIAL

Substantial work has been done in recent years to estimate the potential job impact of energy efficiency investments in buildings. These include:

- USA: Studies estimate that investments in energy-efficient buildings made immediately could create 333,000 new jobs within a year,[9] while insulating buildings across the country is projected to create 830,000 jobs by 2014.[10] The US Department of Energy predicts that standards on clothes washers, water heaters and florescent lighting would create 120,000 jobs in the US through 2020.
- EU: The European Commission estimates that 1 million new jobs could be created by 2020 and up to 2.6 million jobs in 2030.[11] Germany has already created over 140,000 new or saved jobs through a retrofitting scheme.[12]
- Australia: Studies have identified 175,000 jobs on ready-to-go projects.[13]

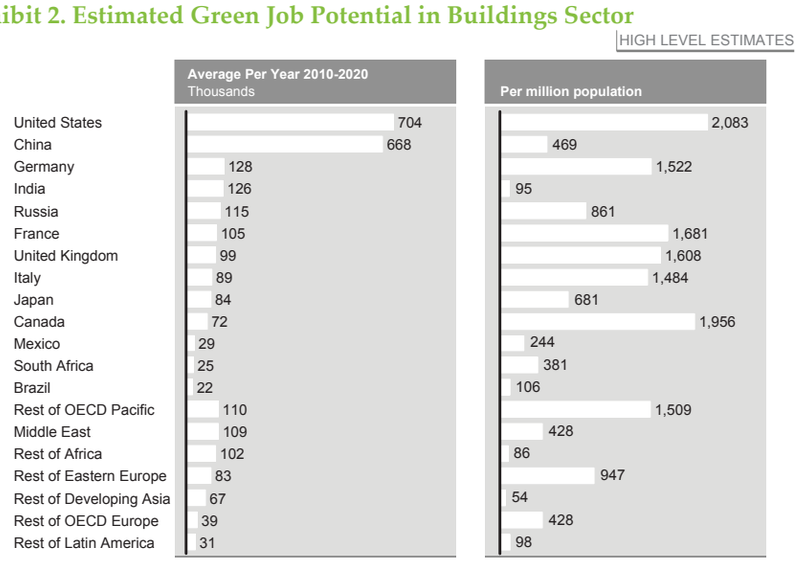
7 McKinsey GHG Abatement Cost Curve 2.1
8 Granade et al., *Unlocking energy efficiency in the U.S. Economy Executive Summary and full report*, Mckinsey global energy and materials, 2009
9 Nadel et al., *Energy Efficiency Proposals Could Create 333,000 Jobs in 2010*, ACEEE American Council for an Energy-Efficient Economy, online resource, March 09, 2010, http://aceee.org/press/2010/03/energy-efficiency-proposals-could-create-333000-jobs-201
10 *New Energy for America*. The Apollo Jobs Report: Good Jobs & Energy Independence, The Apollo Alliance, 2004
11 *Green Jobs: Towards decent work in a sustainable, low carbon world*, prepared by the Worldwatch Institute with technical assistance from Cornell University Global Labor Institute for the UNEP/ILO/IOE/ITUC Green Jobs Initiative, September 2008
12 German Alliance for Work and the Environment.
13 *Low Carbon Growth Plan for Australia*, Climate Works Australia, 2009

Further opportunities exist in the developing world, although these are less well understood in terms of the impact on employment and can come from very different measures. In India for example, an initiative to replace inefficient biomass cooking stoves with more advanced models in nine million households is estimated to have created 150,000 jobs.[14]

Across these and a number of other studies, the investment cost per job created ranges from $33,000 to around $110,000, depending on the type of project and location. As the scale of such projects increases, the cost tends to fall as program costs are spread over more projects and learning effects take hold. So while it is difficult to generalize, taking a mid point estimate of $70,000 per job created can give an indicative result as to the potential jobs created in other countries

These estimates include only direct jobs in construction. Additional "indirect" jobs would be created in the manufacturing sector making insulating materials, double-glazed windows, appliances and the like. In Germany, a recent study puts the potential for indirect green job creation by 2020 at 1.1 million, up from 260,000 today. Not all countries will benefit equally in manufacturing, however, with a small number of countries likely to capture most of the market early on and export to the rest of the world.

Exhibit 2. Estimated Green Job Potential in Buildings Sector



SOURCE: Indicative estimates based on $70,000 capex per job assumption. Capex estimates from McKinsey Global GHG Abatement Cost Curve 2.1

Further job creation comes from the value of saved energy being spent elsewhere, boosting growth and employment across the whole economy (induced jobs). These too are not included in the above estimates but could be substantial. In California for example, where energy efficiency has been a priority for some decades, it is

14 *Green Jobs: Towards decent work in a sustainable, low carbon world*, prepared by the Worldwatch institute for the UNEP/ILO/IOE/ITUC, September 2008

estimated that 1.5 million induced jobs were created by the well-documented energy savings of $56 billion achieved over the period 1972–2006.[15]

BUILDINGS SECTOR RECOMMENDATIONS

Financing and Incentives

- In the developed world, a range of publically-funded financial incentives are required to stimulate private investment and create jobs in the buildings sector. These include:
  - — Tax breaks and subsidies to householders for retrofitting of building envelopes, boilers and air-conditioning units
  - — Subsidies and low-cost loans to energy service companies, utilities and other firms looking to deliver energy-efficient solutions to households
  - — Funding for cities and local governments to invest in their own buildings, and to install municipal heating schemes where appropriate
  - — Dramatically increased subsidies, grants and co-investments for research and development in new technologies to make homes and appliances even more energy-efficient.
- Support is needed to fund a global effort in developing countries. Fifty percent of all new building construction is occurring in developing Asia, and China alone will add 2 billion square meters of floor space by 2020, doubling today's levels. Immediate action is required to ensure this housing stock is built in an energy efficient way to avoid expensive retrofitting in the future.

While expensive, not all funding need come from existing budgets. The imposition of carbon taxes, revenues from auctioning emissions permits, and revenues from other policies needed to spur emission reductions can contribute much of the necessary funding.

Policy support

In addition to a price on carbon, specific policy support is required to fully capture the buildings sector opportunity:

- **Standards:** Tighter energy efficiency standards for new builds. Expansion of appliance and lighting standards, and a continued 'ratcheting up' of minimum requirements. The TopRunner scheme in Japan provides an excellent example of how the right policies can spur R&D and rapidly increase appliance standards.
- **Incentive alignment:** Policies are required to make sure that energy savings accrue to those making the upfront investment. For example, the value of energy-efficiency investments could be attached to the value of the home, allowing investors to benefit even if selling the property.

15 Roland-Holst, Energy efficiency innovation and job creation in California, University of California Berkeley, 2008

- **Information:** Energy users need better information in order to consume efficiently. Policies to support smart metering will reduce energy consumption and create jobs in manufacturing and installation. Advertising is required to change behavior and raise awareness of the benefits of energy saving.

POWER SECTOR

INTRODUCTION

Managing resources for truly sustainable economic growth is rapidly becoming one of this century's greatest imperatives—and opportunities. Green growth is a matter of making our societies more sustainable while still compatible with a modern way of living. Properly managed and supported, it also creates substantial job-creation opportunities.

The supply of many natural resources is already becoming critical, and the era of fossil fuel resource constraints is already upon us. As the International Energy Agency reports, if no action is taken to curb it, the demand for energy will continue expanding while traditional sources for that power will continue to decline—leading inevitably to higher energy prices, greater competition for scarce resources, and potential security threats. Failure to substantially decarbonize the power sector—particularly in developed and major developing economies—will make it extremely difficult to avoid irreversible climate change.

In short, maintaining the status quo is not a sustainable option. Fossil fuel constraints (including energy security) and climate change mean that power sectors will have to shift away from coal and gas, and towards sustainable alternatives:

- **Renewable power sources:** wind, solar, geothermal and others. These technologies have seen rapid cost declines in recent years and are proving their potential to deliver a growing share of the total power mix. Challenges around intermittency are also being overcome, with a recent report by the European Climate Foundation suggesting that as much as 80% of EU power needs could be achieved by renewables if generation is spread across a wide geographic area and set of technologies.

- Other **low-carbon power** such as nuclear and hydro, which can provide baseload generation and zero emissions.

- **Carbon capture and storage**, to limit the climate impact where coal is the only viable alternative.

- Underpinning all these technologies in an **improved grid** which can improve transmission efficiency and reduce energy losses directly, while also being a crucial enabler in connecting increasingly diverse and distributed sources of renewable supply with smarter demand-side management.

By urgently accelerating effectively designed regulatory changes and investments, G20 governments can unlock society's access to resources for *sustainable* growth. We believe it is possible and affordable to achieve such growth, particularly when taking a "full cost perspective" that includes the hidden costs of fossil fuels (such as subsidies both to producers and consumers as well as health and

environmental costs). Further, all evidence suggests that the longer we wait to act, the more difficult, expensive, and disruptive the transformation will become. The good news is twofold: Firstly, key markets already have ample experience that can provide valuable guidance in unlocking sustainable growth potential; and secondly, resources are available to finance initiatives that are both economically and environmentally profitable.

JOB POTENTIAL

Promoting green energy creates many new jobs, as a growing number of countries are seeing. It also addresses short- and long-term issues such as security of energy supply, energy price stability, and the threats to health and environment related to climate change. With a focus on creating green jobs, the power sector offers proven solutions that can lead to a sustainable, low-carbon economic future. This transformation does not come by itself, but needs to be stimulated and guided by visionary policies.

Effectively designed and implemented public and regulatory policies will create new employment in the green energy sector. Countries that have implemented transparent, long-term, and certain policy frameworks have reaped the economic and jobs creation benefits that have bypassed countries that pursue only short-term, inconsistent, or otherwise inadequate policies.

In **Germany** and **Spain**, Europe's leading renewable energy countries, long-term policy support to promote renewable energy has resulted in substantial green employment. In Germany, some 100,000 people are employed overall in the wind sector alone,[16] while in Spain, the number is approximately 36,000.

In **France**, implementing the government's green strategy, called "Grenelle de l'Environnement," could lead by some estimates to the creation of more than 100,000 jobs in strategic sectors of the green growth economy by 2020. Further, France's experience in nuclear power has demonstrated that sector's job creation potential. According to a report commissioned by the French government,[17] the number of direct and indirect jobs created by nuclear electricity generation is 200,000, or nearly 0.5 per GWh.

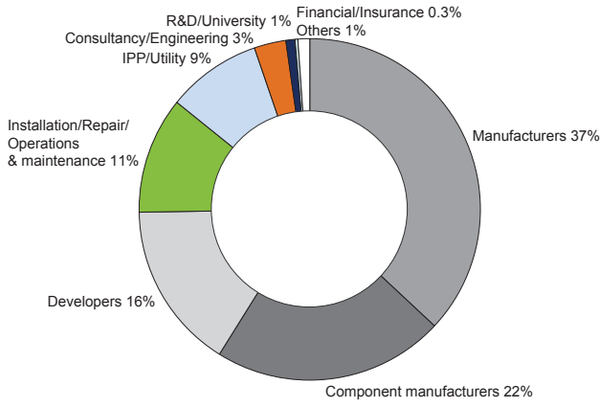
The **United States**, though the largest market for cumulative installed wind energy capacity, had "only" about 18,500 people employed in wind energy manufacturing jobs in 2009. By contrast, there were about 64,000 *manufacturing* jobs in the European wind sector in 2007 (the latest year for which comparable figures exist).

One explanation for this disparity is that the on-again, off-again nature of US renewable energy policy has slowed the growth of a domestic manufacturing and supply base, resulting in a higher percentage of imported hardware. In 2009, for example, approximately one-half of the installed wind energy capacity was produced domestically, while the corresponding figure in Europe was approximately 90%.

16 GWEC, 2009
17 Rapport sur l'avenir de la filière française du nucléaire civil, 16 Juin 2010 (http://www.elysee.fr/president/les-actualites/rapports/2010/synthese-du-rapport-sur-l-avenir-de-la-filiere.9375.html)

How many jobs can be created in renewable energy naturally depends on several factors. A country that carries out more manufacturing in the sector, for example, will obviously create more jobs. Exhibit 3 shows the breakdown of employment among the different components of the value chain in the case of wind energy in Europe.

Exhibit 3. Direct employment by type of company
Percent



SOURCE: EWEA

Further green job potential has been identified by investing in smart grids. In its 2009 US Smart Grid Jobs Creation report, Dutch energy consulting company KEMA estimates 750,000 jobs could come from deployment projects and over 400,000 sustained jobs to operate and support this smarter infrastructure in the US alone.

The policy connection is compelling: Europe has experienced clear policy direction over extended periods of time, whereas the US has experienced a largely on-again, off-again policy environment, with little long-term national direction.

China is another example of how clear, long-term policy direction leads to expanding installation of renewable energy sources and resulting employment gains. In wind energy alone, China's official target is to install 150 GW by 2020. Having doubled installed capacity in each of the past several years, industry observers believe China is clearly on track to meet that target. Additionally, China accounts for approximately 50% of global solar photovoltaic production. The UNEP estimates more than 900,000 jobs have already been created in the renewable industry in China.

Although methodologies differ and making direct comparisons is challenging, studies confirm the job creation potential of renewable energy initiatives. One example is a University of California at Berkeley analysis[18] that aggregates 15 of the most recent studies and concludes that green power generation technologies create more jobs per GWh than conventional power sources.

18 Available at http://rael.berkeley.edu/node/585

Exhibit 4: Chinese renewable power jobs

	Wind Power	Solar PV	Solar thermal	Biomass	Total
Generation	6,000	2,000	-	1,000	9,000
Manufacturing	15,000	38,000	400,000	15,000	468,000
Service	1,200	15,000	200,000	250,000	466,200
Total	22,200	55,000	600,000	266,000	943,200
Output Value[1]	25	50	40	10	125

1 Output value expressed in billion vuan (1 billion vuan = $135 million)

SOURCE: UNEP, Green Jobs; Towards decent work in a sustainable, low-carbon world, 2008

The same study determines that a 30% U.S. Renewable Portfolio Standard (RPS) target by 2030 and moderate energy-efficiency improvements would result in cumulatively creating about four million job-years by 2030. Taking a more short-term focus, a 15% RPS target by 2020 would generate about 754,000 job-years. A more ambitious 30% RPS target by 2020 would increase the job creation to about 1,274,000 job-years—a 69% increase compared to the 15% scenario.

As a rule of thumb one can conclude that, as the share of green power production expands in a country's energy mix, so too does the potential to create jobs. This results as a logical consequence of a more complete industry value and supply chain developing in synch with growing demand for renewable energy. For example, in markets that are just beginning to install or build up their renewable energy capacity, one can expect these installations to generate mostly direct jobs related to construction and maintenance. As the local market matures and installs increasing green energy capacity, a local supply chain could develop, leading potentially (if the market is sufficiently large and competitive) to local production.

Tradeoffs?

Some observers argue there is a trade-off between green investments and job creation—that jobs created in one part of the economy will be canceled out by jobs lost in others. The United Nations Environment Program articulates in its September 2008 report on green jobs that as countries transition to greater sustainability, they can expect employment to be affected in at least four ways:

- First, in some cases, additional jobs will be created, such as in the manufacturing of pollution-control devices.
- Second, some employment will be substituted, such as in shifting from fossil fuels to renewables, or from truck manufacturing to rail car manufacturing, or from landfilling and waste incineration to recycling.
- Third, certain jobs may be eliminated without direct replacement, such as when packaging materials are discouraged or banned and their production is discontinued.
- Fourth, it would appear that many existing jobs, such as plumbers, electricians, metal workers, and construction workers, will simply be

transformed and redefined as day-to-day skill sets, work methods, and profiles are greened.

Policy makers should see green growth as an overall strategy for the entire economy, and not only as a strategy for new technologies and the related jobs. In order to minimize side effects of subsidies on other sectors of the economy, and thus to maximize job creation, it can be more efficient to support new technologies that are far from maturity by financing R&D, while technologies nearing maturity can be fruitfully promoted by direct subsidies to generation.

We believe that clean growth and continuous innovation in low-carbon technologies offer many opportunities for investment and job creation, ranging from new "green" jobs related to low or zero carbon power generation technologies and projects such as renewable energy, to "greener" approaches in the traditional power sector.

Indeed, the power market's global efforts to move towards more efficient, environmentally-friendly and secure supplies, and more efficient end-use, call for significant investment. Human capital is required in this challenging but necessary transformation.

Both for green jobs and decarbonizing the power sector overall, companies need a clear engagement from governments and a stable and investment-friendly regulatory framework. They also need joint efforts in continuous research and development in this field of major importance for the global economy. Such a policy orientation would help the power sector strengthen its commitment to green growth and participate in the global recovery, notably through the creation of new green jobs. It would also be a vital support for its overall transformation towards a sustainable, secure and low-carbon energy market.

Some scenarios, such as the one used in a recent study by the European Climate Foundation identifying pathways to decarbonizing the European power sector by 2050, suggest that more new jobs will be created in the power sector, including energy efficiency efforts, than will be lost in the fossil fuel supply chain.[19]

In fact, the shift towards clean energy technologies can help economies compensate for the long-term employment decline in the fossil fuel sector that is already underway. According to the United Nations Environment Program, jobs in extractive industries have been in steady decline. In global mining and quarrying, for example, job losses between 1995 and 2006 have averaged more than 20%.[20]

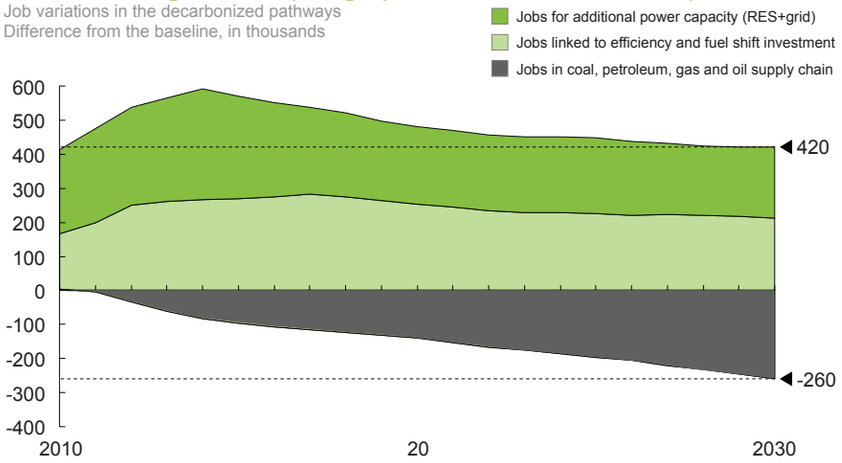
In October 2010, a Danish government commission published a plan to make Denmark the first fossil-free economy by 2050. The expert commission concludes that the net costs for Denmark to go fossil-free versus "business as usual" would amount to 0.5% of GDP by 2050—and this figure does not even include reduced health care costs that would result from avoiding fossil pollution. And as other studies have also concluded, costs rise dramatically the longer one waits to act.

19 Roadmap 2050 - A practical guide to a prosperous low-carbon future, ECF 2009, http://www.roadmap2050.eu/

20 Green Jobs: Towards decent work in a sustainable, low carbon world, UNEP and Worldwatch Institute, 2008

Exhibit 5. The reduction of employment in the fossil fuel supply chain is more than compensated by employment in RES and efficiency

Job variations in the decarbonized pathways
Difference from the baseline, in thousands



Note: Efficiency and fuel shift investment includes all efficiency levers from McKinsey cost curves (excluding what already in the baseline), further penetration of heat pumps in residential and industry and the slow penetration of EVs

SOURCE: European Climate Foundation

BARRIERS THAT NEED TO BE OVERCOME

While there are many benefits to pursuing a green power sector, the market alone cannot deliver all the investment necessary without the right policy support to overcome the barriers that exist. Market deficiencies must be addressed if green job growth is to reach its potential. Compounding the problem, governments too often *distort* the market negatively via policies that sometimes *encourage* counter-productive behavior and investments, and *discourage* productive ones. The biggest barriers include:

Absence of a Price on Carbon Pollution

Perhaps the most significant market failure is the absence of a meaningful price on carbon. Achieving an acceptable price on carbon sufficiently high and stable to change people's behavior and investment decisions is an essential element in accelerating the transition to and reaping the benefits of sustainable resource allocation and green job creation. Carbon markets can be an important element in this equation, but in themselves are insufficient to drive the needed change in the timeframe required.

Other, more consistent and predictable forms of carbon pricing, such as a fixed price per ton of emission, can help correct the market failure that allows conventional power supplies to pollute essentially free of charge. However, even though fixed carbon prices do provide greater transparency and certainty, such pricing entails *policy and political* risks that are particularly difficult for investors to assess and manage. In short, the investment timeframe extends well beyond the typical political horizon, such that investors will legitimately question the longevity of any given policy putting a price on carbon.

One way to address this uncertainty is for governments to contract directly with investors to guarantee a future floor price on carbon. There are several ways of achieving greater price certainty that can be adapted to meet national preferences.

Fossil Fuel Subsidies

Another high priority action item is ending counter-productive incentives that continue to encourage high-carbon investment and consumption. Policies such as tax reductions, subsidies and other policy incentives to explore, develop, and consume fossil fuel supplies profoundly distort market and consumption decisions.

The global scale of such subsidies is striking. According to the International Energy Agency, the 37 countries it surveyed in 2008 accounted for an estimated 95% of global fossil fuel subsidies. These 37 countries combined spent about US $557 billion to subsidize fossil fuel consumption. By contrast, according to the Global Agenda Council for Sustainable Development, there were approximately US $50 billion in subsidies to support renewable energy—11 times *less* than what was spent on fossil fuel subsidies.

In September 2009, at the Pittsburgh Summit, G20 leaders acknowledged that "inefficient fossil-fuel subsidies encourage wasteful consumption, distort markets, impede investment in clean energy sources and undermine efforts to deal with climate change," and committed to phasing out and rationalizing them.

While this is an important start, we believe faster and broader action is required in light of the clear economic and environmental benefits. We therefore urge G20 leaders to end all such subsidies within the shortest possible time frame, and not more than five years. Equity issues need to be addressed, but a number of countries have already proven it is possible to protect the poor without simultaneously encouraging over-consumption of fossil fuels.

Trade Barriers

Tariff and non-tariff trade barriers restrict free trade in green goods and services and thereby increase prices, reduce competition, discourage innovation, and inhibit green job growth. Eliminating tariff and non-tariff trade barriers on environmental goods and services will accelerate diffusion of green technologies, increase economies of scale, lower prices, encourage competition and innovation, and result in faster job creation.

Free trade of green technology components is essential to ensure the necessary technology development and to push promising emerging technology down the learning curve. Policies such as local content requirements tend to inhibit technological development and innovation, restrict competition, and raise prices—the practical effect of which can be to *increase* the need for public subsidies rather than reduce it, and to slow down job creation. Harmonizing inconsistent industrial standards and certification requirements will help reduce technical barriers to increased trade and thus promote the global integration of green industry supply chains and job creation.

Therefore we urge G20 leaders to create a safe haven for the free trade of environmental goods and services by urgently agreeing first to eliminate such trade barriers among the G20 countries, and then using the power of that

leadership example to expand such a free trade safe haven to an ever-greater number of countries.

POLICY OPTIONS

The full green job creation potential *will not materialize* unless governments act to enhance the market design and to create compelling public policy *incentives and other investments* that encourage green energy production and consumption. Evidence from around the world shows that investment happens on a greater scale when the right policies are put in place.

Public policies play an indispensible role in ensuring the expansion of green growth and job creation in the power sector. Industry at large will respond rationally and efficiently to the policy and regulatory parameters public authorities prescribe.

There are three main areas where policy attention is required to create the right environment for green investments, growth and jobs to flow.

Financial Support Schemes

Well-designed support schemes have a direct impact on the success of green investment initiatives. There exists a range of support schemes whose common purpose is to achieve a greater proportion of green energy. Support systems can include fixed tariffs for green power, renewable energy portfolio standards, tax credits, investment grants, and other measures that can be tailored to meet specific requirements, including a given technology's level of market maturity.

Different approaches can succeed under varying market conditions, though experience across many countries shows that **fixed feed-in tariffs** have succeeded well in fostering the development of installed capacity and job creation by offering a long-term (up to 20 years), stable price for green power output.

Germany, Denmark, and Spain are successful examples of feed-in tariff systems (though that success can be at risk if changed retroactively). Germany's renewable energy sector, for example, currently employs approximately 340,000 people in 2009. The Federal Ministry for the Environment concluded in June 2010 that 68% of the green jobs have been directly induced by the country's renewable energy regulatory framework.[21]

Particularly if sufficiently long-term, ambitious, and binding, **renewable energy standards or targets** can also be efficient in promoting the greater uptake of renewable energy. These policies typically require a certain percentage (often between 5 and 20%, with target dates out to 2020, though some longer) of a country's, state's, or utility's power generation to originate from renewable power production sources. Effective systems of this kind often include some form of substantial penalty for not meeting quotas and the option to trade obligation in the form of **renewable energy certificates** (REC).

Nevertheless, RES systems entail a higher degree of income uncertainty because the value of renewable energy certificates or obligation fluctuates with the market.

21 BMU, Erneuerbare Energien in Zahlen, June 2010

GERMAN RENEWABLE ENERGY LEGISLATION—A CASE IN POINT

In 1991, Germany introduced a renewable energy law and has updated it several times since. The law sets **specific targets** for renewable electricity penetration—most recently, 30% by 2020 (effective as of January 2009).

Establishing official targets sets in motion a series of other policies and processes that are necessary to reach those targets.

The law guarantees **priority grid connections and dispatch** for electricity from renewable sources. That's important because it provides certainty that if the power is produced, it will be fed into the system.

Grid operators and utilities are obliged to buy the renewable electricity at a fair, fixed minimum price—**a feed-in tariff**. This provides additional certainty, as investors can confidently predict the return on their investment.

The law also provides for **differentiated tariffs** based on the commercial readiness of different technologies. More mature renewable technologies like wind power receive a lower tariff than less market-ready technologies like solar or tidal power. This encourages the development of new technologies.

Further, the law calls for **tariff degressions**—that is, gradually lower tariffs in fixed increments each year over a fixed time period. The purpose is to promote innovations that lower costs for consumers. Another feature promoting innovation is a bonus tariff for wind farms with grid stabilizing capabilities, which enhance wind energy's integration in the grid.

Combined, these policies stimulate competitiveness and encourage innovation among different technologies, which contributes to the all-important goals of diversifying the country's energy mix and lower costs.

Additionally, the costs associated with the feed-in tariffs **are passed on to the power consumers**—not paid by the state budget as a subsidy.

And the **costs are distributed across all power consumers** (except highly energy-intensive industrial consumers), including those in parts of the country that do not produce much high levels of renewable energy. This is important because it ensures that no one region bears a disproportionate burden to create the benefits that all in society enjoy.

Spreading the costs is one aspect, as is sharing wind energy's commercial benefits. A recent legal innovation now stipulates that a substantial share (70%) of a wind farm's **business tax revenue is to flow to the commune where the site is located**, rather than only to where the developing company is registered, as was previously the case.

This generally leads to higher energy costs per MWh in certificate-based systems compared to those using feed-in tariffs.

Other types of income-based policies can be adopted to promote green power. Some type of direct capital investment subsidy, grant, or rebate is offered in at least 45 countries. Investment tax credits, import duty reductions, and/or other tax incentives are common policies (that cannot easily be withdrawn retroactively). Capital subsidies and tax credits along with net metering have been particularly instrumental in supporting solar PV markets. Net metering offers private owners of small scale renewable energy sources such as PV panels or micro wind turbines the opportunity to sell surplus power back to the utility at the same price they buy it.

Some countries adopt **competitive bidding or auctioning** for fixed quantities of renewable power capacity. In order to succeed the successful bidders must have the financial and technical capabilities to execute their winning bids. Competitive bidding or tendering processes are often used for very large single projects or new technologies where more or less standard prices have not yet been reached. Large offshore wind projects often fall into this category.

Improved Administrative Procedures

Streamlining administrative procedures, such as for project planning and permitting, is another key area of public policy that if effectively managed can significantly decrease the time and expense of bringing green investments online, and thus more rapidly begin to reap the associated employment benefits.

Planning and siting are basic matters, but too often not an easy or expeditious process. Renewable energy projects are often more distributed than traditionally centralized power plants, thus requiring substantial coordination between central and local governments and regulators. There are many examples of green power projects being long delayed or halted in the planning and siting phase due to lack of coordination among different political and administrative entities or to other processes that inhibit authorizations within a reasonable time frame.

National targets or ambitions for green power need to be aligned with regional and local plans and restrictions. At the same time public understanding and acceptance is needed for supporting the creation of green jobs in the energy sector. Experience in a number of countries has shown that some form of local involvement and/or ownership can be one way of securing public support for green power projects.

Some countries like Denmark and the United Kingdom have successfully introduced so-called “one-stop shops” for authorizing certain types of green energy projects. This has proved immensely helpful in coordinating the processes that often involve numerous local authorities and complex projects.

Policies to Improve Grid Infrastructure

Getting green power to the consumers is another key challenge—and potential barrier—that can be successfully addressed through forward-looking planning and investments. The key issue is to ensure that electric grid networks are sufficiently robust and built-out to transmit increasing amounts of green power to the load centers where it is consumed.

Of particular importance is the ability of networks to **trade power across borders and across large distances**. Expanding the geographic markets for electricity means that green electricity can be produced where resources are strongest and ensure that it can be transported to load centers. Such policies will contribute positively to bringing down prices of green energy, thus expanding its uptake, and contributing still further to job creation.

It is equally important to implement policies or regulatory requirements to **ensure that green energy can access** well-developed, robust, and sufficiently built-out electric grid transmission networks.

In many parts of the world, the electrical infrastructure was designed and installed more than 30 or 40 years ago. There is thus an urgent need to **upgrade the grid infrastructure** to adapt to new requirements created by green energies and new operational modalities. In the EU alone, some estimates point towards required investments of some €600 billion in transmission, storage and smart grid (electricity and gas combined). China already plans to invest approximately $600 billion in modern grid technologies by 2020. The resulting employment creation from such infrastructure modernization could exceed one million jobs up to 2020.

POWER SECTOR RECOMMENDATIONS

In light of the significant benefits associated with de-carbonizing the power sector, we recommend the following policy actions to G20 leaders:

- **Put a price on carbon**
  - — Must be high and stable enough to change people's behavior and investment decisions
  - — Carbon markets are part of the equation but have limited short-term impact
  - — Fixed price on carbon with appropriate mechanisms to guarantee minimum prices will drive low-carbon investments faster than carbon markets.
- **End fossil fuel subsidies**
  - — Fossil fuel subsidies and other incentives to encourage exploration, development, and consumption of polluting fuel sources impede the transition to de-carbonized power
  - — Having already committed to phasing out some fossil fuel subsidies over an unspecified time period, the G20 should now commit to ending all such subsidies within the shortest possible time frame, and not more than five years
  - — Address resulting equity issues by implementing targeted initiatives to protect the poor from removal of such subsidies.

- **Create free trade in environmental goods and services**
  - — Removing tariff and non-tariff barriers to the free trade in environmental goods and services will accelerate diffusion of green technologies, enhance competition and innovation, reduce prices, and create more jobs.
- **Implement effective support schemes**
  - — Multiple options exist that policy makers can tailor to meet the needs of their respective countries—examples include fixed feed-in tariffs; renewable energy standards or targets; income-based systems such as tax or capital investment incentive; or public bidding/auctioning
  - — Sufficiently ambitious and long-term renewable energy or carbon reduction targets are effective means to drive green growth and job creation.
- **Streamline administrative procedures**
  - — Inefficient planning and permitting procedures can add years to the time required to bring green energy projects online, thus delaying realization of their multiple benefits, including job creation
  - — "One-stop-shop" for administrative procedures facilitates approval processes, giving applicants and other stakeholders a single "destination" for relevant applications.
- **Strengthen, expand grid infrastructure**
  - — Reinforce and build out grids to bring distributed green power to the load centers where the power is consumed; and apply innovative information and communications technologies to create efficient power management and consumption decisions
  - — Enable cross-border and long-distance electricity trading as a means to even out intermittent power supplies
  - — Ensure green energy has priority access to the grid.

INDUSTRIAL SECTOR

INTRODUCTION

The industrial sector is a heterogeneous energy user, with highly energy-intensive industries such as steel, chemicals, and aluminum, and a broad array of less energy-intensive ones such as food processing and textiles.[22] In total, the industrial sector of the global economy is responsible for 28% of energy consumption.[23] Rapid growth is forecast, driven especially by demand in the emerging BRIC economies.

22 Diana Farrell, Scott S Nyquist and Matthew C. Rogers , Curbing the growth of global energy demand, The McKinsey Quarterly, Web exclusive, July 2007
23 Key World Energy Statistics 2010, IEA 2010

For example, aluminum primary production is projected to grow by 20% by 2020,[24] cement production is expected to more than triple by 2050,[25] global chemical production is expected to grow by approximately 3.4% a year,[26] global iron & steel production is expected to grow by 3.4% a year with 55% of the growth in China,[27] while demand for oil and gas products is expected to grow by 47% by 2030.[28] In order to promote sustainable growth, cost competitiveness and energy security, a number of energy-saving measures are required across the sector.

OPPORTUNITIES

Process and Technology Improvements

There exist a number of opportunities to improve processes and technologies across industries. For instance, in energy-intensive industries such as petroleum refining and pulp and paper, 2020 energy demand could be reduced by 6% via the process of gasification, which involves increasing efficiency in the use of low-grade fuels that are by-products of production. By optimizing motor-driven systems through upgrades in pumps, compressors, and fans, production centers could reduce their 2020 energy demand by 2%.

In steel production, energy efficiency variation across countries is so substantial that the IEA estimates that if the best technologies currently in use were applied worldwide, the sector's annual energy consumption could be reduced by 11–14%.[29] New production techniques can provide additional benefits. Near-net-shape casting, which integrates the casting and hot-rolling of steel into a one-step process and thus reduces the need to reheat steel before rolling, can cut 2020 energy demand by 10%.[30] Minimills, which make steel by smelting scrap steel, pig iron, and other iron products in an electric arc furnace, are much less energy-intensive than integrated mills because there is no need to make coke/or pig iron. They use roughly a third of the energy per ton of steel produced.[31]

More than half of all cement production comes from countries with an energy intensity significantly higher than today's most efficient dry cement kilns. There is significant variation in the amount of electricity used to produce cement, ranging from around 100 kWh in Japan, Spain, India, Thailand and Italy to 160 kWh in Canada. Switching to dry cement kilns saves approximately 25% of electricity as compared to the next most efficient kiln type (shaft kiln), wet kiln being the

24 Green Jobs: Towards decent work in a sustainable, low carbon world, UNEP and Worldwatch Institute, 200
25 Green Jobs: Towards decent work in a sustainable, low carbon world, UNEP and Worldwatch Institute, 2008
26 McKinsey Global GHG abatement cost curve 2.0
27 McKinsey Global GHG abatement cost curve 2.0
28 McKinsey Global GHG abatement cost curve 2.0
29 Green Jobs: Towards decent work in a sustainable, low carbon world, UNEP and Worldwatch Institute, 2008
30 Diana Farrell, Scott S Nyquist and Matthew C. Rogers , Curbing the growth of global energy demand, The McKinsey Quarterly, Web exclusive, July 2007
31 Diana Farrell, Scott S Nyquist and Matthew C. Rogers , Curbing the growth of global energy demand, The McKinsey Quarterly, Web exclusive, July 2007

most inefficient.[32] The impact of process and technology improvements can be impressive. For example by adopting existing best technology industry-wide, the cement industry could reduce its total energy use by 28–33%.[33]

Fuel Switching

Cogeneration, where waste heat is captured from power generation and other combustion processes, can be applied across various types of industry and has the potential to reduce total 2020 industrial energy demand by 3%. Optimizing the efficiency of steam generation in both operations and maintenance could reduce 2020 energy demand by a further 5%. Energy systems can be integrated at the plant level by identifying synergies, such as using excess heat generated by one process as an input to another. This strategy is especially applicable to energy-intensive sectors such as aluminum, chemicals, food processing, steel, petroleum refining, pulp and paper and has the potential to reduce 2020 energy demand by 3%.[34]

In the cement industry there is an opportunity to improve energy efficiency by increasing the share of alternative fuels such as municipal or industrial fossil waste or biomass in the cement kilns. Cement kilns are well-suited for waste combustion because of their high process temperature and because the clinker product and limestone feedstock act as gas-cleaning agents.[35] In the production of chemicals and pulp and paper, shifting direct energy use from coal-powered systems to biomass power systems and from oil to gas offers energy saving opportunities.[36]

Recycling

Using secondary materials offers substantial energy savings in all areas relative to producing inputs from scratch. The energy savings are substantial for products such as aluminum (95%), copper (85%), plastics (80%), steel (74%), lead (65%), and paper (64%). The IEA notes that "the amount of steel that is stored in capital stock is more than 10 times annual steel production and it is still increasing continuously." In principle, the recycled content of steel can be close to 100%, as there are no technical limitations, relatively limited processing losses, and recycled steel is as strong and durable as steel newly made from iron ore. Paper made from 100% recycled content has the potential to reduce energy consumption by approximately 40%. Cement too can be recycled. The United States recovers 140 million tons of concrete each year while re-use in the European Union varies from 10% in Italy and Spain to 90% in Belgium and Denmark.[37]

32 Michael Taylor, Cecilia Tam and Dolf Gielen, Energy Efficiency and CO_2 Emissions from the Global Cement Industry, Energy Technology Policy Division, International Energy Agency, Draft version 30/8/2006, Paper prepared for the IEA-WBCSD workshop: Energy Efficiency and CO_2 Emission Reduction Potentials and Policies in the Cement Industry, IEA, Paris, 4-5 September 2006
33 IEA in Green Jobs: Towards decent work in a sustainable, low carbon world, UNEP and Worldwatch Institute, 2008
34 Diana Farrell, Scott S Nyquist and Matthew C. Rogers , Op.cit.
35 Michael Taylor, Cecilia Tam and Dolf Gielen, Op. cit.
36 McKinsey Global GHG abatement cost curve 2.0
37 Green Jobs: Towards decent work in a sustainable, low carbon world, UNEP and Worldwatch Institute, 2008

JOB POTENTIAL

Due to increasing labor force productivity, the number of jobs in the industrial sector will continue on a decreasing trend in most regions. Employment in cement production for example in both the European Union and the United States has decreased. From 1999 to 2005, the EU-25 lost 13% of its cement workforce and the US 29% over the period 1982 to 2008.[38] In 2000, the pulp and paper industry provided jobs to 4.1 million people worldwide, down from 4.3 million in 1990. However, green growth strategies have the potential to slow employment contraction and in some instances preserve and/or create jobs. Given that industry is at the heart of the productive economy and employs such a significant share of the workforce, it is vital that it be given due attention for green growth and job creation.

Process and Technology Improvements

A 2006 study by the International Finance Corporation concluded that by modernizing pulping and chemical recovery processes, China could significantly reduce pollution, energy consumption, and water consumption, while maintaining employment for 8 million people in the industry.[39] A German study focusing on energy-intensive industries has also confirmed a shift towards jobs corresponding to the highest levels of education (master's equivalent) and medium levels (bachelor's degree and foremen/technicians), which result from energy efficiency improvements in industry.[40] This trend can be equated with higher value-added employment opportunities and levels of competitiveness. In some cases implementing sector-wide strategies can help to preserve jobs, as is the case of the low-carbon steel strategy in Europe. It is estimated that 50,000 direct jobs, internal and outsourced, can be saved (compared with the 80,000 threatened) in the European iron and steel industry, mainly in the West, because steel production by low-carbon processes has become a competitive advantage for European producers.[41]

Recycling Sector

Recycling is becoming a serious business sector in its own right and offers great energy saving opportunities. According to the Fraunhofer Institute in Stuttgart, Germany, remanufacturing operations worldwide save about 10.7 million barrels of oil each year, or an amount of electricity equal to that generated by five nuclear power plants. According to the U.S. Environmental Protection Agency, the US national average recycling rate of roughly 30% saves about 256 billion barrels of crude oil, the equivalent of fueling 22 million cars each year. Walter Stahel of the Product-Life Institute in Geneva, Switzerland, estimated in 2000 that the remanufacturing sector in European Union member countries accounted for about 4% of the region's GDP.[42]

An estimated 480,000 people were employed by companies in this sector already.[43] Recycling is the fastest growing source of new green employment for the pulp and paper industry. The World Bank estimates that in 2002, Brazil collected 3 million

38 Ibid.
39 Ibid.
40 Ibid.
41 Ibid.
42 Ibid.
43 Green Jobs: Towards decent work in a sustainable, low carbon world, UNEP and Worldwatch Institute, 2008

tons of paper and had 28,347 jobs specifically in paper recycling. The U.S. EPA estimates that 150,000 people are employed in paper-recycling manufacturing. The EPA identified another 192,875 people employed in general recycling collection and processing, with a large percentage of these in paper recycling.

A new report analyzing the situation in the United States alone concludes that recycling generates revenues of $236 billion annually and offers employment to 1.1 million people at 56,000 public and private facilities.[44] Aluminum can recycling provides employment for close to 170,000 people in Brazil which is the global leader in aluminum can recycling. China's secondary aluminum industry saved an estimated 25.7 million tons of coal equivalent.[45]

Studies show that recycling is not only preferable to landfills and incineration on an environmental basis, but also creates more jobs. A study of the three US cities of Baltimore, Washington, DC, and Richmond found that 79 jobs were required for every 100,000 tons of materials collected and sorted, and another 162 jobs for processing, for a total of 241. This is 10 times the job potential of waste disposal. Earlier studies have come to similar conclusions. Recycling 1 million tons of material in the US state of Vermont generates 550 to 2,000 jobs, compared with 150 to 1,100 for incineration and 50 to 360 for landfills.[46]

With increased population growth, urbanization, and consumption, waste is projected to increase drastically over the next few decades. China's waste alone will increase 150% by 2030, and paper waste is growing faster than any other material. This presents a unique challenge and opportunity for countries to adopt strong recycling policies and promote job creation in the recycling industry.[47]

BARRIERS

Industrial companies apply high internal rates of return to all projects, a practice which often discourages investments in energy efficiency. Furthermore, in industries where energy costs are a small portion of overall costs, managers who are not responsible for ongoing operating expenses make decisions affecting energy productivity with a short-term perspective. Finally there is a lack of incentives and information, especially in publically owned or highly protected industry.

INDUSTRIAL SECTOR RECOMMENDATIONS

- **Targeted incentives** for energy efficiency to reduce costs, thereby increasing competitiveness, growth, and employment.
  - — Put a price on carbon. Companies will make the necessary investments when the long-term policy uncertainty is eliminated. BHP Billiton CEO Marius Kloppers recently came out in support of a carbon tax, saying it is necessary to keep Australia internationally competitive.
  - — Subsidies and tax credits for energy conservation technologies.

44 Ibid.
45 Ibid.
46 Ibid.
47 Ibid.

  - — Low rate financing and funding of energy conservation projects.
  - — Government purchasing guidelines.
  - — Removal of fuel subsidies.
- **Energy efficiency codes, standards and targets**
  - — As industry is a relatively price-elastic sector, the carbon price from the emissions trading scheme (ETS) leads to fast improvements in energy efficiency and to fuel switching towards low-carbon fuels.[48]
  - — Recycling content standards.
- **Information and education**
  - — Initiate demonstration projects and energy audits within private-sector companies to provide information and encourage capture of opportunities.
  - — Provide information on energy conservation technologies, including cost-benefit analyses.
- **Capacity development**
  - — Encourage technology development.
  - — Enhanced technology transfer, particularly between developed and developing world businesses. If carefully structured, new mechanisms such as technology centers of excellence could greatly encourage concrete, mutually beneficial actions in technology research, development, demonstration, deployment, diffusion and transfer.
  - — Training and skills transfer, coupled with other forms of capacity-building.
- **Sectoral agreements** for those industries most at risk from so-called carbon price leakage, which can lure competitors to unregulated countries. In particular steel, aluminum and cement could benefit from such sectoral agreements.

TRANSPORT SECTOR

INTRODUCTION

The transport sector has been a cornerstone of economic development, with mobility of people and goods driving trade, investment, jobs and welfare. Projected growth within the sector is strong. Demand for passenger cars (Light Duty Vehicles, or LDVs) is expected to increase at 3.5% per year over the next 20 years, from one billion vehicles on the road today to two billion in just 2030.[49] Whereas current demand and production comes mostly from North America, Western Europe and Japan, developing countries will be the major growth engines of future

48 World Economic Outlook, 2009
49 McKinsey Global GHG abatement cost curve 2.0

passenger car sales and production, with the developed world's share falling from 80% today to 50% by 2030.[50] Air transport will continue to grow at an even faster pace, rising from 3,720 billion passenger-kilometers in 2005[51] to over 9,870 billion in 2030,[52] while sea freight is expected to grow by approximately 45.3% by 2020.[53]

A well-functioning transport sector is vital to sustaining economic growth and societal development both on global and national levels. However, the transport sector currently accounts for almost half of global fossil fuel demand.[54] Its current growth rates are unsustainable in the longer term and they present numerous energy security challenges in the short term. In addition to concerns about fossil fuels, the sector faces problems of rising traffic congestion and local air pollution. Therefore it is essential that transport growth be pursued with an eye to environmental and energy-use costs.

OPPORTUNITIES AND COSTS

The IEA estimates that an array of measures including improved fuel economy, expanded biofuels penetration and new vehicle technologies (hybrid and electric vehicles) could reduce transport demand for oil by 12 million barrels per day by 2030.[55] Affordable measures available in the short term—such as diesel and gasoline direct injection, turbo charging, and downsizing—could yield a further reduction of 25 to 30% in consumption and emissions. The opportunity breaks down into 3 main types of measures.

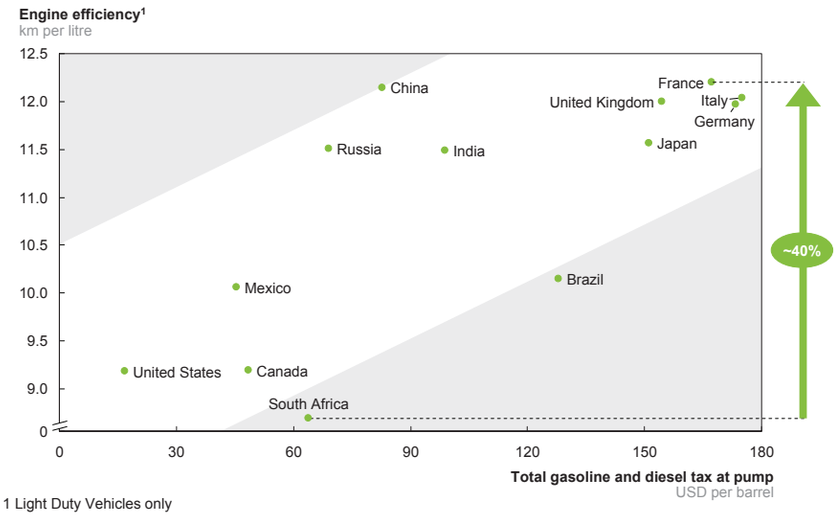
Energy Efficiency

Improving fuel efficiency in advanced internal combustion engines (ICE) and vehicle design is one of the most cost-effective ways to reduce energy consumption in the transport sector in the near term.[56] Fleet efficiency currently varies by more than a third across G20 countries (see Exhibit 6). It is highly correlated with the cost of fuel at the pump, with those countries with high fuel taxes having on average the most efficient fleets, and those subsidizing fuel having the least efficient.

In addition, vehicle light-weighting through material substitution and the reduction of rolling resistance through improved aerodynamics could achieve up to a 20% fuel economy improvement for new vehicles by 2015.[57] The energy and emissions impact of such efficiency gains could be further multiplied by new business mobility solutions, such as car sharing and fleet models in urban areas. What's more, the utilization rate of energy-efficient vehicles is expected to increase over-proportionately.

50 Ibid.
51 Green Jobs: Towards decent work in a sustainable, low carbon world, UNEP and Worldwatch Institute, 2008
52 Base don 5% annual growth rate over 20 years, *ICAO, World Bank & Routes Global Strategy Summit 2009 Moderator Summaries*, ICAO and the World Bank, 2009
53 TRANSvisions 2009 TRANS-TOOLS forecast in Enei, EU Transport GHG: Routes to 2050, Annex to Task III Paper on the EU transport demand: Freight trends and forecasts, Draft, January 2010
54 Bressand et al., *Curbing Global Energy Demand Growth: The Energy Productivity Opportunity*, McKinsey Global Institute, 2007
55 World Energy Outlook, IEA 2009
56 McKinsey Global GHG abatement cost curve 2.0
57 Bressand et al., *Curbing Global Energy Demand Growth: The Energy Productivity Opportunity*, McKinsey Global Institute, 2007

Exhibit 6. Engine efficiency of selected G20 countries



1 Light Duty Vehicles only

SOURCE: McKinsey GHG Abatement Cost Curve 2.1; GTZ (retail prices)

In air transport, efficiency improvements in engines, aircraft design and air traffic control is expected to save around 1.6 million barrels a day of oil demand by 2030 according to the IEA against a business-as-usual case, though absolute energy consumption could still increase.

Fuel Shift

Moving away from fossil fuels to alternative fuels such as biofuels and electricity presents a substantial opportunity to improve energy security and reduce emissions.

Biofuels are already fueling most of the transport fleet in Brazil, and by 2030 the IEA estimates that 6% of transport energy will come from biofuels. This figure could be even higher if second and third generation biofuels can address concerns around net emission reduction and competition with food production.

Electric and fuel-cell vehicles present another opportunity in the longer term as battery technology improves and infrastructure can be rolled out. Penetration of electric and hybrid-electric vehicles could be as high as 30% of new vehicle sales by 2030 according to the IEA. Bosch estimates global sales of full electric vehicles will increase to 3–6% of total sales in 2030.

Modal Shift

In addition to such technical levers, a more fundamental change is a shift in transportation modes, reducing the reliance on cars and trucks and increasing the use of buses, trams, and light rail in urban or suburban settings, and railways for inter-city transportation. Reorienting the transportation sector requires changes in land use and land-use planning.

As an increasing share of the world's population is expected to live in cities in coming decades, the potential for alternative forms of transport such as public transit, biking, and walking as well as short-range electric vehicles is greatly increased.[58]

JOB CREATION POTENTIAL

Automotive suppliers have been an engine of innovation in the last century and can be expected to be such in the future as well. Much of the potential for green jobs in the transportation sector result from job transfers from old to new technologies, so the net benefit is less than that of the power and building sector. In general, as technologies mature, production efficiency improvements lead to a gradual decline in employment, as has been the trend in manufacturing in general over recent years. Emerging technologies can slow or even reverse this trend, however: A recent study by the European Trade Union Confederation estimates that in the EU it is possible to stabilize transport emissions in 2030 at 1990 levels while creating 20% more jobs even under existing climate change policies.[59]

Though specific evidence of green job potential in the transport sector is limited to case studies, they suggest that a shift to new technologies will protect or even create transportation jobs. The increasing demand for individual mobility along with political regulation in the field of fuel-efficiency will have a strong driving effect on the development of new technologies. In the short and medium term, this will act as an economic accelerator of research and development, production and trade resulting in positive impact on overall employment. However, this virtuous circle will only be achieved if efficient vehicles become an affordable alternative for private and commercial consumers.

Energy Efficiency Jobs

The Apollo Alliance suggested in 2004 that a concerted strategy to build highly efficient cars might yield close to 130,000 jobs directly within the industry. Indirectly, annual fuel savings of up to $37 billion by 2020 (even after taking into account the higher purchasing cost of more efficient cars) can flow into other sectors, boosting growth and creating jobs. A 2007 Union of Concerned Scientists report estimated that moving toward a fleet average of 35 mpg in the United States could result in a net increase of 241,000 jobs by 2020.

Fuel Shift Jobs

Because hybrids have an electric engine in addition to a conventional gasoline motor, these cars require additional inputs and thus their production entails more employment than a regular car. The development of hybrids and plug-in electric cars will drive growth in new battery technologies and provide new markets for companies involved in creating an infrastructure for recharging and servicing electric cars. Jobs in research and development as well as the production and distribution of such novel technologies will help to redefine the transport sector as a strong contributor to green growth.

58 Green Jobs: Towards decent work in a sustainable, low carbon world, UNEP and Worldwatch Institute, 2008

59 Climate Change and employment Impact on employment in the European Union-25 ofclimate change and CO_2 emission reductionmeasures by 2030, European Trade Union Confederation (ETUC), 2007

There are also green employment opportunities in switching to more efficient fossil fuels: In New Delhi, the introduction of 6,100 compressed natural gas buses in 2009 created about 18,000 new jobs.[60]

Modal Shift Jobs

Public transportation is already a major employer. In the United States, transit agencies employed about 367,000 people in 2005, while an estimated 900,000 people are employed in urban public transport in the 27 member states of the European Union.[61] In European economies, investments in public transport are estimated to create 2 to 2.5 indirect jobs for every additional direct job. Studies in Europe and the United States show that about 30 jobs are created for each €1 million invested in public transport infrastructure, and 57 jobs for the same level of investment in transit operations[62]—an amount higher than any other sector.

More broadly, efficient transport systems are essential for the operation of the labor market to ensure the widest access of workers to employment. In a 2005 report by its Africa division, the World Bank emphasizes that "an efficient and effective urban transport system is a powerful tool for improving the efficiency and accessibility of the labor market." Addressing the situation in the United States, the Apollo Alliance notes that, "sprawl and urban disinvestment have separated low income and minority residents from areas of job growth and drained resources for education, government services, and maintenance of existing neighborhoods." Low population densities and other circumstances tend to render labor union organizing far more difficult, thus undermining worker strength and wages.[63]

BARRIERS

In order to capture these opportunities in the transport sector, a number of barriers have to be overcome, including:

- **Capital constraints**—Even if investments in engine efficiency are profitable over the lifetime of the vehicle, in many cases owners are unable or unwilling to pay the upfront cost required to finance the more expensive vehicle.
- **Information**—This problem is further exacerbated if the value of future fuel savings is not fully understood. The variety and complexity of advanced power train solutions obscure the perceived benefits to end users, which hinders the sales of newer technologies.
- **Misaligned incentives**—These are created when fuel is subsidized or carbon externalities left unpriced.
- **Coordination failure**—transport networks such as metro systems and electric car charging networks require strong local government support

60 Green Jobs: Towards decent work in a sustainable, low carbon world, UNEP and Worldwatch Institute, 2008
61 International Association of Public Transport (UITP) in Green Jobs: Towards decent work in a sustainable, low carbon world, UNEP and Worldwatch Institute, 2008
62 Green Jobs: Towards decent work in a sustainable, low carbon world, UNEP and Worldwatch Institute, 2008
63 Ibid.

to implement; no manufacturer or customer alone can create the scale necessary to reap the full benefit.

- **Lack of skilled workforce**—This transition will necessitate new and advanced skills and knowledge in the chemical, electrical and electronics, and safety fields.
- **Scarcity of raw materials (such as rare earth metals)**—This might lead to significant on-cost or even disruptions in the supply chain for the introduction of new power train technologies.

TRANSPORT SECTOR RECOMMENDATIONS

In light of the significant benefits associated with a more efficient transport system, but also the barriers that prevent realization, we recommend the following policy actions to G20 leaders:

- **Promote standardized and stable legislation and regulation**
  - — The boundary conditions for companies and investors need to be consistent and harmonized across countries as well as predictable and stable in the long-term. This will help to reduce trade barriers based on misalignment of technical standards (e.g., charging connectors), commercial standards (e.g., subsidies) and regulations (e.g., emissions limits).
- **Tighten engine efficiency standards for conventional vehicles**
  - — Introduce fuel efficiency standards that ratchet up over time. These have substantial near-term potential to reduce the energy consumption of advanced internal combustion engines vehicles by up to 25–30%.
  - — Coordinate and replicate best practice strategies across G20 countries.
  - — Introduce biofuels into the gasoline blend where these can be sourced in a way that reduces net emissions and does not impact food prices.
- **Remove fossil fuel subsidies**
  - — Cutting fossil fuel subsidies by 80% would reduce global demand for road transport fuel by 5%.[64] The removal of fuel subsidies globally would lead to an estimated demand abatement of 3.0 million barrels per day of transportation fuels.[65]
- **Support new technologies**
  - — Electric, hybrid or fuel cell vehicles deserve support both on the supply side (e.g., R&D subsidies, infrastructure) and the consumer side (e.g., tax breaks to electric vehicle owners, congestion charging exemption). Given the strong network effects on these technologies, initiatives could be focused on key cities e.g., using the C40 network of green cities.

64 Bressand et al., *Curbing Global Energy Demand Growth: The Energy Productivity Opportunity,* McKinsey Global Institute, 2007
65 Ibid.

— Increase the share of renewable energy supply for electric power trains.

— Smart grids greatly enable an electrified transport fleet by allowing charging to take place at optimal times. Smart grids also create tremendous synergy with renewable power by providing distributed energy storage.

- **Invest in energy-efficient public transport**

  — This creates local jobs, reduces congestion, improves local air quality, and lowers energy consumption. Vehicle maintenance should be regulated to reduce emissions.

  — Improve traffic systems (intelligent transport systems, road construction and maintenance, promoting public transportation and lowering speed limits).

- **Foster changes in behavior**

  — Social marketing campaigns led by governments, NGOs and companies can explain the advantages and differences of new technologies, help customers understand the cost-benefit ratios of purchases, and encourage consumers to switch to fuel-efficient vehicles.

  — Develop transparent product labeling and performance indicators.

  — Cleaner transport demands cultural/mindset shifts as well as new city and transport planning, especially in developing nations.

- **Foster skills and education**

  — Close cooperation between the private and public sector is of utmost importance to stimulate the education and training of a qualified work force.

  — Provide an atmosphere of learning and innovation through, for example, cluster development or industry-on-campus initiatives.

UNLEASHING TECHNOLOGY-ENABLED PRODUCTIVITY GROWTH

Working Group X

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INTRODUCTION

Productivity: Increasing Prosperity and Opportunity for All

The importance of economic growth cannot be overstated: sustainable growth generates higher standards of living, creates new jobs, increases political and social stability, and drives greater opportunity and inclusion for an ever larger share of the world's citizens. While governments and societies generally agree on the need for growth, igniting and *sustaining* growth remain more elusive goals. The global financial crisis underscored the need to maintain the fundamentals of macroeconomic stability—low inflation, good fiscal policy, and moderate current account deficits. Yet most policymakers believe that it will take much more to restore growth—and sustain it at pre-crisis levels.

In the wake of the crisis, most major economies have focused on spurring demand as a way to jumpstart the growth engine. While igniting demand is the biggest driver of growth in the short-term, getting the supply side right is more fundamental to long-term growth momentum: increasing productivity will be the single most important driver of long-term economic health. Productivity-led growth is the primary lever for improving the economic wellbeing of citizens and the only consistent driver of per capita standard-of-living increases.

In this paper, we will define productivity as labor productivity, the excess growth in value added output over employment. Labor productivity, however, is likewise influenced by other components: capital deepening and total factor productivity, which encompasses economic efficiency and intangibles. For example, institutional factors drive how efficiently the economy organizes, responds and adapts to change. Likewise, intangible factors such as knowhow, skill and innovation transform output.

Productivity is a virtuous cycle: As workers become more productive, they create more economic surplus, which help spur spending and in turn drives innovation and investment. This, in turn, helps workers become even more productive.

Innovation—both in the form of new technologies (i.e., the application of tools, techniques, and systems to control the natural environment) and fresh ideas—is the key driver of productivity growth. Business process improvements, often *enabled by* but not *reducible to* technology, drive more than two thirds of these gains.

While productivity might seem an esoteric concept, its results are immediate and tangible. Productivity improvements show up not only on the top line, driving increased incomes and sparking demand, but also across the value chain, increasing the availability of goods and services, decreasing consumer prices, generating jobs, and freeing up resources for more productive use. The more productive societies are, the more wealth they have to invest in basic social goods such as education, healthcare, and other programs that provide a social safety net.

Our working group is convinced of two things: first, that productivity will become an ever more important engine of economic growth and prosperity in the decade ahead, and second, that innovation, particularly technology-enabled innovation, will be the key driver of those gains. It is our firm belief that a renewed commitment by the G20 economies to technology-enabled productivity growth can help unleash a new wave of entrepreneurship, innovation and global prosperity.

We also recognize that the business community, as the primary vehicle for innovation and for the dispersion and diffusion of those innovations across markets through entrepreneurship, has a bigger role than ever in driving productivity-led growth—and a bigger responsibility than ever to work hand-in-hand with governments to ensure the right conditions for enabling and accelerating sustainable productivity gains.

We are honored to have been invited to work with the G20 to put the spotlight on productivity and in particular on the role of technology, innovation, and entrepreneurship (either in existing companies via new business formation) which we regard as the primary levers economies have to drive enduring and sustainable prosperity and opportunity.

In what follows, we lay out the rationale for productivity-led growth, explain the importance of technology and innovation to achieving that growth, and make recommendations on how the G20 and the business community can work together to drive that growth.

The Case for Productivity: A New Urgency

In the coming decade, productivity will play a more important role than than it has to date—becoming the key catalyst for global economic growth. No longer able to depend on a growing workforce and declining dependency ratios as a source of growth, developed economies will see productivity take on new urgency. More than 80% of economic growth in OECD economies will need to come from productivity if we are to come anywhere close to historic rates of 2–3% real GDP growth. In countries such as Japan and much of Western Europe, where aging populations will cause labor force growth to screech to a halt, 100% of economic growth will need to come from productivity gains.

The urgency is less immediate for emerging markets. Most emerging economies are naturally buoyed by favorable demographics, notably swelling work forces and shrinking family size. The role of productivity in these economies, however, is no less fundamental.

Indeed, one of the under-appreciated success stories of the last several decades has been the rapid gains in productivity across the emerging world. Countries like China and India have seen productivity growth rates of two to three times that of any developed market, gaining updraft from massive urbanization, industrialization, and rapid economic modernization, all known productivity drivers.

In China, the world's fastest growing economy for the past two decades, more than 90% of economic growth has come from productivity increases. In Vietnam, the world's second fastest growing economy over the same time period, the figure is 70%—up from less than 10% in the 1980s.

Aside from the usual suspects of urbanization and industrialization, the dispersion of information and communications technologies (ICT), or "informatization", has become a powerful new catalyst. Developing countries are at the same starting point as developed regions for ICT technologies, particularly mobile technologies, and an even bigger beneficiary of their productivity gains.

In particular, ICT may have the power to help emerging economies avoid "the middle income trap", the dilemma many low-income countries find themselves in after fueling an early growth spurt due to an abundance of low-cost labor, while still lacking the ability to switch over effectively to a skill-based, service-led economy as wages rise.

Unleashing Innovation, Unleashing Growth

If productivity gains will be so critical to driving sustainable economic growth over the next decade, how can the G20 countries accelerate them? More than 20 years of research on productivity by the McKinsey Global Institute, spanning over 30 countries, shows that meaningfully accelerating productivity requires the successful development, diffusion and scaling of business and technology innovation.

Many such innovations will come from technology. Many more will come from using technology in new ways to improve business processes. As noted above, business-process improvements, often *enabled by* but not *reducible to* technology, drive more than two thirds of productivity gains.

To understand the nuance, consider our ever-expanding global telecommunications grid. Not much more than a decade ago, mobile phones and the Internet were just emerging. In the wake of arguably the two most rapid technological adoption cycles in history, more than 5 billion people now have at least one mobile device, if not more. Over 1.5 billion are online. The two technologies are rapidly converging: By 2014, more than 75% of broadband connections globally will be mobile.

Yet as important as these technologies are in and of themselves, far more significant is what they enable. Global sourcing, just-in-time supply chains, electronic payments platforms, global capital markets, and social networking are but a few of the game-shifting innovations that ride on top of the global information and communications grid—and drive productivity gains across sectors.

Take the case of China, where more than 800 million people have mobile phones, with penetration reaching 99.86% in administrative villages. This means that, even in the most remote rural areas, people have access to telecommunications. But it is what that connectivity is enabling that really matters. For example, China Mobile's Agricultural Information Service now has nearly 50 million users, who send more than 4 billion text messages a year. These rural farmers are able to access real-time market pricing and learn about wining agronomic practices, among other services, that can help them improve their efficiency.

Productivity is a virtuous and complimentary cycle. Technological innovations in combination with process innovations generally amplify other productivity levers. Well known drivers of productivity—for example, the overall education and skill levels of the workforce, the effectiveness of energy and resource usage, the degree and nature of infrastructure development, and capital depth—can each be accelerated and catalyzed as the productivity cycle unleashes positive feedback loops across the economy.

Entrepreneurship—both by existing businesses and, importantly, via new business formation—is an especially important driver of the diffusion process. New companies that can rapidly scale and drive breakthrough innovations can create step-change jumps in productivity growth.

THREE KEYS TO ENABLE AND ENHANCE PRODUCTIVITY

1. Bringing Known Productivity Enhancers to Untapped Sectors or Geographies

When it comes to productivity, not all sectors or countries are equal. For example, during the late 1990s, when the US saw productivity growth surge from 1.7% to more than 2.6% annually, just six sectors accounted for all of the difference: wholesale trade, retail, semiconductors, personal computers, telecommunications services, and securities. The common factor: these were the largest and most competitive sectors.

For many known productivity drivers, there is still significant runway left. For example, IT-driven business process improvements such as back-office automation, information storage, and self-service customer platforms have been widely adopted in many industries. Yet in almost all countries, the healthcare, education and public sectors have not kept pace with the "IT revolution".

Bringing "laggard" sectors up to OECD industry average ICT penetration would unleash a surge in productivity growth. For example, in the OECD, some estimates suggest that by bringing public-sector productivity up to just *half* of private-sector standards would mean an improvement of upwards of 15%, a major gain for what is arguably the largest sector in most economies.

While driving ICT penetration is an important lever, the opportunities are much broader than information technology. Consider agriculture, which will need to double food production in the next 20-30 years to meet growing demand. Replacing the wasteful flood irrigation used in many parts of the developing world with proven, low-cost methods could as much as double agricultural yields and reduce water consumption by up to 75%.

The adoption of modern consumer payments by both businesses and governments is another well known productivity driver. Recent research by Moody's suggests that both credit and debit card payments boost global GDP growth from an average 3% a year to 3.2%, a 6% gain. Electronic payment systems help accelerate the flow of funds through the economy, smooth out lumps in consumer spending, increase trust and transparency between buyers and sellers, facilitate new consumer markets such as online retail, and reduce the overall size of the gray economy.

When considering opportunities to drive productivity, it is also important not to focus simply on large corporations and so-called national champions as potential sources of opportunity. While large multinationals are important players on the global stage, small and medium-sized businesses make local economies hum. For example, in Peru 98% of enterprises are small businesses. These companies drive the bulk of employment generation. How can the productivity gains that large companies have made deep within the economy be extended so small entrepreneurs can benefit? In particular, how can environments be created to encourage new business formation? These questions affect both local businesses that will likely always remain small, but also new businesses that can rapidly grow.

The opportunity to expand known productivity drivers is not only sector specific but can also be geographic, not simply between countries but within them. Not all regions within countries are created equal. Avoiding "geographic exclusion" by

spreading productivity enhancements broadly across an entire nation is important for ensuring social and political stability.

2. Unleashing the Power of Networks and Common Platforms to Catalyze Business-Model Innovation at Scale

Networks and common platforms, whether virtual networks such as the Internet or physical ones such as transport systems, are productivity drivers both in and of themselves and also because they allow other productivity-enhancing innovations to scale up rapidly. These network effects dramatically lower interaction costs, driving system efficiencies.

For example, after decades during which efforts to ignite economic growth in Africa focused on large-scale multi-government aid and infrastructure projects, it is the growth of mobile networks in Africa that has been one of the unexpected success stories of the last 10 years, giving hundreds of millions of people their first telephone connection.

So too, mobile telephony in Africa is spawning innovation and growth in other arenas. Take Kenya, where average per capita annual income is just $1,000 and a minority of the adult population is part of the formal economy. About 40% of the population now has a cell phone. Since telecom operator Safaricom launched its M-Pesa mobile payments system just three years ago, the rate of financial inclusion in Kenya has doubled. One in four Kenyans uses a mobile payments system to manage financial transactions, one of the highest penetrations of mobile banking in the world.

Yet another example is free-trade networks. Trade in intermediate goods has more than doubled in the last decade, a sign of more integrated supply chains and improved supply chain optimization, and an important driver of productivity and employment across markets. As we have seen increasing openness of trade and growth of trade networks, we have also seen significant innovation in business models. For example, Hong Kong's Li & Fung, a rapidly growing global company that coordinates the manufacturing of apparel for a range of merchants around the globe, supplies more than 4% of the US apparel market and a significant portion of the European market by activating a network of more than 10,000 suppliers across 40 countries. Their innovative model increases speed to market, helps drive down prices for consumers, and boosts business for thousands of small suppliers around the world, creating millions of additional jobs in emerging countries.

Improving infrastructure and transportation systems is another example of where networks can unleash unprecedented productivity gains. Brazil, with its expanse of fertile agricultural land, is poised to become the world's next breadbasket. To do so will require investments in a rural infrastructure network to speed up the movement of agricultural goods from field to port.

3. Accelerating the Next Generation of "Productivity-Enablers"

Predicting which sectors and innovations will drive the next frontier of productivity is not an exact science. Many innovations that seem promising today may fall by the way side as new disruptors emerge.

The most important innovations will be those that catalyze new innovation across sectors. These productivity-enabling innovations are the most valuable,

since they drive fundamental productivity changes in large sectors like retail and manufacturing. While impossible to predict with precision, a subset of emerging technologies offer promise.

One example is mobile broadband, which is bringing the power of the Internet to mobile devices. Soon, more people will access the Internet through mobile devices than through land-line connections. Moreover, mobile broadband is encouraging a raft of new business models, which are creating new and more convenient ways to access information, goods, and services.

Korea is leading the world in creating a truly mobile ecosystem—creating cloud computing platform for business model innovation and economic growth. The country has one of the highest mobile penetration rates in the world. KT, formerly Korea Telecom, is in the process of launching and is expanding the world's first nation-wide WiMax network. Already featuring the greatest density of WiFi hot spots per capita, by sometime next year, Korea will be on track to have more WiFi hotspots than the entire United States, despite being only 1% of the land mass.

Cloud computing—the movement of data processing away from desktops to inter-connected, centralized, high efficiency data centers—is another potential disruptor, creating both a dramatic increase in data processing speeds and a decrease in IT cost, due to better utilization of the computing infrastructure.

Similarly, we are seeing a new frontier in information technology, a world in which not just people but objects are connected to the global communications grid. IBM research estimates that by early this decade, there will be more than a trillion sensors and smart machines linked to the global grid, 20 to 30 times the number of people who are connected. Such advances promise to drive increased efficiency from physical infrastructure and environments. Smart parking meters and automated tollbooths are just two early examples of this trend, both improving customer service while also reducing government cost.

In another example, consider a range of new technologies that will drive the next gains in energy productivity and environmental sustainability. As we see energy consumption poised to surge by more than a third in the coming decade, driven by robust emerging market demand, we likewise know that we will need to figure out how to use energy differently. Innovations around the "smart grid" and "clean tech" promise to reduce our usage of resources, improve our environmental footprint, and help us to live better and more sustainably.

Healthcare will be another area of likely innovation. Mobile health solutions promise to reduce costs radically and improve outcomes. Recent estimates suggest mobile health monitoring of chronic disease patients can save nearly $200 billion in annual healthcare costs in the OECD and BRIC countries.

In one tangible example, diabetes is a disease whose impacts can be controlled by constant monitoring and vigilance. In Mexico, diabetes is the leading healthcare challenge, afflicting more than 10% of the population, and as much as 15% along the Mexican-US border. Mexican health providers, working in conjunction with Qualcomm, are now using a variety of mobile technologies to better connect with diabetes patients. Through the service, Mexican patients are now able to research information on their condition, get real time updates and reminders, and connect

real-time with care givers—helping increase health access to some of Mexico's poorest communities and improving health outcomes.

A raft of new technologies is likely to improve workforce effectiveness. Augmented reality can drastically improve the productivity of repairmen. Facial recognition technology and virtual fingerprinting can improve the productivity of customs agents and airport security officers. GPS and logistics-tracking software improve the productivity of truck drivers. Electronic signature and radio-frequency identification (RFID) technology improve the output of workers in logistics and sales. E-learning modules, delivered in increments over mobile devices, can improve workforce training. We fully expect to see many more such dramatic innovations enhancing workforce skills and capabilities, and redesigning work.

Moreover, we should not expect the leading-edge innovations to come just from the large Western economies. More than 50% of economic growth in the coming decade is likely to come from emerging countries. We fully expect these markets to create significant innovations, which will transform productivity not only in their own local economies but globally as well, as good ideas spread across the global economy.

RECOMMENDATIONS

The next decade has the potential to lift more people out poverty than all of the past decades in human history combined. The result will be significant reduction in mortality rates, improvements in public health and nutrition, increased education levels, and the creation of jobs. In short, the financial wellbeing of billions of people will be enhanced. Improving people's ability to enter and benefit from the global economy is in the best interest of all sectors of society—governments, businesses, and citizens. Unlocking the next wave of productivity growth will be critical to achieving this goal.

By constantly finding innovative ways to do things better, faster and more economically, the business sector is the primary driver of productivity gains. While the private sector can do much of the heavy lifting, it is only in deep collaboration with government and between governments globally that we will create the necessary conditions to unleash the potential of the global economy.

There are three areas where we urge the G20 to work together with us to unleash the next era of productivity-led growth:

- **Develop a joint commission between the G20, other relevant organizations such as the World Trade Organization (WTO), and the global business community to identify barriers to the diffusion of productivity-enhancing innovations—and create a process to reduce them.**

  The successful development, diffusion, and scaling of business and technology innovation is critical to accelerating productivity growth. Yet there remain many barriers that inhibit the dispersion of innovation.

  Decades of research on economic productivity show that flexible, dynamic markets that encourage competition are critical to accelerating productivity growth. For that reason, this working group supports the G20's renewed commitment to decreasing trade barriers. We support the recommendations of the G20 Business Summit working group on revitalizing trade. In

particular, we join them in urging the conclusion of the Doha Round of the WTO and fighting any urge to increase protectionism. However, we believe that more open trade is just one component of the productivity equation.

In addition, we believe that no organization is specifically looking at the barriers preventing the diffusion and dispersion of productivity-enabling innovations—and the growth of new entrepreneurial businesses and industries.

Regulations, many often made decades ago, vary significantly by country, creating complexity that inhibits and stifles the dispersion of innovation and new productivity-enhancing technologies and business practices. These not only inhibit productivity but can actually destroy it, wasting time and effort with bureaucratic red tape. We believe that there are many opportunities to standardize and improve the interface between economies in ways that specifically enhance innovation diffusion.

For example, trade and tariff restrictions devised in an era before global supply chains still limit the movement of goods. Customs and immigration processes remain unnecessarily bureaucratic, and labor laws are often unnecessarily rigid. Limitations on working hours, for example, or constraints on store hours significantly inhibit productivity gains. Intellectual property protection fails to ensure common global protection. Guidelines for foreign direct investment can also inhibit development, preventing the connection of entrepreneurs and new businesses with much needed capital.

Likewise, new realms of activity are emerging that blur historic industry lines. Take mobile payments, mobile banking, and mobile healthcare. As these new productivity-enhancing business models emerge, governments will need to move away from regulating these areas in traditional ways often through rules devised long before these innovations were envisioned.

Such a commission, using well established productivity measures like those recently developed by the OECD and other sources of data, can identify specific barriers to the diffusion of productivity-enhancing innovations. Where such metrics are currently lacking the commission can make additional recommendations.

The commission should likewise identify areas where smart regulation can be helpful. For example, corruption is a major drag on productivity, and a better legal and enforcement framework could help reduce it.

Prudent and fair regulations should foster competition and innovation, while ensuring the fair and proper functioning of markets. While some barriers will no doubt remain due to differing interests and philosophies of different countries, many barriers are outdated and in nobody's interest.

The joint taskforce should catalogue major barriers inhibiting innovation dispersion, identify clear recommendations for change, and report their findings to G20 leaders at the 2011 Summit in France.

- **Create a G20 clearinghouse to identify best practices in workforce development and innovation.**

  A better-educated workforce is a more productive one. Higher-skilled workers extract more gains from technological advances and innovations. Moreover, a greater share of higher-productivity jobs creates economic surpluses, which help generate more jobs for less-skilled workers.

  For governments worried about unemployment, boosting the overall skills of the workforce—through education and training—is among the most important levers for driving overall job growth, since surpluses created by high-skill workers flow through the economy, creating service and manufacturing jobs for low-skill workers.

  Constraints on labor and work mobility amplify the challenge of talent shortages. Importantly, many labor policies were designed for twentieth century national economies, not for a twenty-first century global one, and further increase labor market rigidity and structural unemployment, not evolving in line with the changing nature of work.

  A recent survey of more than 35,000 employers by employment placement firm Manpower shows skilled labor shortages in six of the 10 largest economies. Globally there is an inadequate supply of high-quality professional, technical and vocational talent.

  The proposed G20 clearinghouse should identify critical supply-demand gaps in the global labor market, create a perspective on key jobs for a high-functioning global economy, and identify structural barriers to job creation and job matching.

  In particular, the clearinghouse could work to identify the 21st-century global labor market model that facilitates the mobility of talent and work across borders to achieve maximum individual and organizational productivity. A key output should be identifying the skills needed in the future, creating a common framework and taxonomy for describing, developing and locating these skills, and identifying needed infrastructure to improve labor market fluidity.

  Each member of the G20 has both public- and private-sector education and training programs that address this gap in effective and often innovative ways that all countries could adopt or adapt. For example, the Intel Vietnam Scholars program is a collaboration among Intel, the Vietnamese government, and Portland State University that brings Vietnamese students to the US to provide them with advanced training in engineering. This is a partnership model that could be replicated in many different ways.

  Finally, the group could identify effective innovation models, where state resources in combination with private financing are creating an innovation infrastructure, such as technological parks, R&D centers, research laboratories and business hubs. A good example is the Skolkovo "innovation town" currently being built near Moscow. Companies from all over the world are encouraged to locate facilities and operations there, benefitting

from the "technopolis" infrastructure of the development. The government also is implementing a program to attract overseas scientists, researchers and venture business professionals to work there on a long-term basis, helping to foster the global dissemination of ideas.

- **Work with the OECD (or other suitable international body), in collaboration with the business community, to create a task force to identify opportunities to drive public sector productivity.**

  For all G20 countries, the public sector is a large and growing sector of the economy. It is also one of the least productive.

  Since most government activities are inherently non-competitive, there is significant incentive to share best practices across nations. From tax filing to business licensing procedures, there are many opportunities where governments could learn from the experiences of others, helping identify clear and concrete ways to close the public sector productivity gap.

  The benefit of driving productivity in the public sector is two-fold: both freeing up government resources for more important and impactful programs, and also ensuring that more capital stays in the private sector to help fuel new investment and new business formation.

  In particular, this task force offers an opportunity for deep collaboration with the private sector business community. Many parallels for business process efficiency exist in the private sector from which the public sector could benefit immensely. Data management, payroll processing, and customer service vary little in concept from the public sector to the private sector.

  The interface with the private sector can be simply the sharing of good ideas, or actual public-private collaborations.

  Take government support of small businesses in Brazil. There are an estimated 5 million Brazilian small businesses, which form the foundation of economic growth and new job creation in the country. Like everywhere, these businesses struggle with access to credit as they strive to grow. The Brazilian Development Bank (BNDES)—a federal public company allied with the Ministry of Development, Industry and Foreign Trade—provides programs to increase access to affordable credit, but struggled for years with a cumbersome and slow process, making it hard for businesses to access their loans, even once they had been approved. In an innovative partnership with Visa, BNDES issued electronic payment cards which now let small business owners access their funds immediately and disperse these funds in small increments. Thousands of these kinds of innovative partnerships exist across governmental agencies around the world—and could be shared.

  The task force should be an ongoing body which identifies best practices for public sector productivity gains, and which reports regularly to the G20 countries on productivity improvements. The task force could also develop superior standards for measuring and monitoring improvements in public sector productivity.

CONCLUSION

An increasingly global and technologically sophisticated economy has many routes to unleash productivity and thereby drive growth and prosperity. This does not mean governments should drive industrial policy, a rarely successful strategy. Rather, the public and the private sectors should work together to drive the next frontier of productivity-led growth. We stand ready to work with the G20 to help ensure that productivity growth gains greater attention and that the role of innovation and technology in driving it is encouraged and accelerated.

ADDRESSING THE IMPACT OF YOUTH UNEMPLOYMENT[1]

Working Group XI

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1 The Working Group thanks McKinsey (Martha Laboussiere) for her expert comments on the direction of the report and Professor David Nordfors (Stanford University) and Lauren Leader-Chivee (Center for Work-Life Policy) for their support and involvement in reviewingthe recommendations put together by this working group and the WEF for helping put us in touch.

INTRODUCTION

At their summit in Pittsburgh in September 2009, G20 leaders gave US Labor Secretary Hilda Solis the mandate to organize the first-ever meeting of G20 labor and employment ministers. That landmark gathering took place in Washington, DC, in April 2010, preceded by consultations with international trade union and business organizations.[2] The conference aimed to strengthen international cooperation and coordination of employment and social policies in the broader G20 process. Ministers discussed the state of the global labor market, ways to promote job creation and strengthen social protection systems and labor market policies, and how to prepare the global workforce for a post-crisis economy. The recommendations they adopted were forwarded to G20 leaders at their meeting in Toronto in June 2010.

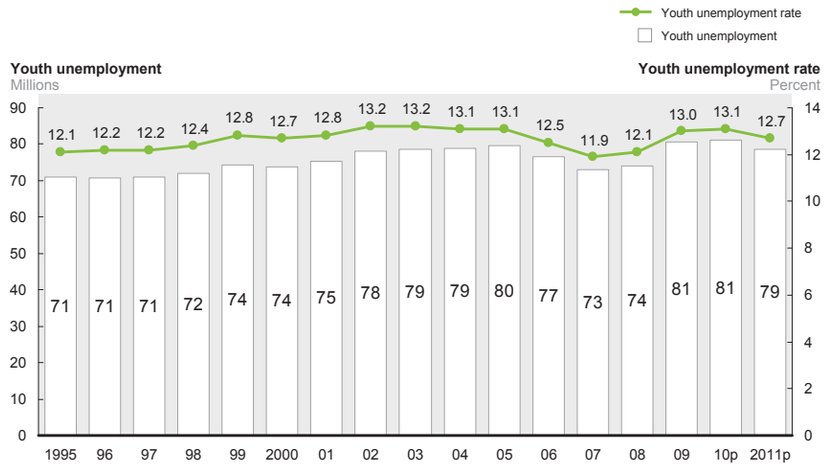
In his opening address in Washington, László Andor, Commissioner for Employment, Social Affairs and Inclusion of the European Union (EU), which is contributing to the work of the International Labor Organization (ILO) to develop a Global Skills Strategy, recognized the key role that the G20 has to play to ensure that employment and poverty reduction are at the center of national and global economic strategies, laying the foundation for strong, sustained and balanced growth. "Education, lifelong learning and skills development strategies must be linked to growth strategies," he said. "Better anticipation and matching of skills and labor market needs can help workers reap the benefits from post-crisis restructuring and new opportunities." Andor underlined the importance of strong labor-market policies and institutions in improving the quality of jobs and respect for fundamental rights at work.

The global economic crisis has brought to the fore the problem of youth unemployment. Jobs are hard to come by even for seasoned, skilled workers. Across the globe, the youth cohort—those just out of school who are aged 15–24 and have few skills—is finding the competition for limited vacancies very tough. Unemployment is rampant. It has more than doubled in the United States since December 2007. In the eurozone in 2009, joblessness increased by more than 2%. It has also moved higher in transition economies and developing countries, in particular the Commonwealth of Independent States (CIS) and Central and Southeastern Europe, where the number of unemployed increased by as much as 35% in 2009.

The crisis has hit hard certain segments of society—youth, women and especially those with low levels of education. In places such as the US and parts of Europe, long-term youth unemployment is rising. According to the UN report "World Economic Situation and Prospects 2010", unemployment among youth worldwide increased from 12.1% in 2008 to 13% in 2009 (Exhibit 1).[3] This trend is expected to continue well into 2011 and have a long-term impact on today's young people in terms of their career and mobility. The negative effects will be felt even more with drops in the level of employment participation among youth and in secondary-school enrolment as the perceived benefits of education diminish (Exhibit 2).

2 http://ec.europa.eu/social/main.jsp?langId=en&catId=89&newsId=781&furtherNews=yes
3 From ILO report: "Global Employment Trends for Youth 2010" http://www.un-ngls.org/spip.php?article=2799; and "The Lost Generation" from Bloomberg Businessweek: http://www.businessweek.com/magazine/content/09_42/b4151032038302.htm and "The Guardian": http://www.guardian.co.uk/business/2010/aug/11/unemployment-and-employment-statistics-recession

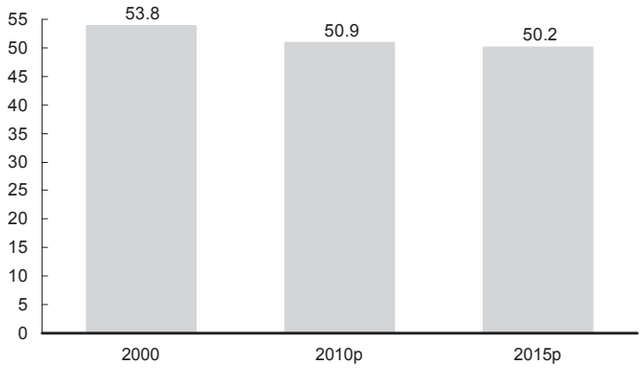
Exhibit 1. Global youth unemployment and unemployment rate



SOURCE: From ILO report: "Global Employment Trends for Youth 2010", http://www.un-ngls.org/spip.php?article=2799; "The Lost Generation" from Bloomberg BusinessWeek

Exhibit 2. Global youth labor participation rates

Percent



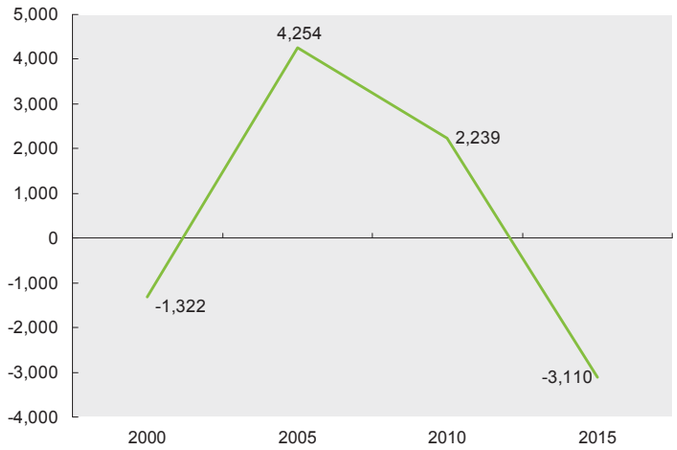
SOURCE: From ILO report: "Global Employment Trends for Youth 2010", http://www.un-ngls.org/spip.php?article=2799; "The Lost Generation" from Bloomberg Businessweek

Unemployment early in a person's adult life has a number of negative effects:

- First, it delays gains in experience and training that usually lead to increased earnings. Prior work experience has been found to have a large and positive effect on future earnings. An unemployment spell could reduce a person's earnings potential.

- Second, there is an increased likelihood of future unemployment. Skills deteriorate or are not updated, making it harder for unemployed youth to find work the longer they are without a job.
- Third, unemployment will also deprive youngsters of the necessities for a social life such as access to independent housing, which would allow them to have families. This could translate into economic losses at the family level due to the increased need for financial support, leading to lower investment and savings.
- Fourth, long-term or permanent unemployment could have psychological impact, possibly resulting in a "lost generation" of people disconnected from the labor market. This could ultimately stunt economic growth. Governments and industry professionals who have woken up to this problem are trying to contain the "scarring" of unemployed youth.[4] The ILO report "Global Employment Trends for Youth 2010" indicates that, of some 620 million economically active youth aged 15 to 24 years, 81 million were unemployed at the end of 2009, the highest number ever.[5]
- Finally, long-term youth unemployment poses social challenges such as an increased susceptibility to delinquency, substance abuse and violence. The lack of opportunities for formal employment, combined with the diminished perception of education as a means to improve those prospects, could lead to the expansion of the informal employment sector, thereby changing the overall structure and fabric of society.

Exhibit 3. Rate of youth labor growth



SOURCE: International Labor Organization, "Global Employment Trends for Youth 2010"

4 ibid.
5 http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_elm/---trends/documents/publication/wcms_143349.pdf

THE CHANGING LABOR MARKETS

As globalization and advances in technology drive labor markets across the globe, these trends are expected to impact developed and developing economies differently. There is a growing realization that technology is enabling the movement of jobs to markets where the largest talent pool is available at the most economical costs.[6]

These changes are also expected to impact the global economy in the long run in the form of changed demographics at the workplace.[7] Changing demographics and an ageing society combined with the growing tendency for families with a single child will result in huge changes in the workforce.[8] In addition to an older workforce, we can expect to see more female participation as well as a lifelong focus on learning as the importance of acquiring new skills gains increased currency. The shift in demographics may result in an increased demand for professionals in the life sciences and healthcare.[9]

The loss of an entire generation is expected to reduce government income as a result of lower tax revenue and increased spending on subsidies and social welfare.[10] Decreased tax receipts will make it more challenging to finance pensions and the healthcare of large numbers of retirees in coming years, especially in developed countries. Rising health risks and healthcare costs, as well as the educational challenges faced by children of unemployed parents, especially those in lower-income countries with poor social safety nets, could potentially result in increased social tension.

AREAS OF FOCUS

To address the issue of youth unemployment, countries would benefit from an evaluation of the dynamics that shape the labor market for this age group, including:

- Expected demand in labor markets and the trends shaping them
- Preparedness and willingness of youth to begin employment
- Best practices and successful pilot projects and the potential for scaling them up and adapting them to different nations
- Regulatory barriers that could be inhibiting the employment of youth.

6 http://www.corporate-eye.com/blog/2010/06/the-global-talent-picture/
7 http://www.bls.gov/opub/working/page2b.htm; http://talentreadiness.wordpress.com/2008/02/24/demographic-trends-us-workforce/
8 "World Population Highlights: Key Findings from PRB's 2010 World Population Data Sheet," Population Bulletin 65, no. 2 (2010). http://www.prb.org/Publications/Datasheets/2010/2010wpds.aspx
9 From "Workforce Demographics drive workforce training" http://www.elearningcouncil.com/content/workforce-demographics-drive-workforce-training
10 ILO report: Global Employment Trends for Youth http://www.ilo.org/empelm/what/pubs/lang--en/docName--WCMS_143349/index.htm

Labor Market Demand

These are examples of sectors where demand for workers is expected to increase and the types of jobs that will need to be filled:

- Technological advances in biotech and IT informatics and increases in production in these sectors will drive a growing need for application developers, designers and engineers.
- Increased economic growth and financial instability will drive growth in the services sector. This, combined with some volatility in cash flow, could shift the emphasis to fixed-term work contracts or short-term hiring, creating an increase in the need for flexible jobs with adaptable skills.
- The growing focus on sustainability and efforts to address climate change will drive innovation and research and development in this area, creating a slew of "green jobs", especially in services to boost energy efficiency.
- Increased liberalization and the privatization of education will create a burgeoning need for marketing and strategy professionals.
- There will always remain a need to meet local job requirements—jobs that cannot be globalized—such as positions in hospital intensive care, hospitality services including hotels and entertainment, local equipment and vehicle repair, gardening, and so forth.

RECOMMENDATIONS

These are recommendations for action by governments, business and civil-society sectors:

Create Public-Private Academic Partnerships to train youth for jobs that are available immediately or in the short term

The economic crisis has brought the focus back to our educational systems and pointed to reskilling as the shortest route to near-term employment. Growing skill gaps are already a concern, requiring a concerted effort by policymakers, private-industry players and academic institutions to address. Education and training affect individual productivity, the capacity to innovate, and the ability to adapt to innovation. These in turn promote economic growth.

Technical Vocational Education and Training (TVET) is already an important part of government policy in many countries. Parallel to this is the growing opportunity for youth to learn required skills and enter the work environment through apprenticeships in the informal sector and internships in the formal sector. A first step would include identifying and mapping the willingness and preparedness of youth to join the workforce.

Formalizing informal modes of vocational training and offering standardization of curricula and certifications are ways to ensure that quality requirements are met. Another way is to focus on programs that train the trainer, including increased capital investments in programs that will help modernize and improve the quality of teaching and learning.

In addition, incentives for vocational training for jobs that are necessarily localized—for instance, those in intensive care in hospitals, hospitality services including hotels, cooking, entertainment, equipment and vehicle repair, and gardening—will also help address the problem.

These are examples of public-private partnerships focused on internships, apprenticeships and addressing skills gaps through continuous education and training:

- The US government has set aside $1.2 billion for Workforce Investment Act (WIA) youth employment activities through the American Recovery and Reinvestment Act (ARRA) of 2009. This legislation, which specifies summer youth employment programs as a particular interest to Congress, recognizes that both employers and employees have indicated that new job entrants lack the "basic knowledge, workplace skills and specific applied skills" required for them to be successful in the workplace. Eligibility for participation in WIA youth employment programs has been extended from the statutory age of 21 to 24.[11] There are also dropout-prevention programs such as Communities In Schools (CIS), the largest scheme of this kind in the US, which aims to increase the number of school entrants who actually graduate. In addition, there are award-winning programs such as Corporate Voices' Year Up, which is a non-profit organization that uses an innovative approach to connect urban young adults to the mainstream corporate job market by teaching business and technical skills and providing apprenticeships with companies.[12]

- The Australian government's Teaching and Learning Capital Fund (TLCF) for Vocational Education and Training (VET) is a part of the AU $4.7 billion stimulus package to support its economy during the crisis,[13] via capital investments to modernize and improve the quality of teaching and learning focused on public skills and training infrastructure to secure economic activity, assist in addressing the impacts of the economic downturn, and increase the capacity of the training sector to meet long-term skills needs.

- Uitvoeringsinstelling Werknemersverzekeringen (UWV) Werkbedrijf and the education knowledge center Colo in the Netherlands will provide traineeships or on-the-job education places to enable young people to complete their training. Opportunities are also being explored to get elderly employees part-time unemployment benefits by spending part of their time transferring skills and knowhow to young people.

These are examples of initiatives offering job experience and vocational training to youth and easing eligibility requirements for unemployment benefits:

- The government of the UK in 2009 announced the Young Person's Guarantee, which guarantees every young person under the age of 25 who has claimed unemployment benefits for over a year the following: a job offer, work-focused training, or a place on a community task force. Job offers will

11 www.icfi.com/transition
12 http://corporatevoices.wordpress.com/2010/02/12/workforce-readiness-corporate-voices-applauds-president-obamas-initiatives/
13 http://www.economicstimulusplan.gov.au/education/pages/education_tlcf.aspx

be guaranteed either through existing jobs or through the so-called Future Jobs Fund scheme, where, local authorities and third-sector groups will be able to submit bids for jobs to improve their local community. Further jobs will also be funded by the government in the fastest-growing sectors and will be targeted at long-term unemployed young people.

- The Canadian government's Youth Employment Program provides targeted funding to enable employers in the not-for-profit sector to hire summer students.
- Enterprises also foster public-private partnerships in support of education, economic development and job growth through the development of regional hubs based around a manufacturing, service, or distribution facility. These hubs serve as magnets for high-tech industries and the high-skill jobs they provide. Strategic tri-partite partnerships with government and education institutions are also usually set up to ensure the creation and maintenance of a skilled work force. Additionally, the setting up of new facilities in new geographies adds impetus to academic programs as well as economic growth in these regions in related areas. Enterprises have also created successful blueprints working with academia to influence the curricula to ensure employability of the graduating students. New employment opportunities are also created through internships, wage subsidies etc.

Forging strong partnerships between academia and industry to allow students increased access to mentorship and internship opportunities will allow them to hone their skills and acquire workplace-ready skills, while the job market recovers. Incentives and subsidies should be provided as applicable for private enterprises that create strong internship programs and create employment opportunities for these interns.

Governments should also take the lead in creating a "pipeline" based on enterprise workforce requirements, identifying such training programs as a primary source for their workforce needs. Governments should also facilitate the creation of a "youth advisory" to follow through and lend a voice to the youth agenda.

The current state of the market has re-emphasized the need for an ongoing dialogue between governments or policymakers and workers on the one hand and private enterprise participants as employers on the other. Such trilateral engagement can be the foundation for shaping policies and methods to recover from the current crisis as all players are involved in defining responses to create and maintain employment leading to sustainable recovery. An example:

> In 2009, the Chilean government, in partnership with the Confederation of Production and Trade, the Confederation of Small and Medium-Sized Enterprises and the Confederation of Workers, concluded a national Tripartite Pact for employment, training and labor. Enacted into law, it includes six measures on employment, training and social protection for a period of 12 months, as well as a program of grants for women. These measures were aimed at reducing the unemployment rate by 1.5% and benefiting about 125,000 people. As part of this program, 160,267 workers and 4,506 enterprises participated in an initiative to subsidize youth employment.

In some countries, social dialogue is challenging because of the difficulties bridging the differences among the tripartite partners. Where there has been political will and engagement, however the sides have managed to overcome divergences and engage with each other.[14]

The public sector could strengthen, promote and support such partnerships through different means including:

- Providing adequate incentives such as tax breaks and concessions for creating jobs for youth, training and internships
- Sharing costs, with private enterprise focusing on specific high-growth industry sectors to ensure that youth are brought in to the active workforce
- Leveraging and directing public-sector efforts, grants or investments towards similar ends
- Reassessing policies that increase the cost of employing entry-level workers (e.g., minimum-wage hikes) or carry the risk of undermining employment levels (e.g., mandated benefits and increased payroll taxes)
- Creating and implementing policies that provide incentives such as wage subsidies for hiring interns after completion of an internship program
- Providing incentives for employees who seek voluntary work, new skills training and internships if they are unemployed for a specified period, say, for over three months
- Fostering tripartite social dialogue involving workers, private enterprise and policymakers to formulate policy and define the right responses to ensure sustainable economic recovery
- Encouraging the creation of small companies that can facilitate training and apprenticeship opportunities across industry sectors
- Mandating primary and secondary education and providing incentives for students who complete vocational training.

The private sector could also consider global partnerships to help contain this problem. Private enterprise can contribute by:

- Creating and sharing a database of available jobs and canvassing for entry-level employment
- Identifying potential skill requirements based on near- and long-term growth focus
- Cooperating closely with academia in defining relevant curricula to ensure graduates are prepared to join the workforce

14 http://www.ilo.org/public/libdoc/jobcrisis/download/g20_report_employment_and_social_protection_policies.pdf

- Creating strong ties with academia and working closely with youth organizations to ensure on-the-job training through internships and apprenticeships are made available
- Contributing actively to the social dialogue in defining the policies and responses to ensure sustainable economic growth and recovery
- Creating programs to educate the youth about roles and career progression and opportunities for employment in specific industry sectors.

Create Effective Unemployment Welfare and Social Protection Systems

While there are a few examples to show that the existence of a strong welfare and social protection system can be counterproductive in tackling the problem of youth unemployment, the opposite is also true, as in the case of Korea.

Contrary to expectations of substantial cuts in social expenditure, many countries have responded to the recent economic downturn by testing their social-protection programs, including pensions, benefits, and expenses on food, education, health and housing. Countries that introduced or expanded social-protection schemes prior to the downturn were better able to cope with the economic fallout. The levels of coverage and the implementation differed vastly between developing and developed countries, with the developing economies addressing immediate needs through temporary measures and developed ones looking at structural changes to ensure increased coverage.

An important part of designing an effective program to encourage entrepreneurship in the longer term is to create adequate safety nets, including social benefits to provide income support where required. The definition of conditionality in designing these should ensure that such benefits are only awarded to youth that are actively engaged in job search, training or the improvement or addition of new skills. This should help encourage entrepreneurship and also mitigate any negative effects of a strong social-welfare system.

These are examples of active labor-market interventions and programs to expand the labor force:

- The Organization for Economic Cooperation and Development (OECD) launched the Jobs for Youth project in 2006 across 16 countries, including Australia, Belgium, Canada, Korea, Denmark, France, Greece, Japan, Netherlands, Norway, Poland, Slovak Republic, New Zealand, Spain, the UK and the US.
- The Dutch government has entered into "covenants" with 30 regions to set out concrete youth unemployment measures for each of them. In every region, all parties able to help create jobs for young people can apply for support. Also, with a youth unemployment action plan that is primarily being implemented by municipalities, all municipalities are obliged to offer work, training or both to all 18–27 year-olds who apply for social assistance benefits.[15]

15 http://www.oecdobserver.org/news/fullstory.php/aid/3086/Giving_youth_a_hand.html

- The government in Argentina is strengthening its Public Employment Services (PES) by equipping local offices with wide connectivity access to make available the full array of labor-market information. It has created additional job units for youth and is offering youth vocational guidance and work-related training. It is also subsidizing jobs for young, lower-skilled jobseekers and provides self-employment assistance including counseling and financial support to young jobseekers to start a business. The unemployed are entitled to use unemployment insurance as capital to start a business.[16]

- The Chinese government is looking at strengthening training, job placement and employment information services aimed at reinforcing the employability of jobseekers. It is implementing a vocational training program for migrant workers, particularly the youth, and providing counseling services to support self-employment.

- The Korean government is building a job-referral system focused on reinforcing databases of college graduates and outstanding SMEs and strengthening the employment service capacity of schools.[17]

This is an example of a welfare benefit and social-protection program:

In the Netherlands, there is a focus to create the right opportunities for vulnerable young people and problem youth. Programs include Plusvoorzieningen (a combined package of education, care, support and job-search assistance), residential schools to provide students with 24-hour support (Internaat voor Veiligheid en Vakmanschap) and a project aimed at connecting youth care, education and the labor market (MKB/MO groep jeugdzorg).

The public sector will need to take the lead in defining a flexible and responsive social-welfare system, with these key goals in mind:

- To create a comprehensive and multifaceted program to ensure that special needs of vulnerable groups including disadvantaged youth are adequately addressed

- To ensure access to basic services including healthcare and basic food in the form of a "social-protection floor"

- To define flexible policies that can cover multiple areas including unemployment insurance, pensions and benefits, as well as basic needs like food and housing

- To ensure that labor market policies are defined to encourage the addition of new workers and other vulnerable groups

- Create and define policies that address the possibility of benefit dependencies adequately through "mutual obligations" (carrots and sticks) approaches where "carrots" have to be effective ALMPs; "sticks" involve threat of moderate benefit sanctions

16 http://www.ilo.org/public/libdoc/jobcrisis/download/g20_report_employment_and_social_protection_policies.pdf
17 http://www.moel.go.kr/english/topic/employment_policy_view.jsp?&idx=644

- Create early interventions where required to ensure acceptance and to achieve implementation objectives.

Private industry needs to partner with the government in creating and testing social protection and welfare policies. The private sector should:

- Partner with government to roll out to pilot and test new policies
- Keep people in jobs through progressive policies like work-sharing and on-the-job training
- Create new jobs leveraging any hiring subsidies and public-works programs
- Prevent long-term unemployment, human capital deterioration and dropouts from the labor market by increasing employability
- Provide job search assistance, work experience and apprenticeship programs, training and entrepreneurship incentives.

Foster Entrepreneurship

Governments across the globe need to recognize the role that entrepreneurship can play in increasing employment opportunities while buoying up the economy. What are required are policies that support the creation of new enterprises that can grow to create more opportunities for employment. Young entrepreneurs should ideally have a low barrier for access to funds to allow for an environment where innovation and growth can flourish. Microfinance, including the provision of small loans, savings accounts, insurance and transfers, will play a vital role necessary for development. In fact, there should be avenues for government, as well as enterprises, to support the creation of new businesses.

In addition, policies with a focus on creating demand for the products and services that these enterprises offer will be crucial to sustaining economic recovery. Policies should be designed to help grow the entire spectrum of labor-market programs, spanning from job-search facilitation and training that targets the disadvantaged to the passive end of the spectrum including early retirement schemes and exemptions from job searches for older workers.

These are examples of programs aimed at entrepreneurship development:

- Around 555,000 youth from rural areas in Bangladesh received training for self-employment from some 300 centers run by the Department of Youth. Approximately 341,680 were eventually self-employed.
- In India, the Training of Rural Youth for Self-Employment (TRYSEM) program aimed to provide basic technical and entrepreneurial skills to the rural poor aged 18 to 35 to enable them to take up employment or self-employment. Of the total beneficiaries, around 54% were women, higher than the target minimum of 40%. Nearly 30% of the trainees were illiterate, thereby providing an employment channel for a highly disadvantaged segment of the population. The program also focused on promoting self-employment in specific trades.

- The Indonesian government has taken a lead role in the global Youth Employment Network (YEN). It implemented a Youth Employment Action Plan from 2004 to 2007 as part of its efforts to meet the Millennium Development Goal of developing "decent and productive work for youth". The Ministry of National Education and the Ministry of Manpower adopted a "careers guideline" developed with the ILO to provide career counseling to young people. Entrepreneurship training is also being provided to young people about to leave school, giving them clear information on opportunities in the labor market. At least 10 district vocational training centers are implementing Computer Based Training (CBT) with ILO assistance.[18]

- In Canada, the government's economic stimulus package provided Cdn $10 million to the Canadian Youth Business Foundation, which mentors new entrepreneurs. The National Research Council's Industrial Research Assistance Program received an additional Cdn $200 million over two years to temporarily expand its initiatives for technology-based SMEs and contribute to an innovation-led economic recovery. This included Cdn $170 million in contributions to firms and Cdn $30 million to help companies hire over 1,000 new post-secondary graduates in business and science over two years.[19]

- The Korean government is helping to create new occupations and businesses by helping to support the launch of start-ups and offering them the necessary physical space for their operations.[20]

- A global program run by a computer and IT services company trains students, aspiring entrepreneurs and small business owners to harness the power of IT to establish and grow their businesses. The program combines face-to-face training and online tools to address the educational needs of students, regardless of their background, location or circumstances. These virtual tools and games allow students to access training from anywhere. All online training, tools and resources are free.

The role of government in fostering entrepreneurship and encouraging innovation is huge and includes:

- Setting a low barrier for access to funds to allow for an environment where innovation and growth can flourish

- Supporting innovation, in order to not only create value, but also to create new jobs where each job creates maximum value in comparison to the alternative occupations for the employees

- Creating "special economic zones" where concessions and special privileges such as tax breaks and incentives are provided to private industry to encourage entrepreneurship

- Providing apprenticeship and internship programs that give people on-the-job experience and ease entry to the workforce through self-employment.

18 http://www.ilo.org/public/libdoc/jobcrisis/download/g20_report_employment_and_social_protection_policies.pdf
19 ibid.
20 http://www.moel.go.kr/english/topic/employment_policy_view.jsp?&idx=644

Private enterprise and industry players need to support the local governments by:

- Partnering with government to provide apprenticeship and internship programs that give people on-the-job experience and ease entry to the workforce through self-employment
- Providing the impetus for entrepreneurship through training, mentoring and internship programs
- Mediating between policymakers and young entrepreneurs to ensure that any inadequate policies are addressed
- Playing the role of informers, bringing to light business opportunities in the public and private sectors.

Identify High-Growth Sectors by Geography

There is a need to create a baseline report on the job scenario by country and region based on the long-term economic and political transformations that are taking place. While past predictions indicate that there may have been some disconnects between actual and predicted job growth, there is a greater need to understand which geographies have created net new employment and to see how best to learn from such examples to replicate successful strategies elsewhere to ensure growth. There should be an increased focus on a systematized effort to catalogue insights and best practices that can be scaled up across nations to leverage opportunities for growth.

For instance, India leveraged the growth of the IT industry to create a lot of jobs. Understanding this phenomenon and leveraging best practices from this case to identify other sunrise sectors and apply similar approaches to them should be an area of immediate focus.

The government must take the lead in defining policy and creating frameworks to capture and disseminate the right information from a large cross-section of industry players across geographies. This can be achieved by:

- Creating a task force comprising of all stakeholders to brainstorm and innovate on ways to create net new employment with a focus group on youth employment
- Creating a baseline report on job scenarios by country and region based on the long-term economic and political transformations
- Collecting data systematically and creating a scalable database of potential growth areas mapped to talent shortages
- Standardizing the data collection and dissemination process so that it would be easier to monitor progress made
- Identifying best practices and implementations that are relevant to their countries and taking these forward on their own by adopting fully or parts of each recommendation where appropriate
- Reviewing policies that hinder addressing of such talent shortages locally for the near term

- Partnering with academia and industry to ensure these talent shortages are addressed through training and apprenticeship programs for the longer term.

Businesses thrive on their ability to predict future growth. Identifying the best ways to leverage these is an area where policymakers can partner effectively with private enterprise. This should be followed by proactive governmental policies that foster growth in these areas.

Private enterprise and industry players can help identify high-growth sectors by:

- Participating actively in local task forces to brainstorm and innovate on ways to create net new employment
- Creating specific opportunities for employment for youth and other disadvantaged sections of society
- Publishing regular industry-level updates on opportunities for growth and the predicted talent and job requirements by country and region based on long-term economic and political transformations
- Partnering with academia and government to address talent shortages through training and apprenticeship programs
- Creating a "global resource center" which will collate relevant data and assist governments with the implementations of these best practices or programs.

INCREASING ACCESS TO HEALTHCARE IN DEVELOPING ECONOMIES

Working Group XII

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INTRODUCTION

Increasing access to healthcare in the developing economies is indispensable for sustainable economic growth. Poor access to healthcare and a weak health infrastructure can impede economic growth and vibrancy, by reducing productivity and decreasing education opportunities. Over the past decade, innovative financing has produced many success stories against specific diseases, which could be applied and expanded to increase access to healthcare and strengthen the healthcare system in the developing economies.

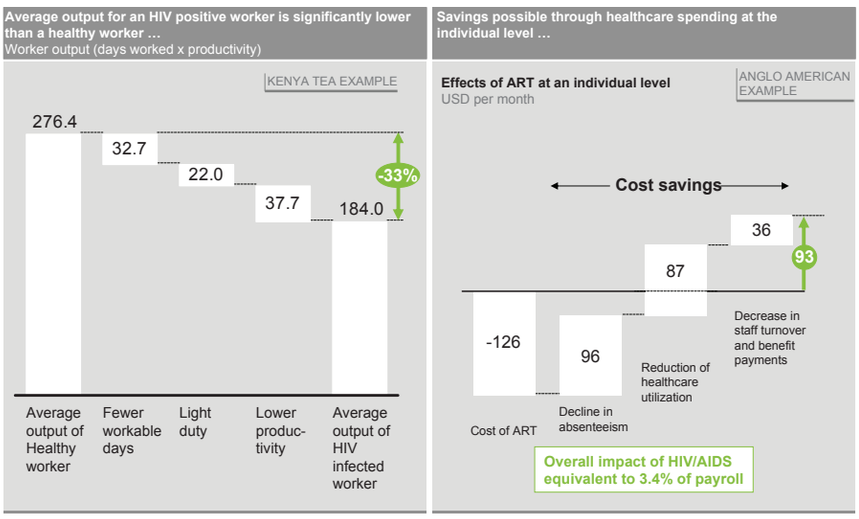
To this end, the G8 Hokkaido Toyako Summit in 2008 recognized the importance of health systems strengthening in the Toyako Framework for Action. The public sector could further contribute by acknowledging the importance of healthcare through its inclusion as a permanent agenda item at the G20. The private sector could contribute not only financial resources, but also capabilities such as through training in management skills for quality control, performance and development, and value-chain improvement, all of which could help to significantly strengthen the healthcare systems in developing economies.

CONTEXT

The Importance of Global Health for Business

Besides providing a societal benefit, investing in healthcare is fundamentally important to not only national interests but also the private sector's long-term goals. The burden of disease in developing countries stifles economic growth and also has a direct impact on business through increased absenteeism, reduced productivity and more costly employment benefits.

Exhibit 1. HIV/AIDS has a large negative economic impact on private firms



1 Average output of healthy worker = Workable days (6 days x 52 weeks – 35.6 days)

SOURCE: Matthew P. Fox et al, "The impact of HIV/AIDS on labor productivity in Kenya" (2004); E Berüter et al, Cost analysis of HIV and ART at Anglo American, (2009), Aurum Institute for Health Research; McKinsey analysis

Investments in healthcare require "collective action" to be meaningful. Therefore, private-sector contributions would be best made as part of a broad multistakeholder approach to investing in healthcare capacity building across regions and not only within individual workforces. With appropriate scale, consistent and focused investment over time can lead to improved economic opportunities in developing economies and the expansion of global markets for the future.

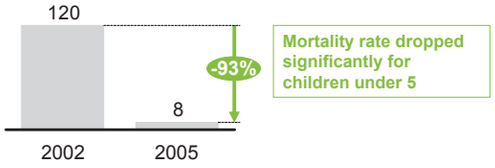
Improvement in global health is an important part of the sustainable development agenda and should rank alongside business and government commitment to the environment. While significant impact can be achieved by responding to major diseases such as AIDS, tuberculosis and malaria, sustainable improvements in population health can only be achieved through systematically strengthening health systems in developing countries. Health systems strengthening includes investments in:

- Health facilities, equipment and services—Good health services are those which deliver effective, safe, quality personal and non-personal health interventions to those who need them, when and where needed, with minimum waste of resources. Investment in facilities and equipment can provide more efficient services and provide better healthcare outcomes.
- The health workforce—A well-performing health workforce works in ways that are responsive, fair and efficient to achieve the best health outcomes possible, given available resources and circumstances. Investments in physicians, nurses, and ancillary workers (e.g., funding medical schools and advanced training) would increase the number of skilled health workers in developing countries and improve healthcare management.
- The procurement and supply chain for medicines and medical products—A well-functioning health system ensures equitable access to essential medical products, vaccines and technologies of assured quality, safety, efficacy and cost effectiveness, and that these are used in scientifically sound and cost-effective ways. Investment in procurement, supply, storage and distribution systems can minimize supply chain leakage and wastage, thereby ensuring efficient use of scarce medical resources.
- Health information and management systems—A well-functioning health information system is one that ensures the production, analysis, dissemination and use of reliable and timely information on health determinants, health systems performance and health status. Investment in general population and facility-based data and management systems can assist to detect, investigate, communicate and contain public-health risks, as well as contribute to capacity building through education and mobile health initiatives.

Exhibit 2. The potential of mobile healthcare

Low-Cost High-Value Innovation with Pesinet

- Early detection for malnutrition / dehydration in children under 5 using SMS via mobile networks between doctors and rural communities
- Children weighed twice a week in their communities by agents who text weight to doctor; doctor requests in-person check-up if weight is abnormal
- Monthly fee ($1.05 per child) covers weighing, doctor visit, 50% of drug costs



Key Success Factors

- Low initial fixed cost and ease of usage
- Coordination across sectors, with in-kind donation from the private sector and implementation by local NGOs
- Lower burden on health system for high-skilled workers

SOURCE: United Nation Development Program, Pesinet Web site McKinsey Analysis

- Financial management and health financing—A good health financing system raises adequate funds for health, in ways that ensure people can use needed services, and are protected from financial catastrophe or impoverishment associated with having to pay for them. Investment in financial management systems can ensure the efficient distribution of funds and investment in financial institutions (e.g., insurance agencies) can enable pre-payment to reduce the necessity for sudden out-of-pocket expenses.

- Governance and leadership—Leadership and governance involves ensuring strategic policy frameworks exist and are combined with effective oversight, coalition building, the provision of appropriate regulations and incentives, attention to system-design, and accountability. Investment in institution building and management (e.g., investment in public-policy schools, training facilities for government employees) can provide healthcare-related policy efficiently and effectively.

- Research and development in the local/regional context –Healthcare R&D in the local/ regional context ensures that innovation is efficiently targeted to the social, medical and financial needs of the local/regional population, which promotes ownership of new innovation and potentially enhances its spread and adoption. For example, investment in a sustainable pan-African research and development network could contribute to finding simple, low-cost solutions to address healthcare needs that disproportionally affect Africans.

Quality healthcare is essential to enable the economies of developing nations to achieve their full growth potential. As has become apparent following the recent financial crisis, emerging markets have been key drivers of the global economy in recent years and hold the highest potential for long-term GDP growth. As such, cross-border investors should consider that improving healthcare in the developing world is directly linked to improving the climate for "doing business" in the most promising markets for many companies' long-term growth strategies.

ETHIOPIA HEALTH SYSTEMS STRENGTHENING

Early grants by the Global Fund to Fight AIDS, Tuberculosis & Malaria to Ethiopia in 2003 included large budget allocations for drugs and commodities. However, because Ethiopia's national pharmaceutical supply service (PASS) was overwhelmed and slow to act, disbursements by the Global Fund were delayed. Ethiopia's Ministry of Health successfully argued that this was an opportunity to strengthen PASS, rather than bypass it—even temporarily. While not part of a specific proposal to the Global Fund, these difficulties accelerated implementation of solutions to improve procurement and supply management procedures. Only limited monies from the Global Fund were allocated to hire additional PASS staff to manage pharmaceuticals, vehicles, computers and office equipment, but with major effect. By mid 2005, drugs and commodities were more reliably arriving at lower levels of the health system to treat the patients that needed them.

The Global Health Funding and Resource Challenge

There is a major gap in funding effective, scalable healthcare programs. Analysis by the High Level Taskforce on International Financing for Health estimated a $32 billion annual funding gap for the health Millennium Development Goals (MDGs), 78% of which is in Sub-Saharan Africa. Significant evidence from developing economies suggests a link between financial crisis and worse health outcomes. For example, over one million excess deaths occurred in the developing world between 1980 and 2004 in countries experiencing economic contractions of 10% or greater.

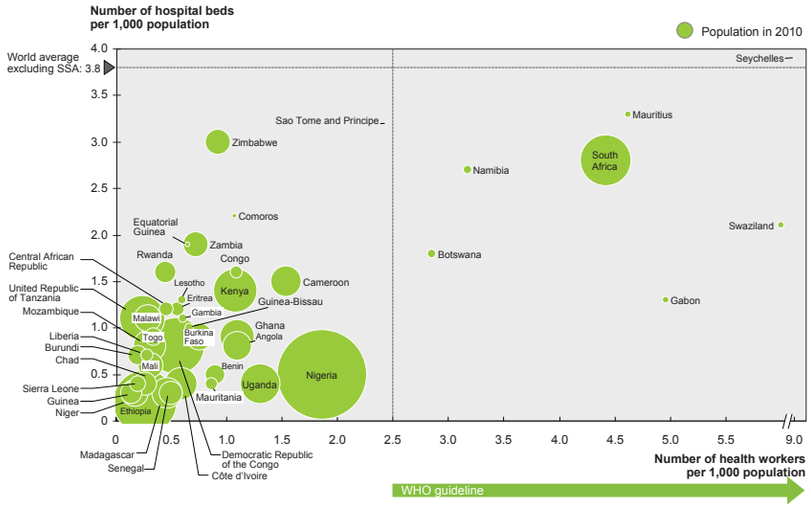
In response to healthcare funding shortfalls in developing countries, increasing support has been shown for novel financing mechanisms such as the Global Fund to Fight AIDS, Tuberculosis & Malaria (Global Fund) and the Global Alliance for Vaccines and Immunization (GAVI Alliance). Conforming to the principles outlined in the 2005 Paris Declaration on Aid Effectiveness and updated in the Accra Agenda for Action of 2008, these entities are built on a foundation of partnership among governments, the private sector, private foundations, multilateral agencies and civil society including non-governmental organizations. These new financing mechanisms also share many of the fundamental principles espoused by private enterprise, including a focus on efficiency and results, performance-based funding, transparency, audit and accountability.

The Global Fund has achieved extraordinary results in the eight years since its inception. By June 2010, the programs it sponsored had saved 5.7 million lives, provided access to treatment for almost 3 million AIDS and 7 million TB patients, distributed 124 million insecticide-treated bed-nets and contributed to a significant decline in malaria cases and deaths in at least 10 malaria-endemic countries. Meanwhile, GAVI Alliance-funded vaccines have prevented 5.4 million deaths.

However, as the recent shortfall in replenishment targets for additional investment in the Global Fund shows, even novel financing mechanisms are facing resource challenges. Pledges for the period 2011–2013, amounting to $11.7 billion (of which only $31 million came from the private business sector), fell short of the Global Fund's minimum estimated need of $13 billion.

In addition to the global health funding challenge, healthcare has a significant and immediate resource and capacity challenge. For example, while 11% (821 million) of the world population resides in Sub-Sahara Africa, a mere 3.5% of health workers (915,000) reside in the region. This figure is approximately 1.7 million healthcare workers short of the World Health Organization's guideline to achieve the MDGs and implies that, to meet current need and keep up with population growth, at least 100,000 additional workers would be necessary every year until 2050, without even considering retiring workers. However, there are currently only 90 or so medical schools in Africa and only 1.7 hospital beds per 10,000 population.

Exhibit 3. Majority of the population in sub-Saharan Africa lives under a poor health workforce and infrastructure



SOURCE: "World Health Statistics", World Health Organization, 2010

Despite the successes achieved through novel financing mechanisms, the gap between the expressed healthcare needs of developing countries and the available resources remains large. There is therefore a need to ensure global commitments to filling the funding and resource gap.

Business Investment in Global Health

Private-sector companies can help improve access to healthcare in developing economies and reduce the burden of disease, death and disability through direct financial contributions and innovative partnerships based on good business sense and sustainable development outcomes. That is:

- Investing directly in novel financing mechanisms that are focused on achieving results and ensuring value for money. Of particular note, are the current efforts of the Global Fund and the GAVI Alliance to develop a common funding platform for health systems strengthening in conjunction with the World Bank. While continuing to support innovation and new ideas in the field, such efforts have the potential to bring greater efficiency

to the healthcare investment process. By streamlining the process through a limited number of select novel financing mechanisms, such mechanisms will likely be better able to reduce administrative costs, improve cross-sector, multistakeholder planning, and better address broad private-sector contributions directed towards healthcare and health systems strengthening. Such continuing innovation further strengthens confidence in the efficacy of these novel funding mechanisms, thereby broadening their appeal and encouraging continuing investment over time.

- Sharing knowledge of their core institutional competencies, through training in general management skills and quality control to help build capacity and health system strengthening in developing countries where enterprises have a presence. For example, health systems could benefit from training in research and development of services, market research of healthcare products, efficient health communications design and implementation, efficient and transparent financial management, procurement and supply chain management, information systems, and project management skills.

- Encouraging private-sector-based health companies, as well as civil-society organizations, that have a proven track record in the provision of health services in developed countries. There are many opportunities for achieving significant impact in developing countries. In particular, the private sector can provide or train healthcare workers, manage facilities and services and source supplies at competitive prices. The private sector tends to have more freedom to innovate, scale up successful models and fund further investments.

  — In several African countries such as Kenya, the private sector provides small independent dispensaries staffed by medical professionals. They have consultation rooms and can provide all essential drugs as well as basic lab services. They are generally found in central locations and patients find that they are fully stocked and well maintained and that waiting times are minimal. Not all these models are necessarily operating at a national scale, but the approach shows significant promise.

  — Vector Health International, a joint venture between A to Z Textile Manufacturers, a Tanzanian manufacturer, and Sumitomo Chemical, a Japanese chemicals producer, produces bed nets impregnated with insecticide that lasts a full five years (compared to the normal six months) to prevent malaria. The company's effective weaving method that is provided by Sumitomo Chemical decreased the cost of production from $7 to $5 each in 2010, allowing greater distribution to fill the need for protection from malaria. Production of the nets has increased to 29 million per year, and Vector Health International is now one of Africa's larger employers.

- Cooperating with the public and non-profit sectors for even greater innovation and efficiencies in the provision of health products and services. In the past 20 years, public-private partnerships in the area of health

have emerged as a proven modality to achieve results building on the comparative advantages of the partners.

- The private sector can contribute to public-private partnerships (PPPs) in five ways
  - — Extending a PPP's reach and multiplying its impact
    - Modifying partner's business behaviors
    - Catalyzing changes in private sector behavior more broadly
  - — Extending a PPP's resources
    - Cash or in-kind donations
  - — Strengthening a PPP's governance and management
    - Expertise and discipline which help strengthen governance and management
  - — Adding a compelling new voice
    - New perspectives and thinking
    - Additional publicity and credibility for a PPP's mission or actions
  - — Providing institutional capabilities
    - Institutional capabilities and capacities to support a PPP's operations

RECOMMENDATIONS

A G20 Business Summit Call for Joint Action on Global Health

The G20 Business Summit is a unique opportunity to change the trajectory of the private sector's involvement with healthcare in developing economies and to have a meaningful impact on improving access to healthcare. To meet this opportunity, we make the following recommendations to each stakeholder:

1. For the private sector.

- **We encourage the G20 Business Summit participants to commit voluntarily to a financial or core business competency investment,** which should last at least three years to be effective. This action would serve as a catalyst for broader global business community investment in health. We propose that financial investments be directed towards the Global Fund to fight AIDS, TB and Malaria or to the GAVI Alliance. We encourage a minimum investment of $1 million a year for three years and a commitment to longer-term investment (e.g., 10 years) if performance indicators are met.
- **We recommend that core business competency investments be specific to each company's strengths and that they be made on a regional or country basis.** Specificity about the type, length and specific impact of the investments would promote sustainability. We also propose a multi-sector initiative, supported by the G20, to identify an organization that could

enhance the aid effectiveness of core business competency investments by evaluating the value, transparency, accountability and sustainability of such investments as well as the extent to which they meet the principles of the Paris Declaration.

2. For the public sector.

- **We call for the recognition of the contribution of health to economic growth, and we recommend that global health be included as a permanent agenda item at G20 Summits.**

- We underscore the need for governments in developed and developing economies to **make a greater financial commitment to health**. In particular, we encourage developing countries to commit 15% of their budgeted government spending to health as was recommended by African heads of government in the Abuja Decalaration of 2001. We encourage the G20 governments to step up and coordinate their investments in global health.

3. For public-private partnerships.

- As private industry, we encourage existing discussions and efforts to **expand the disease-focused mandate of innovative financing mechanisms,** such as the Global Fund and GAVI Alliance, towards broader health systems strengthening. The "Global Strategy for Women's and Children's Health", which the United Nations launched recently, is worthy of strong government and business support. We would, however, encourage funding to occur through existing innovative financing mechanisms rather than by creating new structures.

CONCLUSION

Targeted investment in health system strengthening is indispensible to improve access to healthcare in developing nations. The public and private sectors as well as civil society each have a role to play and various public-private partnerships have the potential to leverage the strengths of all parties. We encourage the governments of the G20 and governments in other developed and developing economies to affirm their commitment to healthcare and encourage private enterprise to voluntarily contribute to health through a financial or core business competency investment. Improving access to healthcare in developing economies is an urgent problem that will take sustained efforts to solve and collaboration by all.

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