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Transforming energy
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Readers' views

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Female insights

I remember the story my mother used to tell about having to monitor the work of a male co-worker even though his salary far surpassed her own (Comment on "Does Wonderwoman earn as much as Superman?" by Tracey Strange, www.oecdinsights.org, 8 March 2010). She made many strides over the years, in spite of being a woman, and was the first person in her large corporation to have a personal computer at her desk. Even though she retired comfortably, her salary never compared to that of her male co-workers. In the twenty years or so since her retirement women have continued to make incredible strides in the workplace, finding more opportunities in a wider variety of jobs with greater access to the "big bucks." No doubt things have improved, but it is imperative that organisations like the OECD and others continue to work for true equality in the workplace in all parts of the world. Wouldn't it be nice if this were the only inequality for women?

Jane Ebert

To me, the answer to the question is: who picks up their kids from school, and does Superman ever do the laundry? Because women still take care of most of the domestic work, employers will (subconsciously or not) think of them as less engaged and less willing to spend time at work. Because women still (even in my country, Sweden) stay at home much much more often than men with small children or sick older kids, employers will think of them as someone who will be away a lot and therefore not suitable for longer engagements or responsibilities. Apart from the first months of a baby's life, there are no longer any areas in life where men and women can't share the responsibility

totally equally. Until that happens, it will be hard for women to reach the pay levels of men.

Annika

I work in a corporation where the men make less than their wives. It is really strange to hear them talk about wives making more and how they have to live where the wives' company sends them.

Caroline Evans

Food for life

The governments should transfer large chunks of the general reserve of land to co-operatives exclusively for production of subsistence food (Comment on "I think the main issue facing agriculture is...." by Patrick Love, 28 February 2010). The other type of agricultural production activity (food for pleasure) can be coupled with agricultural marketing networks in the normal way. Probably a radical change of this type may address the problem of hunger in a better manner.

Srinivasa Murty

Hedging bets

Strong forces in banking will oppose many of these proposals (to separate banks from high-risk activities such as private equity and hedge funds, and other special purpose entities) because they will probably consider them as a threat to their control and hip pocket (Comment on "We don't get fooled again: Avoiding a new financial crisis", video by Adrian Blundnell-Widnell, 8 February 2010 at www.oecdinsights.org).

Having your own hedge fund "in-house" gives the senior bank executives a much better chance of sharing in the profits from hedge fund activity than if the hedge fund is clearly separate from the bank (e.g. the

bank owns some/all of the equity). This is because in-house hedge funds have a competitive advantage over "arms length" hedge funds. For example, counter parties to the fund take more comfort in knowing that the hedge fund is inside the bank, and this may be reflected in pricing and deal flow, and thus higher profits. Moreover, the separation of hedge fund from bank is likely to lead the directors and staff of the hedge fund wanting more autonomy and a greater share of profits.

Glenn Woolley, Intrinsic Investment Management, Melbourne, Australia

Solar ideas

With solar concentration factors reaching thousands of times now, incident radiation is intensified dramatically and therefore requires a smaller collector conversion area to produce more power (see "21st century energy: Some sobering thoughts" by Vaclav Smil www.oecdobserver.org/climate). Calculations show that utilising the solar radiation resource in this way could theoretically supply more than the world's current energy demands. The issue of where to place the enormous collectors required to do this is resolved by the land space available in deserts—a fraction of the world's 30 million sq. km. of desert would be sufficient if covered with concentrating collectors delivering 22W/sq. m. for example. Then the issue of electrical energy transport arises, which may be addressed largely with new high-voltage direct current transmission lines carrying electricity large distances with lower losses and materials required than HVAC lines.

the Tnigel

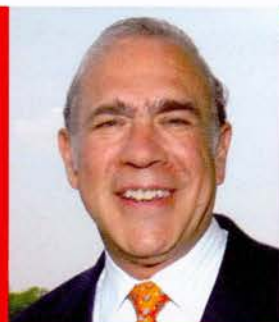
Hmm. Enough fossil fuel for "generations to come"? Even oil companies only commit to enough oil for "decades", and how many decades are they talking about? Four? Three? Two?

To solve the looming energy problems, we will have to forget about political ideology; it hampers good decision making.

Oil Shock '72

Replies to the above comments can be left at www.oecdinsights.com or www.oecdobserver.org

Consolidating the recovery



This could be the trickiest phase yet

Angel Gurría
Secretary-General of the OECD

Spring is finally in the air for most OECD countries, as the signs of recovery start to multiply. The recession has been long and hard, so this is reassuring news. But while the worst of the crisis may be behind us, the recovery remains fragile, and there are still many policy challenges to address.

Indeed, this could prove to be the trickiest phase of the recovery yet, as several OECD countries consider unwinding the exceptional emergency measures introduced to save their economies from collapse. Central banks have already started reining in their “unconventional” measures and assessing their interest-rate policies. Now, with fiscal deficits and public debt ballooning towards unsustainable levels, governments are also moving into action. Policy room is limited, and all OECD governments face a series of delicate balancing acts and tough choices which a lasting recovery depends on. Their exit strategies must be conducted boldly, with clearly announced plans to reassure markets. At the same time, care is needed to avoid withdrawing stimulus measures too hastily, as that could plunge economies back into recession. Though the pace of fiscal consolidation will vary from country to country, the programmes must be as pro-growth, green and socially equitable as possible. Moreover, domestic imperatives must be measured against wider global concerns.

The OECD will continue to support policymakers in facing these challenges, by providing fresh insights and pertinent advice on the kind of short-term actions that can address the crisis while spurring long-term growth. Take government spending, for instance. Here, public support for underperforming sectors should be cut to remove distortions in competition, while privileging strong and efficient spending in vital areas such as education, healthcare and infrastructure. There should be no let up in labour market activation and training policies either, particularly as long-term unemployment has risen sharply in many countries. However, phasing out subsidised work-sharing schemes used to avoid unnecessary layoffs during the crisis would free up precious resources and support productivity.

As for tax increases, these should be focused on consumption and property, which are least harmful to long-term growth, with more emphasis on green taxes, both to provide exchequer revenue and encourage environmentally-friendly activities.

Not that every measure introduced in the crisis should be withdrawn; some of the more focused tax credits and direct grants for R&D can give a jolt to innovation, for example. This is particularly important for knowledge-based economies in which combinations of new technologies and new ways of doing business will increasingly drive productivity, employment and competitiveness.

For economies to recover fully, we also need to ensure that the financial system is healthy and plays an effective role in supporting investment. Improving financial market regulation is a particularly critical area for action. Quite simply, finance, which is the life-blood of our economies, is still not flowing normally. Fortunately, reforms are getting under way, targeting accounting, corporate governance, the capital base of banks, risk frameworks and capital adequacy through a leverage ratio and capital buffers. Tighter prudential rules would certainly cultivate a stronger sense of responsibility in financial markets and can, at the same time, strengthen competition.

But will they be enough to prevent a crisis from happening again? Can they safeguard savings against excessive risk-taking, as well as reduce the contagion and counterparty risk that were hallmarks of this crisis? The OECD believes there is a need to go further and supports proposals for separating certain activities usually associated with investment banking from commercial banking. This is important, because banks' losses from risk-taking in capital markets can arise quite independently of the leverage they undertake.

Urgent multilateral action is also needed for the global recovery to gain strength. Consider trade, which has firmed up this year, thanks largely to the fact that protectionism has been kept at bay. Governments understand that more trade, not less, will help support demand and create jobs. Trade is also vital for development, especially as aid budgets are stretched. This gives renewed urgency to the Doha trade round. However, more effort is needed to increase aid too, to fight poverty and disease, as well as building institutional capacity in areas such as law and taxation. Sure enough, official development assistance will reach record levels this year, but there will be a shortfall of some US\$21 billion compared with the pledges donors made at the Gleneagles G8 summit five years ago. Honouring these pledges is vital, particularly as we move to address climate change and food security.

As I wrote in these pages a year ago, governments must not be distracted by signs of recovery, but rather must remain vigorous in their policy actions while looking after the longer term. This message remains true now, as we build towards the 2010 annual Ministerial Council Meeting and Forum in May. Participants will have an excellent opportunity to take stock and ensure they have the right policies in place both to deal with the legacy of the crisis—unemployment, high deficits, lower potential output, etc.—and to build a robust, sustainable recovery.

News brief

Now for sustaining growth—

It is time to replace crisis management with actions to strengthen economies for the future by targeting policies in key areas such as jobs, competition and taxation, an OECD report says. Governments have already started removing some of the emergency measures brought in to save the global economy from collapse, *Going for Growth* says. But they must now ensure that the policies that remain can treat the scars of the crisis and boost growth and living standards for the long term.

Going for Growth finds that prudential banking regulation can be toughened without undermining competition. Governments should resist allowing current financial-sector reform proposals to be watered down, the report says. Unemployment will persist at higher levels than before the crisis, and investments will be riskier as the cost of capital rises, eroding the potential output of OECD economies over the medium term. The report estimates a permanent GDP loss of some 3% on average across these countries. See article on page 7.

—as China sets the pace

China, the world's second largest economy, is now leading the global recovery, the

OECD's latest *Economic Survey of China* believes. One reason is massive government stimulus action. China could well overtake the US to become the leading producer of manufactured goods in the next five to seven years.

The report recommends that China boost public spending on social reforms, including unifying the fragmented system of welfare assistance, pensions and healthcare. It also advises opening up banks and financial institutions, and boosting competition and productivity by cutting red tape. It also suggests loosening traditional ties between state-owned enterprises and central authorities, and lowering barriers to foreign direct investment in services.

China's extra spending reflects strong public finances. Gross government debt amounted to only 21% of GDP in 2008. The stimulus measures are expected to increase this debt ratio by only 3% of GDP in 2010. By contrast, gross public debt in OECD countries is projected to approximate their combined total GDP this year, possibly exceeding it in 2011.

Economic Policy Reforms 2010: Going for Growth is available at www.oecd.org/bookshop, ISBN 978-92-64-07996-0

OECD Economic Surveys: China 2010 is available at www.oecd.org/bookshop, ISBN 978-92-64-07667-9

Soundbites

Tax evasion...

"...with the help of the OECD, we have made sure that tax evaders have got fewer and fewer places to hide."

Stephen Timms, the financial secretary to the UK Treasury, on proposals to broaden the crackdown on tax evasion to benefit developing countries, quoted in *The Wall Street Journal*, 26 January 2010.

... euro worries...

"The EU is now largely frozen in its present shape."

George Soros writing about the future of the euro, in the *Financial Times*, 22 February 2010.

... and greed

"It makes me sick of this industry."

A senior Wall Street executive on the damning, 2,200-page report issued in mid-March on banking powerhouse Lehman Brothers' path to collapse, quoted in the *Financial Times*, 13 March 2010.

Greening Greece

Strengthening environmental protection should be part of government plans to overcome Greece's economic and financial crisis, OECD Secretary-General Angel Gurría said. Speaking in Athens during the recent release of *OECD Environmental Performance Review of Greece*, he said that "green policies and economic growth can reinforce each other to create new jobs while promoting cleaner technologies."

Revenues from green taxes now account for about 2% of GDP in Greece, lower than many other European countries, and the

share of taxes in fuel prices is now the lowest among European OECD nations.

The Greek review recommends that producers and users of polluting products pay for disposal and other environmental costs. It also advises removing subsidies and tax exemptions on activities that damage the environment, such as subsidies for irrigation water that encourage the unsustainable use of water resources and tax exemptions for coal-generated power. Given that Greece's important tourism industry depends on unspoiled scenery and clean beaches, the review also urges Greece to better enforce environmental and land-use regulations.



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See www.oecd.org/environment and www.oecd.org/greece

Economy

Seasonally-adjusted **GDP** in the OECD area rose by 0.8% in the fourth quarter of 2009, up from 0.6% in the previous quarter. Real GDP grew strongly in the US and Japan, by 1.4% and 1.1%, respectively. GDP growth in France was relatively strong at 0.6%, but remained unchanged from the previous quarter in Germany and declined by 0.2% in Italy. Meanwhile, the UK recorded GDP growth of 0.1% in the fourth quarter after six consecutive quarters of contraction.

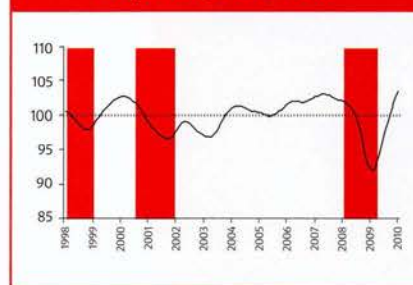
Meanwhile, **economic activity** in the G7 countries is heading for improvement, according to the latest leading indicators, which include order books, building permits and long-term interest rates. Indicators for the OECD area grew by 0.8 point in January and were 11.3 points higher than in January 2009. The increase was spread evenly among the US, which showed an 11 point year-on-year increase, the euro area, with a 12.5 point increase over the same period, and Japan, which recorded a 10.7 point increase year-on-year.

An annual increase of 10.6% in energy prices pushed overall **inflation** up to 2.1% in the OECD area in the year to January 2010, compared with 1.9% in December

2009. Energy prices in the US rose by 19.1%. Consumer prices for food in the OECD area decreased by 0.7% in the year to January 2010, compared with a fall of 1% in December.

Unemployment in the OECD area fell slightly to 8.7% in January 2010, reflecting drops of 0.3 percentage point in the US and Japan. The latest figures for the US show that unemployment remained unchanged at 9.7% in February, while it grew in France and Italy. In all OECD countries, unemployment remained higher than a year ago, varying from 0.3 percentage point higher in Australia to 4.4 percentage points in Ireland.

Leading indicators signal expansion, OECD area



Aid shortfall

Aid to developing countries in 2010 will reach record levels after increasing by 35% since 2004. But it will still be less than the world's major aid donors promised five years ago at the Gleneagles and Millennium +5 summits, with a shortfall of some \$21 billion expected. Africa, in particular, is likely to get only about \$12 billion of the \$25 billion increase envisaged at Gleneagles.

In 2005, the 15 members of both the EU and the OECD Development Assistance Committee (DAC) committed to reach a minimum official development assistance (ODA) country target of 0.51% of their gross national income in 2010. Some will surpass that goal: these include Sweden and Luxembourg (both at 1% of GNI or more),

Denmark, the Netherlands, the UK, Finland, Ireland and Spain. France, Germany and Italy will fall short.

Meanwhile, the US pledged to double its aid to sub-Saharan Africa between 2004 and 2010. Canada aimed to double its 2001 International Assistance Envelope in nominal terms by 2010. Australia and New Zealand also plan higher ODA levels. All four countries appear on track to meet their objectives. In 2008, Japan was still \$4 billion short of its undertaking to give \$10 billion more for 2005-2009.

Overall, the additional aid planned by 2010 will not prevent the expected \$21 billion shortfall between promises and outcomes.

For more, see www.oecd.org/development

Chile's new president

Sebastián Piñera was sworn in as president of Chile on 11 March. Chile will become the OECD's 31st member, and its first in South America, under an accession agreement signed on 11 January in Santiago by OECD Secretary-General Angel Gurría and Chilean



Sebastián Piñera

Finance Minister Andrés Velasco in the presence of then-President Michelle Bachelet (see www.oecd.org/chile). Mr Gurría extended his congratulations to the new president and assured President Piñera of the OECD's support both in tackling reconstruction following the recent earthquake in Chile and in relation to longer-term policy challenges.

Tax watch

The Principality of Andorra and the Bahamas recently signed tax information exchange agreements with Denmark, the Faroe Islands, Finland, Greenland, Iceland, Norway and Sweden, bringing to 17 and 18, respectively, their total number of agreements that meet the internationally agreed tax standard. Andorra is the 21st jurisdiction, and the Bahamas the 22nd, to be considered to have substantially implemented the standard since April 2009, when a progress report on implementation was first issued.

Plus ça change...


"In spite of the considerable progress in increasing food production and reducing malnutrition... the Food and Agriculture Organization of the United Nations (FAO) estimates that over 800 million people in the developing world alone are still undernourished. Indeed, the FAO fears that, unless action is taken, many of the current problems of food security will persist and some will become worse."

"Ensuring Global Food Security",
No 203, December 1996/
January 1997

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Beyond the crisis: Shifting gears

Pier Carlo Padoan, OECD Chief Economist

The deep scars of the crisis can be relieved through appropriate policy action, particularly in competition, jobs, taxes and financial services. This would bolster long-term growth too.

OECD countries seem poised for a fragile, yet much-welcome recovery. This prospect was far from certain a year ago and owes a great deal to the exceptional monetary, fiscal and financial policies that policymakers across the OECD and beyond have implemented over the past 18 months. However, the recession has left deep scars that will be visible for many years to come. The crisis has lowered living standards and employment on a lasting basis, and at the same time, endangered the sustainability of public finances in many OECD countries. Yet there is still time to relieve the effects of these scars through appropriate policy action.

Governments have already started removing some of the emergency measures brought in to save the global economy from collapse. For a more positive economic outlook to take hold, policymakers should increasingly phase out some of these exceptional policy initiatives, while at the same time maintaining or reinforcing other measures, launching new reforms and resisting protectionist reactions in international trade and labour markets. Candidates for gradual removal include the exceptional government support to automotive and other industries, public funding for new infrastructure projects and crisis-related increases in unemployment benefits where these were already fairly high.

By contrast, areas where reform efforts could be strengthened include reductions in anti-competitive product market regulations to boost activity and job creation, increased use of price instruments in green growth policies and active labour market policies, which will need to cope better with the sizeable recent and ongoing rise in unemployment than they did in past downturns. It also makes sense to maintain

recent tax support to private R&D and targeted labour tax cuts as long-term growth support measures, but only where these can be financed.

Indeed, restoring fiscal sustainability will be a daunting task for most OECD governments in the years ahead. Fulfilling this task, while protecting long-term growth, will require reaping efficiency gains on spending, especially in the areas of education and health, and avoiding large increases in harmful labour and capital taxes. OECD countries have avoided the major structural policy mistakes of certain past crises, such as the protectionist spiral of the 1930s or the misguided labour market policies of the 1970s.

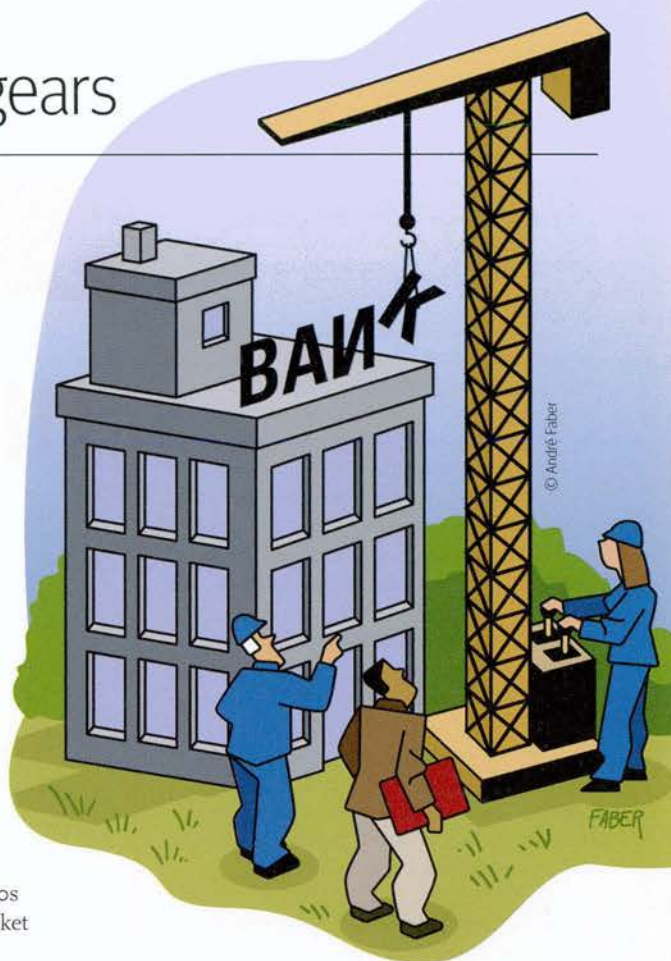
In fact, the 2010 edition of *Going for Growth* finds that, in line with last year's recommendations, many of the measures taken in the areas of R&D, infrastructure, labour taxes and active labour market policies will help to contain the long-term damage of the crisis for welfare.

So far, so good. But there is no room for complacency. Our report's in-depth assessment of progress over the past five years across the OECD shows that reforms have been more incremental than radical in nature and seldom address the thorniest issues. Nor is it at all clear that structural reform has accelerated since the start of the crisis, as policymakers have understandably focused on the most pressing macro-economic issues, not least battling with deficits.

But with the nadir of the crisis now behind us, the time has come to move away from crisis management mode towards speeding up the recovery and laying the ground for

a more sustainable and fairer economic future. In this spirit, *Going for Growth* highlights for each OECD country those policy priorities that we think would be most urgent to address at the current juncture to maintain decent standards of living.

Structural reform in financial, product and labour markets has to be part of the cure. This is fairly obvious for financial market regulation, whose past deficiencies have been a major force behind this crisis and where the crisis response has left new challenges in the form of moral hazard and weak competition. At first glance, this may seem less obvious for product and labour market reforms. Indeed, with this crisis having shaken our thinking on financial market regulation, one might naturally wonder whether longstanding policy prescriptions for these other areas should be revisited as well. The broad qualified answer has to be no.



Restoring fiscal sustainability will be a daunting task

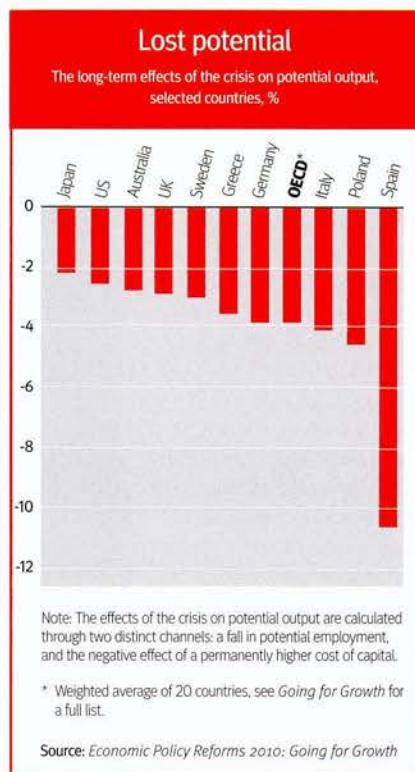
As dramatic as they have been, the crisis has not radically altered the large income per capita gaps that prevail across the OECD, which as a wealth of evidence shows, can be traced back to cross-country differences in education systems, labour market institutions, product market regulations or the design of tax and welfare systems, among a broad range of factors. In fact, the damage of the crisis on income levels and public budgets, and to some extent the need to address global current account imbalances, has if anything strengthened the case for reform.

This of course does not imply that only one road leads to Rome, and indeed different countries can, and often do, opt for different but still efficient trade-offs between growth, risk and equity objectives.

Given the centrality of financial markets to the origins of the crisis, regulators across the OECD need to step up ongoing efforts to strengthen financial market regulation. On this front, our recent analysis, which is summed up in *Going for Growth*, brings some good news: outside a few specific areas of regulation, there is no evidence of any conflict between improving banking-sector stability and competition objectives.

It should thus be possible to strengthen regulatory frameworks while preserving, if not enhancing, the beneficial effects of competition on access and prices in financial services. This is a very encouraging message and should be taken as a call for action, at a time when reform efforts may risk being watered down or even stalled.

There is also urgent need for action on competition, jobs and taxes. Reducing obstacles to entering new markets would stimulate both business and job creation. In the employment area, governments need to boost spending on training and job-search at this critical time while maintaining strong job-search incentives



for the unemployed. Special efforts also need to be devoted to preventing vulnerable groups, such as older workers, youths, low earners and single mothers, from quitting the labour market altogether.

As for tax, some of the measures taken in response to the crisis could prove beneficial to long-term growth and should be left intact. For instance, tax credits and direct grants for R&D could help counter a slump in innovation and, if carefully focused, could promote green initiatives. But because the crisis has wreaked havoc with public finances, some taxes that were cut will need to be raised. To minimise the detrimental impact of future tax hikes, the composition of taxes should be shifted away from income and towards consumption and land.

With the crisis having revealed the disproportionate gains that high-income households have enjoyed in recent years, income distribution and equity issues, which have long been a major policy concern, have moved to centre stage. One

key dimension of equity within our societies is intergenerational social mobility, which promotes equal opportunity for individuals and enhances growth by putting all of society's human resources to their best use. In a number of OECD countries, there appears to be quite some room for enhancing intergenerational mobility at no cost or even at a benefit through education reform, including by increasing enrolment in early childhood education, avoiding early tracking of students and improving the social mix within schools.

For the first time, this year's edition of *Going for Growth* looks beyond the OECD area at the long-term prospects and challenges for Brazil, China, India, Indonesia and South Africa. Taken together, these BIICS—major emerging markets with which the OECD has established a relationship of “enhanced engagement”—have been an important engine for world growth throughout this crisis, and they account for a growing share of global output. At the same time, notwithstanding major improvements in human capital that bode well for future productivity trends, our analysis highlights a number of policy areas where reform will be needed to sustain strong growth and catch up further with OECD living standards. With some variations in emphasis across the BIICS, challenges include moving towards more competition-friendly product market regulation, strengthening property rights and contract enforcement, deepening financial markets and adopting multi-faceted strategies to reduce the size of informal sectors.

Going for Growth is an evolving exercise. It does not claim to have silver bullets for the crisis, but it does provide some guidance on the kind of reforms that would, if applied, not only bolster long-term growth, but also speed up the recovery and greatly reduce the risks of such a crisis happening again.

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Visit www.oecd.org/growth

Business transformation: From crisis response to radical changes that will create tomorrow's business

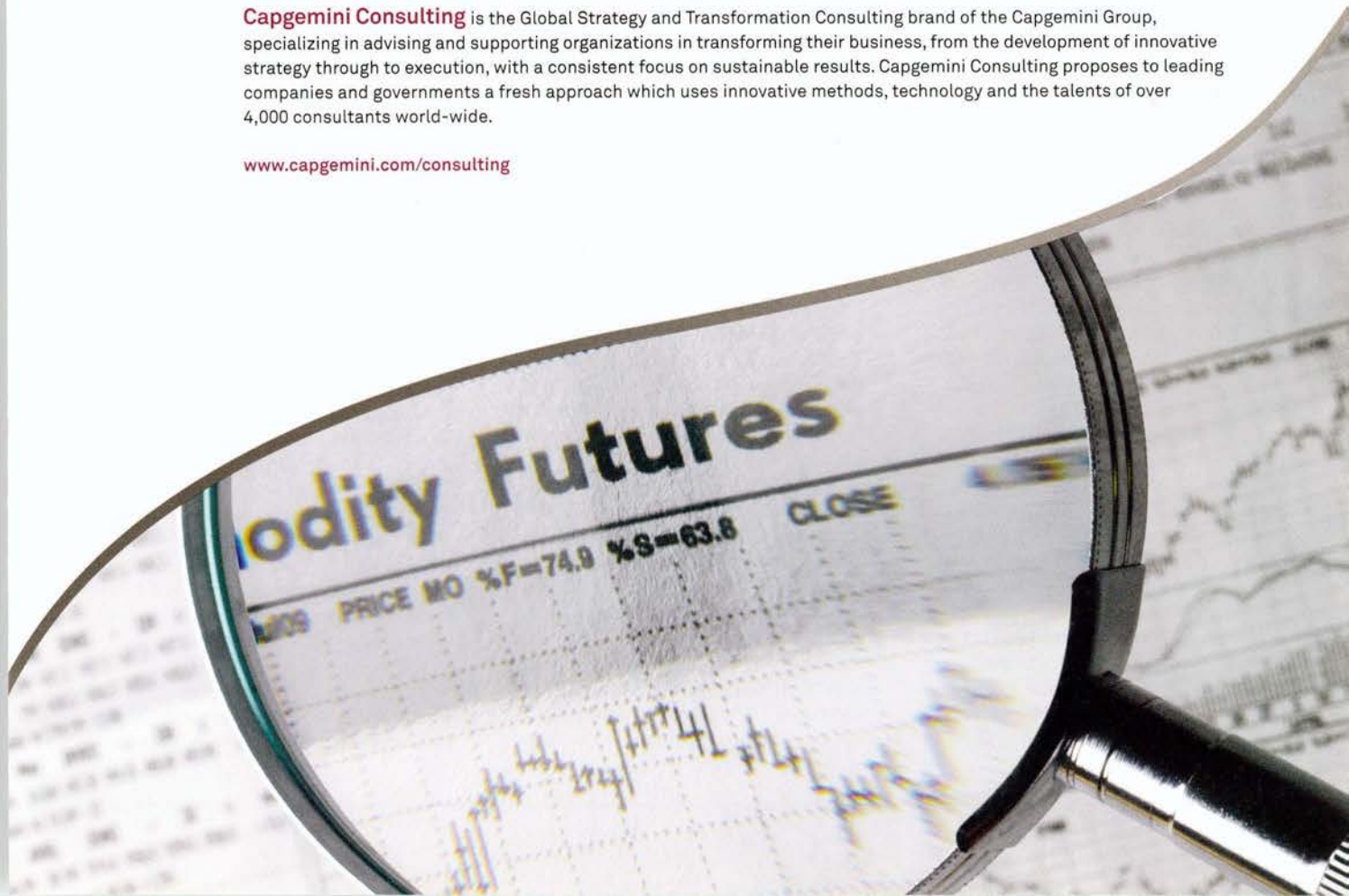
A Capgemini Consulting survey

Deciphering a changing world what changes form the basis of tomorrow's transformations?

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New distribution of power and value
Economics of the intangible
Urban concentration
Emergence of a neo-modern citizen

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Public-private partnerships

Ian Hawkesworth, OECD Directorate for Public Governance and Territorial Development

Making the right choice for the right reason



Governments may find public-private partnerships (PPPs) especially tempting in the aftermath of a financial crisis, but how can hasty choices be avoided?

When national budgets are on bread-and-water diets, PPPs are like a parcel of cheese and sausage under the floorboards. In reality though, PPPs are long-term contracts whereby the private sector delivers services—such as a bridge or hospital building—used by the public sector. Major investment projects carry a range of inherent risks: in construction, for instance, in terms of getting the building completed on time and within budget, and in market demand, whether forecast customer demand ends up matching reality. Actually having the asset available to users when needed is another risk to be absorbed. In a PPP, such risks are shared in innovative ways between the public and private sector in order to deliver better value for money than would have been the case using traditional procurement. Still, they have on occasion been used to finance expenditures which would not otherwise be approved given the debt and deficit constraints on national budgets. Ceding to that temptation too hastily now would be ill-advised. This does not mean that governments should stay away from PPPs, but they have to focus on

using PPPs for attaining value for money, not accounting gimmicks.

The financial crisis has been rough on PPPs. The lack and high cost of credit stymied plans for new projects and the refinancing of those already underway. Moreover, operational PPPs such as transportation projects and airports, which depend on drivers paying tolls and airline companies paying landing fees, have watched revenue dry up as travellers cut back on spending.

Despite the historic drop in interest rates, risk premiums soared between 2008 and 2009, widening the spread of corporate bonds to the highest in recent memory. The threat to PPPs was clear, and as part of the large stimulus plans enacted in OECD countries governments adopted various initiatives to keep interest in PPPs alive.

The UK, for instance, created the Infrastructure Finance Unit to fund PPPs unable to secure loans on the market. Once market conditions become more favorable, the loans will be sold off prior to maturity. No ceiling has been set on the amount that can be loaned. Likewise, until the end of 2010 the French government is guaranteeing up to 80% of the capital needed for PPP investment projects—and has set aside €10 billion for the purpose.

Portugal has earmarked €7 billion euro for a similar programme. Korea is funneling 15% of its fiscal stimulus investments through PPPs. Most of these projects are “build-transfer-operate” projects (typically transportation services such as roads and railways) and “build-transfer-lease” projects,

The focus has to be on using PPPs for attaining value for money, not accounting gimmicks

for example, the construction of schools and dormitories or the expansion and improvement of sewage systems. Most of these initiatives involve so-called dedicated PPP units. These are groups of experts brought together to assist governments in managing risks associated with PPPs in a bid to ensure value for money.

Seventeen OECD countries today have dedicated PPP units.* They provide policy guidance and technical support, for which they are sometimes criticised, since they might mingle policy formulation and technical support during the assessment of a project. There are also fears that the closer a unit is to the relevant political authority, the more vulnerable it is to political sway when it comes to choosing projects. Another concern is that the creation of a unit implies the approval of PPPs as the policy tool of choice, undermining the case for other viable procurement methods. Despite these reservations, dedicated PPP units have an important advantage over regular procurement methods: they have the skills to focus on attaining value and ensuring that budget considerations, both in terms of the benefits and the costs of projects, are kept to the fore in project choices and that contingent liabilities are rigorously evaluated. They can also mitigate some of the problems stemming from the fact that PPPs or traditional procurement methods are, in some countries, not subject to the same tests—making the playing field uneven, as recent OECD research reveals.

Another strength of PPP units is to reassure potential private partners that the government possesses the necessary

expertise to negotiate PPPs, allaying anxieties over the waste and confusion caused by the distribution of management responsibilities among a host of government departments. The units consist of experts who advise the various relevant government departments, although they may also carry out mandatory reviews. More rarely, they approve projects and promote PPPs. Approval is usually still the prerogative of the ministry of finance's central budget authority. Units may be located in the higher ranks of government such as in the ministry of finance, farther down in line ministries like transport and power, which are already familiar with PPPs, or outside government in an independent government agency working in collaboration with one of the ministries.

What the lending initiatives mentioned above all have in common is that they are temporary and reversible. This is an important caveat. In trying to reawaken

investors' appetites for PPPs, governments are assuming considerable risk. This is why the OECD recommends that in addition to being temporary and reversible, these initiatives be assessed in terms of cost, budget and transparency. There are many examples of support measures carried over into subsequent and more clement budget cycles where they are not needed. When the additional cost of entering a PPP under the current economic conditions outweighs its efficiency and value for money, the project should be postponed until market conditions improve.

Fortunately, there are signs that the clouds are lifting. An economic recovery is slowly under way, and market conditions for PPPs are brightening again.

However, they must not be chosen for the wrong reasons. The survival of certain projects will require hard decisions from governments. Such decisions will be less

onerous if the budget and costs associated with the projects are made transparent, with the overriding principle being value for money.

*Australia, Belgium, Canada, Czech Republic, Denmark, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Korea, Netherlands, Poland, Portugal, UK

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Taxation and development

William Morris, Senior International Tax Counsel and Director, European Tax Policy at General Electric



Is country-by-country reporting the answer?

Could country-by-country tax reporting help boost revenue for development?

The answer is not that simple.

The first time many businesses heard about country-by-country tax reporting (country-by-country) was at the OECD's Global Forum on Development in January 2010. Much of the discussion at the conference focused on country-by-country, with a political flavour coming from Stephen Timms, the UK tax minister, who hosted a breakfast to discuss the idea. In civil society circles, however, country-by-country reporting has been a live topic for several years. How does it fit with the development agenda?

The most widely known version of country-by-country consists of additional public reporting by multinational enterprises (MNEs) of significant amounts of new financial and tax information. Specifically, the country-by-country proposals advocated by certain NGOs would require

MNEs to include information in their annual financial statements on financial performance in every country in which the MNEs do business, including such items as third-party and intra-group sales and purchases, labour related information and pre-tax profit. It would also require the inclusion of tax information such as the tax charge included in accounts for the country in question, together with all liabilities for tax and equivalent charges at the beginning and end of each accounting period.

What is the connection to the development agenda? At its simplest, there is a perception by development NGOs that in order for developing countries to grow and become less dependent on aid, they need to collect more tax revenue from MNEs. Country-by-country has been put forward by them as a means of addressing this in two ways. First, by making more transparent the revenues that governments receive from MNEs, corruption can be monitored and reduced. If citizens know what their governments

receive, then they can also monitor where it goes.

Second—and this is more contentious—it is argued that the low tax revenues of developing countries are probably due to evasion or aggressive tax avoidance by some MNEs, and that country-by-country reporting would make these firms more likely to pay the correct amount of tax. Transfer pricing abuses, which are caused by manipulating the prices set for transactions between different parts of an MNE so as to minimise taxes, are identified as the root of the lost revenue problem. An eye-popping \$160 billion a year is often cited. There are some questions around this number, particularly as it is derived from bilateral trade data that does not distinguish between intra-group and inter-group transactions. But even if transfer pricing abuses were a cause, is country-by country reporting the solution?

Take corruption, for instance. Most MNEs know that in a wide range of countries, corruption is a problem. Largely thanks to OECD work, many MNEs now have stringent anti-bribery policies that are widely known by local officials who no longer ask for a bribe. However, within certain governments not all revenues collected end up in government coffers for public expenditures. So corruption is still a real impediment to development which some form of country-by-country may help address by improving transparency.

What about transfer pricing—or “mispricing”, as it is sometimes called? Here, I part company with NGOs such as the Tax Justice Network and others. Remember that transfer pricing is about the price at which one party within a MNE sells to another entity within the same group (see article by OECD's Caroline Silberstein, *OECD Observer* No 276-277, December 2009-January 2010). It is a concept based upon sound commercial practices; a way of getting a market-based evaluation of the contribution of each subsidiary to the profitability of the enterprise.

To be sure, if the sales price is higher or lower than it “should be” (as determined,

for example, by reference to prices charged at “arm’s length” in comparable transactions between unrelated parties) then income that is earned from economic activity in one place can be improperly shifted to another (generally lower-tax) environment. International organisations such as the OECD and the UN have for decades encouraged both governments and MNEs around the world to apply the “arm’s length principle” in determining for tax purposes the price at which goods and services may be transferred between related companies.

My personal experience is that MNEs spend considerable time and resources trying to get transfer pricing right for everyone involved—our firm devotes 45 people to it and dozens more who spend significant time on the issues! Many of them are dedicated to producing detailed transfer pricing reports that aim to comply with the laws in both countries involved to meet the main objective of most MNEs, namely that the income earned doesn’t get caught in a fight where the two countries seek to tax the same income twice. Because transfer pricing is an inexact science, inherently dependent on an assessment of the facts, circumstances and available data, there will always be room for disagreement. However, absent unlikely world agreement on a single formula for dividing up income, the arm’s length principle is the best answer, and large MNEs try to get it right.

The problem critics focus on largely involves the extractive industries, such as those for minerals, oil and gas, and the low prices/royalties and the low tax that they pay in certain countries. That may be a problem—or may not, depending, for example, on the riskiness of the investment. After all, if an MNE makes an investment in a politically or physically risky area, it will feel entitled to a higher return as a form of insurance against losing its entire investment. But this is not a transfer pricing problem. There may be imperfect bargaining power leading to a lower-than-market price being paid by the MNE to the government under a perfectly legal contract; or deals such as legally granted tax holidays may be too long-lived. But those are not transfer pricing issues.

The NGO insight on the importance of tax for domestic resource mobilisation is a breakthrough, but there’s more to it than corruption and transfer pricing. Another important problem that country-by-country reporting would not address is the under-capacity of local tax authorities. They don’t have the people, or the training, or the funds to adequately develop and administer their tax systems generally. One of the big issues is to provide capacity-building assistance to strengthen their ability to administer their tax laws effectively.

Nor should the tax loss debate be entirely focused on MNEs. Countries often fail to collect taxes due from their own citizens—and particularly the rich. And a final issue is the tax system itself. Do countries need

Some form of country-by-country will help improve transparency but many countries would struggle to use the detail

a complex set of rules, or might something simpler do? Building capacity and adapting the design of the tax system to the country’s needs may do even more to mobilise resources than country-by-country reporting. The new OECD initiative on Tax and Development will help direct aid to respond to these issues and provide an opportunity for developing and OECD countries, NGOs and business to work together to achieve a tax system that works for the developing country and encourages inward investment, which must, in the long run, be the main engine of sustainable growth.

So while some form of country-by-country will undoubtedly help improve transparency and reduce corruption, it is less clear that it will reduce tax losses for developing countries. In fact, given the complexity of country-by-country reporting and the lack of capacity in developing countries, many countries would struggle to use the more detailed information, even if it highlighted, say, transfer pricing abuse. Perhaps a simpler, less onerous tax-reporting approach

would be more useful for poorer countries. For instance, under the Extractive Industries Transparency Initiative, many MNEs in that field already release certain forms of aggregate data. This type of reporting could be a more suitable model for development, especially if backed up by greater information exchange between developed and developing governments.

Another risk to consider is how firms will respond. There would be a significant financial cost to companies with the increased reporting that full country-by-country would require. Maintaining competitiveness would be a concern. Neither of these issues trumps the advantages of country-by-country, but it does call for care in deciding what level of reporting is absolutely essential for improving compliance with the tax laws by MNEs and the administration of taxes in developing countries. Also, developed countries’ tax authorities could do more to audit MNE accounts at their end, and, particularly, to assure more stringent transfer pricing enforcement, as well as share their experiences with developing countries.

This is where the OECD comes in. The organisation is currently setting up an informal task force involving representatives of all stakeholders—developing and developed countries, NGOs and business—to focus on a number of issues relating to tax and development, including an examination of country-by-country proposals. The OECD, with its reputation for independent standard-setting and rigorous analysis, seems the perfect organisation to bring these potentially disparate interests together, and anyone who is committed to the development agenda should be pleased with this initiative. Regardless of what the eventual outcomes may be, it should be fully acknowledged that the country-by-country advocates have very positively influenced the debate.

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VAT takes center stage in global tax reform

Niall Campbell, KPMG's Global Head of Indirect Tax Services and Partner, KPMG in Ireland

The global tax environment is in a state of rapid change and indirect tax is at the heart of it. Even without the global downturn, indirect taxes such as Value-added Tax (VAT) and Goods and Services Tax (GST) are gradually extending their reach into the global economy to become an increasingly important element of government tax revenues.

Driven by a slow economy on the one hand and falling direct tax rates on the other, worldwide governments are now reassessing their long-term tax policies. Increasingly, many of them are turning to indirect taxes as a key part of the solution.

In a soon to be released publication, entitled "Driving Indirect Tax Performance: Managing the Global Reform Challenge," KPMG International analyzes what is occurring in the world of indirect tax and provides practical guidance on how to manage the emerging risks and how to realize the new opportunities.

The Global Rise of Indirect Taxes

Why has VAT become the tax of choice for so many governments? The global shift towards indirect taxation is happening in three ways. First, more countries are introducing VAT systems. Second, unlike corporate tax rates which are falling globally, VAT rates seem to have remained constant and, in recent times, edged upwards. Third, the taxable base to which VAT is applied and collected is expanding. Drivers for the taxes' growing popularity could include:

1. Fiscal stability and growth

Indirect taxes are charged on the consumption of goods and services, which is significantly less mobile and less volatile than corporate profits or labor, thus providing a more secure tax base for governments. In addition, because VAT is imposed on consumption rather than

on savings, investments or business inputs, it is likely to have less negative influence on capital formation, investment decisions, and job creation than income-based taxes, thus encouraging fiscal growth.

2. Effective administration

Indirect taxes are generally payable as transactions occur, and thus produce a more real-time collection of tax, which is increasingly important for tax authorities in a more challenging economic environment. There is further widespread evidence that VAT is more cost effective for tax authorities to administer than individual or corporate profits taxes.

3. External influences: elimination of economic distortions

While governments may introduce VAT for domestic reasons, external influencers such as the International Monetary Fund (IMF), the European Union (EU) and the OECD have also played a very strong role. The actions of organizations such as the IMF, EU and OECD are also partly designed to eliminate the economic distortions which can be caused by the lack of a globally, or even regionally, harmonized VAT system.

Effective indirect taxation requires close cooperation between tax authorities and the private sector

Where is VAT reform happening?

VAT reform is happening in every region throughout the world, ranging from the introduction of new regimes in Asia-Pacific to fundamental reforms of existing VAT systems in the EU, Australia, New Zealand and Canada.

The significance of the global shift towards VAT is clearly demonstrated by the fact that the two most populous countries in the world – China and India – are both implementing new VAT systems. Additionally, the third most populous country and the largest economy in the world – the USA – has started to talk in a real way about the possibility of introducing a VAT system, which would be one of the most significant global tax reform events in a generation.

Other jurisdictions to watch in 2010 and beyond include Malaysia, the Gulf, Canada, Brazil, Mexico, Australia and New Zealand.

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What fundamental VAT reforms can we expect?

Global VAT reform is not just about introducing new regimes in China, India and other jurisdictions. Even for jurisdictions that already have a VAT system in place, the reality is that they do not always age gracefully. Periodic evaluation of the VAT system is therefore warranted in order to keep pace with the changing environment and help ensure competitiveness, revenue-raising efficiency and overall effectiveness.

Based on the concerns of regulators in the EU and throughout the world with the operation of VAT systems, it is anticipated that specific reform measures which will be common to many jurisdictions will include:

- The battle against fraud and evasion
- Promoting the green / sustainability agenda
- Limiting VAT exemptions and other reliefs
- Modernization of indirect tax laws and practice
- A new tax audit environment

Understanding what each of these reforms will bring, managing the resulting compliance challenges and capturing new opportunities will be a key driver of success for global businesses looking to achieve world class indirect tax management in 2010 and beyond.

What does global VAT reform mean for business?

There is a growing realization that effectively managing indirect tax performance within an organization can add to the bottom line. To achieve this, global organizations must be pro-active in responding to the global VAT reforms that are relevant to their business. The following are some of the key components that organizations should now be addressing in order to stay ahead of the game:

Influence change - By playing an active part in the ongoing reforms, organizations have the power to influence the direction of changes which impact their business.

Analyze market impacts - Changes in VAT treatment can substantially alter the market dynamics for a product or service. Modelling the impact on

pricing, demand and profitability can enable a business to make informed commercial decisions.

Future-proof contracts - Contracts must be pro-actively "future-proofed" as much as possible against potential VAT changes which could materially alter the VAT treatment, compliance obligations of the parties and ultimately sharing of economic risks and rewards.

Turn Knowledge to Value - With changes occurring throughout the world on a daily basis, there is a requirement for global organizations to capture disseminate and implement emerging knowledge, combining it with existing organizational experience, in a way that enhances business value.

Automate - Enhanced automation of VAT processes can enable an organization to more effectively manage emerging changes and new complexities.

Prepare for tax audits - While the approach of tax authorities globally is changing, local cultures are not uniform. Being appropriately prepared for local audits in unfamiliar jurisdictions is critical to success.

In-house or outsource? - One decision which should be made early is whether to outsource the new compliance obligations or whether to invest internally in appropriately qualified resources.

Change is coming and it will impact global organizations in many different ways. Only businesses that pro-actively respond to the new landscape can expect to mitigate the new tax risks which are expected to emerge and be well placed to capitalize on the new opportunities which these changes may present. ■

The views and opinions expressed herein are those of the author(s) and do not necessarily represent the views and opinions of KPMG International Cooperative or any one or more of KPMG's member firms.

For a copy of *Driving Indirect Tax Performance, Managing Risk Beyond Reform* please visit www.kpmg.com.

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Food security – beyond the 2008 crisis

2008 saw two major crises, the financial crisis and, almost forgotten, the food crisis. In a year with the biggest ever crop in human history, prices of staple foods increased almost fourfold.

After their peak in mid-2008, food prices started decreasing again. But they remain significantly higher than in the first half of the decade. Markets had transformed negative expectations from underlying realities – slow-down in growth of agricultural productivity, looming shortage of water for farming, ambitious goals for food-based biofuels and continuous overall market distortions – into a price, sending out a severe warning of risks ahead.

A broad strategy is required to address this serious issue – and the OECD can play a key role. Such a strategy might include:

1. Producing the necessary quantities of basic calories and proteins for a growing world population in a sustainable way. Here, the water challenge is at the forefront, with a risk of massive shortfalls in cereal production if we continue with water withdrawals at the current pace.
2. Generating reliable incomes for farmers, as about 800 million of the 1 billion

**Nestlé can contribute
to a solution, alongside
international
organizations and
governments**



Nestlé factory in Mexico

- undernourished people today live in rural areas.
3. Affordability of food for both rural and urban low-income consumers.
4. Quality of food (including safety, and nutritional value).
5. Bringing the food from the farm to the table by means of efficient logistics, so people get their food where, when and in the form they actually need.

In each of these areas, private sector companies such as Nestlé can contribute to a solution; but all individual steps will be effective only if the issue is being addressed by governments and intergovernmental organisations in a comprehensive manner. ●

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Food and agriculture: Securing the future

ROUNDTABLE

In the years ahead, the global food and agriculture system will have to provide sustainably for billions more people and meet greater demands on quality, affordability and availability. Farming will be competing with other sectors for land, water and investment, while climate change adds new pressures.

Ministers and stakeholders from OECD member countries and key emerging economies met in Paris on 25-26 February to discuss how best to respond to the challenges. We asked ministers from five of them—Austria and New Zealand as co-chairs, Canada, Germany and Chile—and leading representatives from Concern Worldwide, the International Federation of Agricultural Producers, John Deere, and the World Trade Organization:

“What actions are you prioritising to prepare the food and agriculture system for the needs of a rapidly changing world?”

concentration, precipitation changes, increased weeds, pests and disease. In the short term, the frequency of extreme events, such as droughts, heat waves, floods and severe storms is expected to increase. We need to work on concepts to help us adapt to these changing circumstances.

Meanwhile, the agricultural sector can contribute to efforts to mitigate against climate change. A potentially large bioenergy market can contribute to overall development and bears huge income potential for farmers. Of course, the production of bioenergy needs to ensure efficient and sustainable production methods, and the precondition is: “first the table, then the tank”.

With the globalisation of markets, our farmers’ endeavours to sustain their businesses and to earn a decent living—including in less-favoured regions—have to be supported. In Europe, for example, we need a strong Common Agriculture Policy (CAP), which has to provide an adequate framework for sustainable production. The CAP needs to enable the agricultural sector to deal with the challenges posed by changing climatic conditions, market instability and price volatility. We need safety nets for our farmers.

The price volatility experienced in recent years has caused serious uncertainty for our farmers. Part of the problem is speculation. We must discuss how to curb financial speculation on basic commodities, such as food. The OECD’s agriculture ministers should address this issue at their February meeting in Paris.

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New Zealand

Innovation and political will



David Carter, Minister of Agriculture, Minister of Biosecurity and Minister of Forestry, and co-Chair of the 2010 OECD Agriculture Ministerial Meeting

In the face of a growing global population, we must confront food security with new thinking, new approaches and a strong political will.

Free trade, protecting natural resources and investment in research and development are all fundamental to ensuring we can continue to feed the world.

It is common sense that food be produced in areas best suited for farming by those most efficient at it. But for this to happen, and particularly if the current food security challenge is to be addressed, there must be a commitment to free and open trade.

New Zealand strongly advocates the removal of trade barriers and is continuing to pursue a rapid and successful conclusion to the Doha Round. This is necessary to address the distortions that penalise efficient producers and impair the opportunities for farmers in developing countries to lift themselves out of poverty and contribute towards alleviating hunger.

Protecting the natural resource base of farmers and growers is also critical to the strength of the agricultural sector.

Austria

Facing challenges, harnessing potential



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Nikolaus Berlakovich, Federal Minister of Agriculture, Forestry, Environment and Water Management, and co-Chair of the 2010 OECD Agriculture Ministerial Meeting

The agricultural sector has changed in recent years. Agriculture in the 21st century has to produce more food and fibre to feed a growing population with a smaller rural labour force.

Feeding the world population adequately means producing the kinds of food that both ensure nutritional security and

are acceptable to consumers. Food security only exists when everybody has access to sufficient, safe and nutritious food to meet not only dietary needs but also preferences.

In this context, regional and locally produced foods play a vital role, while contributing to the livelihood of farmers in the region and enabling them to deliver environmental benefits in keeping with societal demand.

But with rapid urbanisation and other land uses, agriculture will be forced to compete more and more for land and water, and will also be required to adapt to and contribute to the mitigation of climate change. The sector affects and is affected by climate change. No other sector is more climate sensitive. This is one of the new challenges we have to face.

Climate change is predicted to affect agriculture and forestry systems in many ways, through higher temperatures, elevated carbon dioxide

Roundtable - continued

New Zealand is placing top priority on sustainable production practices with a particular focus on fresh-water management. We are one of the fortunate countries with an abundance of fresh, clean water, but the problem is, it does not always fall in the right place at the right time. Improving water storage and water allocation is a key goal for the New Zealand government.

Internationally, some of the most significant developments will come from balancing food supply with greenhouse gas emissions reduction. As a nation dependent on agricultural exports, New Zealand knows how important this is.

Solutions to issues such as water management and climate change will come about through collaboration by government and industry, research, analysis and new policy frameworks.

As our country's economic future relies on new ideas and innovation, investment in research and development is a priority. The New Zealand government and industry have committed significant resources to establishing a domestic centre specialising in agricultural greenhouse gas research.

New Zealand is also leading the development of a Global Research Alliance on agricultural greenhouse gas mitigation research. This alliance will broaden existing research networks internationally and build new ones, increase support and resources for agricultural emissions research, and enhance the development and application of agricultural mitigation technology. The overall aim is to enable the developed and developing world to produce more food with lower greenhouse

gas emissions, ensuring food security for the future.

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Canada

Pursuing partnership, not protectionism



Gerry Ritz, Minister of Agriculture and Agri-Food

As a global leader in agriculture, Canada believes open and fair trade will drive the prosperity of its farmers and put safe, top-quality food on the dinner tables of the world. The need for fair, science-based trade is all the more urgent in this time of ongoing economic uncertainty in a rapidly changing world. Our government will continue to work through the WTO, bilateral free trade agreements, as well as with our OECD partners, to remove barriers to trade and open up new opportunities for agriculture. Trade is vital to ensure that food gets to the people who need it, while providing farmers with fair returns for their produce.

At home, through Canada's Economic Action Plan, we continue to build a firm foundation with better roads, water systems and infrastructure. These investments will provide jobs and help farmers grow and transport their products, making sure Canada can weather the current global economic storm.

Our government is working with the public and private sectors to develop new technologies and practices that help our farmers increase production and reduce risk from disease, pests and climate, to enable them to meet the increasing world demand.

The government of Canada will continue to work closely with our industry and our provincial and territorial counterparts to develop flexible, proactive, market-oriented policies and programmes that put farmers first. We are working with the agriculture and food industry to meet the needs of a rapidly changing world by supporting "mind-to-market" research, strengthening food safety and environmental practices, and helping our producers better manage business risk.

As we begin to see early signs of recovery, our government knows that agriculture plays a key role in our economy and we'll continue to work on all fronts: international trade, farmer-led research, and sound programmes to make sure our agriculture industry remains strong and a leading exporter around the world.

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Germany

Share knowledge to win



Ilse Aigner, Federal Minister for Food, Agriculture and Consumer Protection

Knowledge is our most important raw material for the future. Germany is counting on research and innovation to meet the challenges of the agri-food sector in the 21st century. Climate protection, food security and eco-friendly farming can only be achieved with the latest technology, the best training and the most efficient business management. Generating new knowledge is a permanent challenge: if we stand still we shall lose ground.

Agricultural research in Germany is increasingly focusing on the production of foodstuffs and renewable raw materials. It has to come to terms with society's growing demands for responsible management of soil, water, air and biological resources.

The results of agricultural research are finding their way into policy decisions in Germany. The economically oriented work of the OECD can make a useful contribution here.

Germany has a wide range of tools at its disposal to promote new discoveries in areas that are important for the future. Our goal here is to make the agri-food industry more competitive, to maintain added value, to improve working conditions and to help conserve our natural resources.

Challenges such as adapting to climate change call for input from both basic and applied research. Biotechnology, for example, can help enhance the potential for food crops to withstand drought, heat and other unfavourable environmental conditions and increase their nutritional content. Conventional varieties and technologies should be further developed on the basis of the many local crops and wild plants available.

Research into renewable raw materials is primarily focused on developing product lines, finding new applications beyond the food sector and making efficient use of biomass as part of tomorrow's energy mix.

Because the problems we face are global in scope, all those involved will have to accept this rule: those who share knowledge will win. In this connection, Germany welcomes the work of the OECD Co-operative Research Programme on the use of natural resources for sustainable agricultural systems. Strong agricultural research cannot be the exclusive preserve of wealthy countries; it must also serve the interests of developing countries.

Agricultural research must now go hand-in-hand with the training of skilled workers. Germany stands by its responsibility in this regard and is already actively involved in numerous co-operation projects.

We recognise that we can only achieve our agriculture policy goals for the future if we all work together.

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Chile

Modernising and adapting



©Government of Chile

Marigen Hornkohl,
Minister of Agriculture

The world is constantly evolving, and we should not be surprised by these sudden daily changes. As populations grow, so do their needs, often accelerated by the expectations of a better quality of life.

Although climate change takes place over long periods of time, it is mankind's responsibility to anticipate and respond to these changes now, especially as these changes will transform how we produce. Together, we must adapt to these changes, both by reducing the causes and minimising the impacts.

It is necessary to highlight the important role that global governance will play in helping us face these challenges. Today, national and multilateral organisations and agencies are called to work together, to co-ordinate their efforts and demonstrate a solid and integrated institutional performance. We also welcome public-private agreements that could be achieved in this area.

With these challenges in mind, we in Chile have planned to develop our agriculture with the goal of becoming a food and forestry powerhouse. We hope to contribute to world agriculture in a responsible manner that emphasises the use of renewable resources.

We have adopted an open-trade strategy because we assume that greater trade means greater welfare. Certainly such trade needs to be fair and have clear, equitable rules among countries. This is one reason why we support a substantial agreement on agriculture at the WTO, which seeks to reduce subsidies and dismantle trade barriers.

Our plan to achieve that competitive advantage involves more and better innovation in

animal and vegetable genetics, as well as meeting the highest plant and animal sanitary standards in the world. This modernisation will propel us towards a more interconnected agriculture.

We are particularly interested in planting and exploiting forests of native and exotic species. We are aware that well-managed forests can help mitigate the effects of climate change while generating employment and productivity in the sector.

We understand that people, whether workers or consumers, are at the heart of these initiatives. This is why our efforts emphasise social justice, higher incomes and access to services that guarantee a better quality of life for the people who are directly or indirectly involved in our agricultural sector. In this constant pursuit of equal opportunity, we also place a high priority on how our policies benefit small producers, women, indigenous populations and young people.

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Concern Worldwide

Confronting an unacceptable scandal



©Concern Worldwide

Tom Arnold, Chief Executive of Concern Worldwide and former Chair of the OECD Committee for Agriculture (1993-1998)

The issues to be considered at the OECD agriculture

ministerial meeting provide a good overview of the factors affecting the rapidly changing global food economy—climate change and resource scarcity, changing consumption patterns, evolving market structures and global supply chains.

But with the number of undernourished now reaching more than one billion people, outrage must be expressed at the sheer unacceptability of a statistic which tells us that, in the 21st century, almost one sixth of humanity goes to bed hungry each night. The short and long-term human and economic costs of this statistic must be fully grasped. What are the policy options or priorities to change the situation?

There are no simple answers to resolving this problem. But two major policy changes will be central to making progress.

Firstly, food-insecure countries, particularly in sub-Saharan Africa, need to provide the policy framework for, and increased investment in, agricultural and rural development. For most of these countries, agriculture remains their largest economic sector and unlocking its productive potential provides the basis for economic progress.

Secondly, nutrition policy and programmes should receive greater priority, with a particular focus on ensuring that pregnant women and children under two years are adequately nourished, thereby preventing chronic and acute malnutrition. Inadequate nutrition until the age of two leads to physical and mental stunting—in some African countries, up to 50% of the children are stunted—which cuts off an individual's, and a nation's, economic potential.

Roundtable - continued

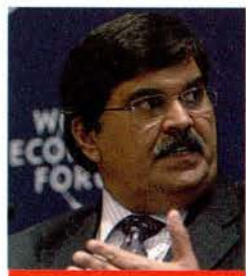
As it happens, progress is being made in both policy directions. The food-price crisis of 2008 brought home to political leaders in food-insecure countries that it makes political and economic sense to prioritise food security. The UN High Level Task Force on the Global Food Security Crisis is providing effective leadership to both developing countries and OECD donor countries in emphasising food and nutrition security.

The OECD agricultural ministerial meeting provides an opportunity for those responsible for policy to make a clear statement that the scandal of over one billion hungry people is unacceptable, and that OECD countries will take serious and substantive initiatives to change this. I hope they will take the opportunity.

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International Federation of Agricultural Producers

Support the farmers' agenda



Ajay Vashee, President

With the food price crisis of 2007-2008 and the current widespread economic crisis, there has been an awakening that the agricultural sector is of critical importance in creating sustainable economic

and political landscapes. Moreover, last year at the UN Climate Change Conference in Copenhagen, IFAP led an effort with the world agricultural institutions—the CGIAR, the FAO, the Global Donor Platform and others—to put forward the link between food security and the sustainability of agricultural production towards a “shared vision” that explicitly recognises the link between food security and climate change, an issue which will undoubtedly shape the agenda for years to come.

Meanwhile, agricultural producers worldwide face the challenge of increasing world food production by 70% to meet the needs of a global population that will reach 9.1 billion people by 2050 while using less water, producing less greenhouse gasses and conserving agricultural biodiversity, all on essentially the same land mass.

To meet this enormous challenge, farmers need direct support from foundations, governments and intergovernmental agencies to enable them to co-ordinate and intensify their production using knowledge-based farming systems. This means using integrated water-management solutions, closed livestock systems and bio-gas digesters, diversifying and increasing production for local markets, and providing more eco-system services as part of farming operations. Agriculture will have to be redesigned to increase productivity in an environmentally sustainable way.

We lack, however, the financial resources and political will to put these kinds of activities into practice on a scale that will really make a difference. First, in developing countries, more and better investment in agriculture

is required. Second, farmers need incentive systems to adopt the most sustainable farming practices. Third, increased investment in research and innovation is needed, specifically to bring research into practice in farmers' fields. Fourth, farmers need risk-management tools. They need safety-net programmes to keep them out of poverty if things go wrong.

Agricultural investments need to be catered to this very clear agenda, supporting the development of IFAP and strong farmers' organisations throughout the world. IFAP challenges OECD agricultural ministers to realign their global agricultural agendas to the farmers' agenda; only then can we be certain of success.

Visit www.ifap.org

John Deere

Closing the productivity gap



Samuel R. Allen, President and Chief Executive Officer

A crucial element in meeting the future needs of a growing, more affluent global population is accelerated innovation across the entire food system—from farm production through distribution, right to the final consumer. This entails closing the critical gap between the historical trend rate of agricultural productivity growth and the far faster pace required to meet future needs.

Closing this gap will enable sustainably feeding a growing world while meeting the environmental, resource and other goals of our global society.

Achieving such a monumental task involves embracing all types of modern production practices, including conventional and organic agriculture, and producers of all sizes and types, from subsistence to commercial. Deere solutions play an important role in enabling such a diverse global customer base to significantly raise productivity and improve livelihoods.

At Deere, our specific efforts are focused on sustained research and development, enhancing our global presence to better serve customers, and establishing collaborative partnerships.

Research and development is a critical component in accelerating innovation. Deere's R&D budget exceeds some \$2 million per day, utilising customer feedback along with market demands to develop machinery and services ideally suited to the many varied conditions around the world, in terms of technical level and affordability.

We continue to make our products and services more readily available worldwide by an expanded presence in new markets. An example is our recent launch of an ambitious initiative for the African continent with an expanded product portfolio, dealer network and parts distribution. The continuing presence of a dealer network—maintaining proximity to the customer—is critical, to provide local technical expertise, service machines in a timely manner and conduct operator and other technical training programmes.

John Deere also values a network of collaborative partnerships around the world. These provide opportunities to share best practices related to crop and livestock production that improve farmer profitability, support educational and technical in institutions, and assist emerging market countries generally in achieving their rural development goals.

While accelerating farm and food chain productivity growth is crucial, Deere also recognises the necessity of other parallel actions in meeting the global food challenge. Supportive national policies that promote political stability, open markets, encourage investment and facilitate trade also are essential ingredients that we support.

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World Trade Organization

Trade is key to food security



Pascal Lamy, Director-General

Global food prices have risen significantly in recent years, triggering a debate on food security. Though the main drivers underlying the price increase and their magnitude have varied by commodity, overall, structural imbalances between supply and demand and declining stocks over the past five or ten years set the stage for these changes. Short-

term factors, such as higher energy prices, the promotion of biofuel markets, adverse climatic conditions and currency depreciation, further exacerbated by certain policy responses, like the imposition of restrictions on food exports, have served as a catalyst to these abrupt changes in global markets.

The solution involves both national and international actions. Given current trends in population growth and consumption patterns, raising supply is clearly the answer. More food is needed, which in turn requires more agricultural investment and production, mostly in developing countries.

International trade is key because it helps channel food from food-surplus to food-deficit countries. It promotes efficiency by shifting production to countries with the greatest comparative advantage. In doing so, trade promotes investment and employment in those rural areas where the impact of the food crisis has been felt most. Through increased competition, trade also helps lower prices and moderate potential price spikes. It is no surprise that some recent price hikes have occurred in commodities with low trade-to-consumption ratios, such as rice.

Climate change will also have many impacts on today's agriculture, including potentially greater water scarcity. In 2006, the UNDP's Human Development Report drew our attention to the water-saving potential of international trade. The "virtual trade in water"—as UNDP called it—could lead to reduced water consumption in importing countries. It gave the powerful example of Egypt, which if it were to seek self-sufficiency in agriculture, would need more than one Nile.

International trade will also help reduce dependence on single sources of production.

More trade means tackling the large distortions that still plague international markets in agriculture. The Doha Round of trade negotiations can help. Its key mandate is to achieve major improvements in the area

of market access, reductions in trade-distorting agriculture subsidies and the eventual elimination of all forms of export support. Countries have made great strides in achieving these goals, and a result is within reach through the conclusion of the Doha Round.

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Food security

Joe Dewbre, OECD Trade and Agriculture Directorate



Can global agriculture and food systems provide for the predicted 9 billion people living in the world in 2050? Predictions of global famine are not new, but recent setbacks in the fight to eradicate hunger have brought agriculture back to centre stage in international discussions.

In September 2000, world leaders adopted the UN's Millennium Goals. Goal 1's targets include halving the share of the global population suffering from hunger in 2015 compared with 1990. Progress was steady until around 2007, with the proportion of children under five who are undernourished (the UN's broad indicator of hunger in the

total population) declining from 33% in 1990 to 26% in 2006. Even so, it was obvious that the goal was not going to be easy to reach, and that was before the rise in food prices in 2008, and before the recession wiped out many of the gains. According to the FAO, the proportion of hungry people in developing countries rose to 19% in 2009, compared with 16% in 2004-06, and 18% in 1995-97.

Food insecurity is both an immediate tragedy and threat to longer-term well-being. Faced with hunger, families first tend to reduce consumption of higher quality foods, such as meat or vegetables. But as the crisis continues, they may have to sell

the means by which they normally earn a living—animals or tools for instance—or take out loans that will leave them impoverished and indebted for years to come. Education and healthcare may become luxuries they can't afford.

There are fears that hunger will never be eradicated and that, on the contrary, the situation will continue to get worse for many people, with demand for food commodities accelerating while the increase in per capita food supply slows. It's true that several factors are combining to boost

The objective should be to ensure that people, and countries, can buy enough to eat, not necessarily that they become self-sufficient

demand. For a start, there's the mechanical effect of population growth. Output will have to double over the next 40 years to feed a world population of 9 billion in 2050.

Added to that, although there will be crises and recessions in the future, the trend is for the world to get richer and for more people to adopt Western-style diets rich in meat, dairy and other foodstuffs that demand higher inputs than diets based on cereals or tubers. Biofuels also play a role here. Finally, environmental pressures on agriculture are growing, with climate change introducing a number of uncertainties.

Two assumptions underlie the pessimistic outlook: hunger is due to a lack of food supply, and it will not be possible to increase this supply fast enough to keep up with growth in demand. Such worries are not new. Ever since Malthus published his famous essays on demography at the end of the 18th and start of the 19th centuries, there have been predictions that the world will face mass starvation. As Malthus himself put it in *An essay on the principle of population*: "The power of population is so superior to the power of the earth to produce subsistence for man, that premature death must in some shape or other visit the human race."

Malthus was criticised for underestimating the potential for improvement through scientific and technological innovation, but his legacy persisted. Over a hundred years later, the Club of Rome sounded the alarm in *The Limits to Growth*, published in 1972. This too was criticised, not least by the OECD's Interfutures Project, launched in 1976. Interfutures argued that the physical limits to food production are not a given, and that it was possible to offset the negative impacts of environmental or other trends.

In reality, the world has never produced so much food, and the EU and the US even had to implement policies to reduce various food "mountains" and "lakes"—butter, beef, milk, wine and so on. The rate of progress in agricultural productivity over the past few decades has been phenomenal, even for long-established crops. Take wheat for instance. It took a thousand years to increase yields in England from around half a tonne a hectare to 2 tonnes. To increase from 2 tonnes to 6 tonnes took forty years. The global area under crops expanded by about 12% between 1960 and 2000, but cereal production increased by over 100%, oil crop production by over 300% and fruit and vegetables by over 200%. Meat production shows a similar pattern. Permanent pastureland increased by 10% over this forty-year period, but bovine meat production grew by 90% and that of pigmeat by 240%. The increase in poultry production was even more spectacular, at over 650% in the same period.

If people are hungry today, it is because they cannot afford to buy food, not because there is not enough available. Obesity is now a problem even in some developing countries, and much of the food produced (half, according to Oxfam) is either thrown away uneaten or spoiled because of poor storage and transport conditions. The immediate answer to hunger is to reinforce the capacity of the World Food Programme and other emergency response initiatives, but a more lasting solution requires placing food security in the wider context of economic development.

Historical evidence—and common sense—suggest that as a society becomes

richer, food security becomes less of a problem. Developing countries with very different levels of economic development, population size and geographical location have succeeded in reducing poverty and improving nutrition. Despite the significant differences among them, they share some characteristics. During the period when they had the greatest success in reducing

In reality, the world has never produced so much food

poverty, the macroeconomic context became progressively more favourable. Their own governments were lowering export taxes, reducing overvalued exchange rates and dismantling inefficient state interventions in agricultural markets. Meanwhile, the governments of rich country trading partners were reducing the kinds of support to their farmers that distorted production and trade the most.

In other words, the agriculture sector is important, but on its own is unlikely to be able to eradicate hunger. The objective should be to ensure that people—and countries—can buy enough to eat, not necessarily that they become self-sufficient. Some developing countries will not have the physical conditions needed to produce enough food, but that's the case for developed countries too. Japan, for instance, is a major food importer, but it can easily afford this thanks to its exports.

When the non-agricultural sector expands, the food and agriculture sector benefits too because the purchasing power of local consumers increases, and the country can take advantage of international markets both to buy food more cheaply than it could produce it and to sell its own products, whether agricultural or not. Trade liberalisation and improved global transport networks have already made food imports more readily available everywhere, including for the least developed countries. In 2003, grain imports accounted for 17% of their consumption, compared with 8% in 1970, and 55% of their vegetable oils were imported, compared with 9%.

Developed countries have a role to play, and not just through example. For a start, they could remove the trade barriers that prevent developing countries from competing with rich country producers and, through initiatives like Aid for Trade, provide help to develop the capacities needed to take advantage of opportunities in both domestic markets and abroad. The OECD itself can contribute through its expertise and experience in data collection, analysis, policy advice and programme monitoring.

The OECD Development Assistance Committee (DAC) is the exclusive source of information on its member countries' aid and monitors aid flows to agriculture and food security. The OECD also leads the consortium of organisations created to track the Aquila Food Security Initiative pledges that were made at the 2009 meeting of the G-8 in LAquila, Italy. There, world leaders committed \$20 billion over three years for sustainable agriculture development and safety nets for vulnerable populations. Such commitments, however important and well-meaning, will not help to put food on the table if they are not followed by action to bring about improvements across a broad range of areas linked to agriculture, particularly trade, but also education and training, infrastructures, and management and marketing skills. Get the policies right on these, and food security will surely follow.

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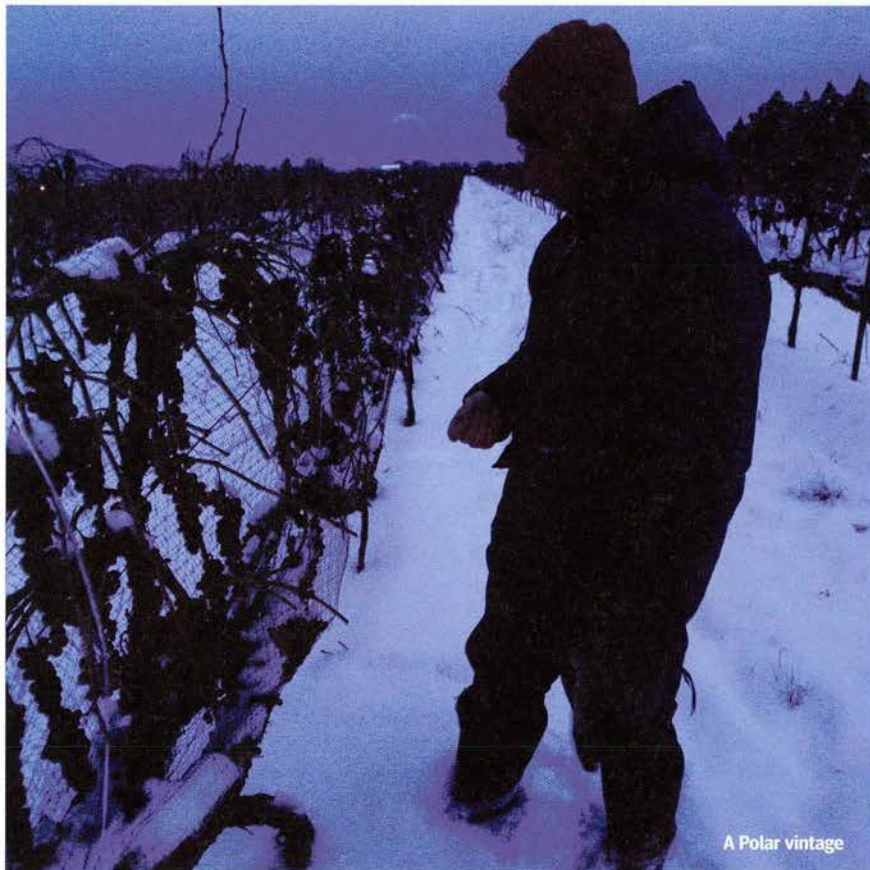
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See also

FAO World Summit on Food Security, www.fao.org/wsfs/world-summit/en/ and www.oecd.org/development

Climate change and agriculture

Wilfrid Legg and Hsin Huang, OECD Trade and Agriculture Directorate



A Polar vintage

Agriculture not only contributes to climate change and is affected by it, it also forms part of the solution. Coherent and effective policies are needed.

At least 14% of global greenhouse gas emissions come directly from the farm sector. That is more than transport and not far behind the contribution from industry.

How does agriculture produce such high emissions? One way is through farming activity itself: ploughing fields releases carbon dioxide in the soil, and rice cultivation and livestock breeding both emit large quantities of methane. Farming uses fossil fuels and fertilizers. Agriculture also involves land-use changes, including deforestation and desertification of fragile grasslands. These changes alter the earth's

ability to absorb or reflect heat and light.

Despite its relatively high contribution to greenhouse gas emissions, agriculture is not yet subject to emissions caps under the Kyoto agreement to fight climate change. Nevertheless, governments are taking action, and the OECD is supporting their efforts through analysis, information sharing and policy advice.

Devising policies and undertaking commitments to mitigate climate change through agriculture clearly means knowing more about agriculture's carbon footprint. As in most other sectors this carbon footprint is increasing, since farming is set to expand to produce more food for a growing world population. In fact, food production will need to double from current levels if projections of more than 9 billion

people in 2050 prove correct. That means more land-use change, more cultivation, more livestock and more use of fossil fuels.

But there are other, different challenges to contend with too. As well as being a source of climate change, agriculture is affected by shifts in climate. Projections to 2050 suggest an increase in both global mean temperatures and weather variability, including precipitation. This will clearly affect the type and location of agricultural production worldwide—from the vines of Europe through pasture in Africa to rice in Asia, whole patterns of production and livelihoods could be transformed.

Many countries will be able to adapt and some may even benefit by being able to grow new crops. But poorer communities and those living in fragile lands, such as deltas and low-lying coasts, may be exposed to greater risks. This makes adaptation vitally important. It also confirms just how key global co-operation will be in meeting adaptation needs in the years ahead.

Farm solutions

While agriculture contributes to climate change, it is also one of the few sectors that can provide solutions. Greenhouse gas emissions from human activity will have to decrease globally from 1990 levels by at least 50% by 2050 if future global warming is to be limited to a 2°C temperature increase, as currently recommended by the Intergovernmental Panel on Climate Change. This imperative was repeated by world leaders at the UN Climate Change conference in Copenhagen in December 2009.

How can farming help? One answer is carbon sequestration, as soil literally captures and absorbs carbon and so offsets emissions not only from farming, but from other sectors too.

As for mitigation, policies aimed at reducing emissions in agriculture may be more cost-competitive than in some industrial and transport options.

There are challenges though, including in measurement. Quantifying greenhouse gas emissions from agricultural activities is complex and costly, given the variety of farmers and systems used over a wide range of geographic and climatic conditions. Moreover, there remains a great deal of scientific uncertainty about how to control emissions from agriculture, since many factors are at play, such as local climate, soil type, slope and production practices. In other words, there is no simple relationship between the quantity of production and emissions.

Calculating indirect land-use changes arising from agricultural production is another challenge. The global surge in food prices in recent years reflected competition for land use related to world food and energy markets. In particular, the

Though some agriculture may benefit from climate change, the overall global effect is expected to be negative

links between production of biofuels from feedstock—these are subsidised in many countries—consequent land-use changes, including deforestation, and effects on food prices need to be further explored.

Mitigate and adapt

With the right technologies and systems, improved cropland and grazing land management, restoration of degraded lands and land-use change, such as agro-forestry, can make a major contribution to limiting greenhouse gases. Emissions from livestock production can be reduced by improving nutrition and manure management.

Science offers promising solutions in areas such as genetics, so-called second-generation biofuels that compete less with land used for food crops, and carbon capture, though clearly more research is needed. Genetics, for instance, could help reduce methane from animals too. Cattle

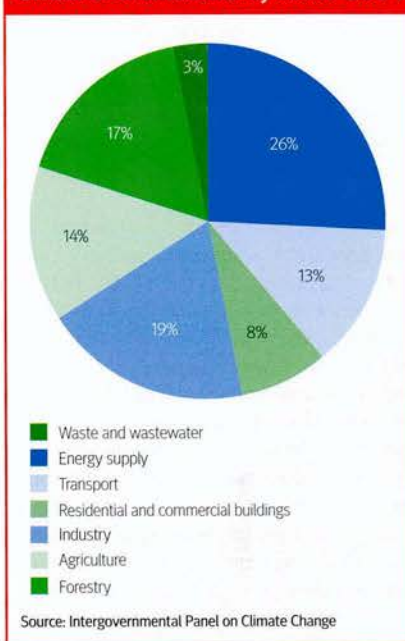
and sheep's sizeable share of greenhouse gases—indeed, methane is many times more potent than carbon dioxide as a greenhouse gas—can be offset to some extent by capturing the carbon in pastureland. Better farming methods can help mitigate climate change while also improving water quality, biodiversity and soil quality.

Though some regions of the world may benefit from improved climatic conditions, if no action is taken, the overall effect for global agricultural production is expected to be negative. Adaptation will be important, given that we are already “locked-in” for a certain amount of climate change, and since mitigation efforts take time to have an effect. This could mean altering farm-management practices to adopting new varieties, crops and animal breeds more appropriate to future climate conditions. It may mean policies to discourage certain kinds of heavily emitting agriculture to reduce risks and slow down land-use changes. In any case, such policies will also relieve other environmental stresses, including in water supply, and make agriculture more sustainable (see article on water).

The stakes are high, and there are serious issues to address. Responding to climate change and other environmental concerns, while at the same time producing enough food to meet demand, will not be easy. The OECD is looking hard at the questions, such as the synergies and trade-offs as producers reduce their carbon footprint while remaining competitive. How can carbon markets make a difference and how can they be made more effective? And what efficiencies can be achieved in the processing, transport and distribution of food products throughout the supply chain?

Getting policies right in these areas will be key, as will working with markets to encourage trade and investment, and to correct distortions caused, for instance, by certain subsidies that lead to overproduction and resource depletion. In short, future

Global GHG emissions by sector 2004



policies must aim for better environmental outcomes, including lower emissions. The OECD is analysing the design and implementation of cost-effective adaptation and mitigation policies in a range of key areas. Carbon markets, crop and disaster insurance, adoption of better crop varieties and breeds, technology, emissions monitoring, incentives for more efficient water use and compensation for vulnerable groups: such measures, if taken together and adapted to specific country situations, would create coherent policy packages to limit agriculture's contribution to climate change, improve the environment and boost the effectiveness and value-added of the farming sector.

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Over-nutrition?

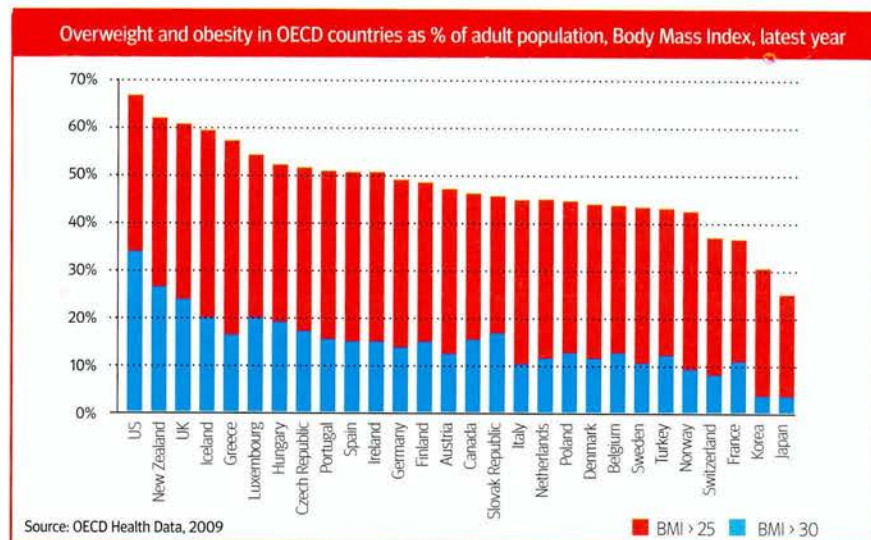
Linda Fulponi, OECD Trade and Agriculture Directorate

For millions of people worldwide, hunger and malnutrition are common everyday challenges. For some, even famine is a threat. But in many developed countries, food abundance brings other serious nutritional and health problems. Though these are being addressed, western habits are starting to spread.

Since the mid 20th century, the modern food production system, focused on increasing output, has successfully met, and even exceeded, the nutritional needs of consumers in developed countries. Not only has it satisfied energy, protein and fat requirements, but it has done so while reducing real prices of food. Indeed, the benefits of innovation and technological advances in agricultural and food production, not to mention more open world trade, have allowed cheap, abundant and varied food supplies throughout the year, so that on average food accounts for only about 15% of household expenditures in most OECD countries.

At the same time, rising incomes, labour force composition, urbanisation and changing demographics have contributed to changing lifestyles, including food consumption behaviours. People in OECD countries are on the run more, spending longer times at their desks and in transit, and less time at lunch. Time and energy devoted to food preparation have become relatively more expensive, and this may be more important than purely budgetary constraints in shaping food choices. These changes mean that both what we eat and how we get it have changed substantially over recent decades. Furthermore, the western diet, dominated by industrially refined carbohydrates, fats and sugars distributed through powerful supply chains, is being adopted the world over to varying degrees.

Food availability has increased in most countries on a per capita basis, and this is evidenced in daily energy, protein and fat supplies. According to FAO food balances, available calories in OECD countries now average 3,400 per person (2003-2005) up from 2,900 in 1964-66. Similar increases have been recorded outside the OECD, in Latin America, North Africa and Asia-



Pacific, where daily per capita caloric availability now generally exceeds 3,000 calories per person, though this average may mask uneven distributions. Caution is needed in comparing these numbers to recommended consumption levels; food availability may have risen but people's caloric needs still vary between 1800-2200 per person. Little wonder that data on caloric availability also reflect waste of approximately 25%.

The source of calories also matters. WHO estimates that fat intake has increased and is above the maximum 30% recommended energy share in North America and Western Europe, with saturated fats frequently above the 10% mark. These levels are not compatible with healthy cardiovascular systems. Yet fruit and vegetable consumption, whose contribution to good health and disease prevention is well documented, remains below recommended 400 grammes a day in most countries.

With people spending less of their energy for most daily activities, including work, and with the spread of refined foods, the incidence of overweight and obesity has risen in recent years. Some doctors in OECD countries speak of an obesity epidemic among adults and children, which has alarmed healthcare officials, because being overweight is a precursor of numerous chronic diseases, such

as diabetes, cardiovascular disease and many cancers. These are not only costly to individuals and to the public purse but are also largely avoidable through dietary and lifestyle changes, including exercise. Governments, both in OECD countries and across the globe are beginning to address diet and health issues, with obesity being but one increasingly global concern. The task is daunting. Changing food habits is very difficult because of the cultural, social and often psychological attachment to particular foods.

Can agriculture play a role in tackling such issues? Much of the answer depends on working with the producers and consumers to strengthen both supply and demand in healthier and abundant foods. This means helping consumers to make healthy choices as well as persuading food industry players—from agriculture to manufacturing and retailing—to change some of their ways too. That is their challenge in the 21st century.

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Biofuels: Great green hope?



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Once hailed as the imminent successor to fossil fuels, biofuels are hitting some rough patches. Is it time to apply the brakes?

On 27 May 2007, Dario Franchitti won the Indy 500, the US's most prestigious car race, using an engine running on pure ethanol, a high octane fuel made from corn. The win showed that the technology could compete with more conventional designs and contributed in its own way to the positive feelings surrounding biofuels. That same year, BioWorld's Biofuel Report was decidedly upbeat: "The world doesn't often collectively agree on anything; however, there are not many dissenting voices advocating abandonment of the quest to seek biotechnology-

driven alternatives to gasoline and diesel for running automobiles and other transportation vehicles."

In fact, the world did not collectively agree. In the very month Franchitti was whizzing around the Indianapolis racetrack, *Foreign Affairs* published an article called "How biofuels could starve the poor", voicing concern about food security. There were other dissenters too. Environmentalists had a number of complaints about biofuels, including the amount of fossil fuel, fertilizer and other chemicals needed to grow the feedstock and produce the final product, and the impacts on biodiversity and ecosystems.

The rise in the price of agricultural commodities in 2008 sharpened the

debate, and over the past two years or so the downsides of biofuels have gained more attention. A report published in January 2010 by the Earth Policy Institute is typical of the criticisms, especially regarding food security, claiming that the grain grown by US farmers in 2009 to make biofuels was enough to feed 330 million people at average world consumption rates.

So should governments be supporting biofuels? Subsidies are much higher per litre (as high as 50% of the total cost of production) compared to subsidies for fossil fuels, which are less than 5% of the consumer price. The reasons given for support are to protect the environment, foster rural development, create new markets for farmers, and improve national energy security.

Although biofuels do have an impact on greenhouse gas emissions, the benefits are small. Biofuels now account for 2% to 3% of road transport fuels in the US and EU.

The case for first-generation biofuels is not very sound

They reduce net GHG emissions by less than 1% of total emissions from transport, at a cost of about \$960 to \$1,700 per tonne of CO₂ equivalent saved.

Assessing the environmental impact of biofuel production is not simple. Life cycle analyses that take into account the entire production chain suggest some fossil energy could be saved, even with first-generation biofuels. However, the savings are relatively limited and vary between different situations in different locations.

The European Commission's Biofuels Taskforce has analysed the costs and benefits of biofuels regarding GHG reductions, energy security and jobs under various scenarios. The net cost to society was calculated to range from €33-€65 billion over 2007-2020, and €38.5 billion in the business-as-usual scenario with a 6.9% share of biofuels. The report's conclusion is clear: "Despite all the uncertainty... there is virtually no chance of benefits exceeding costs!"

Moreover, environmental pressures could increase. As demand from increased biofuel production raises prices for cereals, oilseeds and sugar, fragile land may be brought back into production and forests could be cleared. This is already becoming an issue in certain countries in Southeast Asia where the expansion of palm oil plantations largely comes at the expense of existing forest area and biodiversity. Also, greater demand for biofuels may lead to an increase in more intensive and single-cropping practices, reducing water levels, damaging soil quality, and introducing more pesticides and fertilizers into the environment.

Higher demand for biofuel crops is certainly good for producers, but not for consumers facing higher feed costs and increased food bills, particularly in developing countries. At the same time of course, consumers of biofuel by-products—mainly meat producers and consumers, particularly in developed countries—benefit from the increased availability of protein feed.

The past few years have seen high volatility in agricultural commodity markets. This affects the profitability of biofuel production from one year to another, complicating farmers' decisions on whether or not to plant biofuel crops. This in turn makes biofuels a less safe option for increasing energy security, especially given the fact that any agricultural production can be seriously affected by the weather.

Overall, the economic case for first-generation biofuels does not seem very sound, and the environmental benefits appear limited. There are claims that this will change thanks to second-generation products using agricultural waste and the non-food parts of current crops, as well as non-food crops and industrial waste.

Studies by the IEA and the OECD are more cautious. Some plants have been built to demonstrate the technological feasibility of biochemical or thermochemical conversion of lignocellulosic feedstocks. But even if these prove successful in the next year or so, wider commercial production is unlikely before the middle or end of the decade, which for the IEA means that biofuels will probably not contribute that significantly to global biofuel demand anytime soon: while the target for biofuels in the US and the EU is to reach around 25-30% of the transportation fuel market by 2030, the IEA estimates that by 2030 biofuels may account for only 4-7% of road transport fuels.

The climate change benefits of second generation fuels can be challenged too. A study published in *Science* in December 2009 linked economic and terrestrial biogeochemistry models to examine direct

and indirect effects on GHG over the 21st century of possible land-use changes from an expanded bioenergy programme. Indirect emissions occur when biofuels displace agricultural production and cause additional land-use changes that lead to an increase in net emissions, for example when forests are cleared to sow biofuel crops.

The model predicts that indirect land use will be responsible for substantially more carbon loss (up to twice as much) than direct land use. However, because of increases in fertilizer use, nitrous oxide emissions will be more important than carbon losses in terms of global warming potential.

So should we just abandon the use of biofuels altogether? Not if they can be integrated into a policy that considers the energy, environmental, economic and other aspects in a coherent manner. Until that happens, using agricultural resources to fuel Indy cars and other forms of transport is unlikely to be a "green" solution, or particularly cost-effective. *PL*

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Water in agriculture: Improving resource management

Kevin Parris, OECD Trade and Agriculture Directorate



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World agriculture faces an enormous challenge over the next 40 years: to produce almost 50% more food up to 2030 and double production by 2050.

With pressure from increasing urbanisation, industrialisation and climate change also rising, proper water management will be vital.

Indeed, as OECD water use projections to 2050 show, the water supply to some 47% of the world's population, mostly in developing countries, will be under severe stress, largely

because of developments outside of agriculture.

But agriculture consumes about 70% of the world's freshwater withdrawals (45% in OECD countries). With demand for food and water rising, farmers need to use water more efficiently and improve agricultural water management. In many cases, that means policymakers should use water charges to reduce wastage, and introduce supporting measures that encourage more innovation and better management.

This includes OECD countries, which are projected to continue to be major exporters of agricultural products onto world markets. By implication, OECD farmers will also need to improve their management of water.

Technology and better management can help achieve this improvement. Support tools, for example, are being developed to enable greater efficiency in water management strategies, such as the computerised linking up of soil moisture monitors to drip irrigation systems.

But technology changes can bring risks too. For instance, greater use of modern irrigation technologies to save water and raise yields could cause pressures in fragile lands, such as increasing risks of flooding and soil erosion.

Anticipating changes in climate is also becoming important, as this is projected to alter the seasonal timing of rainfall and snow pack melt and lead to the higher incidence and severity of floods and droughts. Policymakers will need to adopt mitigation and adaptation measures to deal with this.

Whatever the technology and approach undertaken, water pricing must also convey the right signals to farmers if it is to influence behaviour. Supplying water to farms is a costly exercise even in developed countries. Yet, farmers frequently pay just the operation and maintenance costs of water supplied to them, with little recuperation of

Agriculture consumes about 70% of the world's freshwater withdrawals

agriculture's share of capital costs for water supply infrastructure (see table).

In countries where water charges to farmers have been raised, available evidence indicates that the increase has not led to reduced agricultural output.

Moreover, water charges for farmers rarely reflect real scarcity or environmental costs and benefits. Sustainable use of groundwater by agriculture is usually achieved through licenses and other regulatory instruments. But frequently poor enforcement of these measures means unsustainable and illegal groundwater pumping continues anyway.

OECD government policies to support agricultural output often encourage production and lead to less efficient use of water, not to mention exacerbating off-farm pollution and flooding. But measuring the overall efficiency and effectiveness of farm support on water resources is difficult and demands further analysis.

Many OECD countries, however, have succeeded in lowering farm support levels and in decoupling their policy support from production volumes. The result has been more efficient water use, better adaptation to scarcity and less off-farm pollution.

The challenges of improving water management in agriculture are major but by taking some basic steps, they are not insurmountable. A recent OECD report, *Sustainable Management of Water Resources in Agriculture*, sets out some broad areas for policy action.

For a start, policymakers must recognise the complexity and diversity of water resource management in agriculture, including supply and demand dimensions at the national and regional levels. They should take steps to strengthen institutions and property rights to reinforce efficiency in water management in agriculture.

Policymakers should also work to ensure that water charges to agriculture better reflect full supply costs. And they should improve the coherence between agriculture, water, energy and environmental policies, to reinforce progress and prevent initiatives from cancelling each other out. Efforts to

strengthen agriculture's resilience to climate change, for instance, will also be important for water management (see article on climate change).

Last but not least, knowledge is vital for underpinning better management. Water is a global problem with local solutions. Policymakers must work together to fill information gaps, learn from one another and ensure that farmers and managers have access to the information they need.

Farmers in many situations are beginning to adopt practices and technologies that will lead to more efficient use of water. By adopting such measures as these, policymakers would help reinforce this trend.

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See also www.oecd.org/agriculture/env and www.oecd.org/water

Recovering water supply costs

Full supply-cost recovery for surface water delivered on-farm across OECD countries, 2008*

100% cost recovery of operation and maintenance, and capital costs: Austria, Denmark, Finland, New Zealand, Sweden, United Kingdom

100% cost recovery of operation and maintenance costs, but less than 100% recovery of capital costs: Australia, Canada, France, Japan, United States

Less than 100% cost recovery of operation and maintenance, and capital costs: Greece, Hungary, Ireland, Italy, Mexico, Netherlands, Poland, Portugal, Spain, Switzerland, Turkey.

Less than 100% cost recovery of operation and maintenance costs, with capital costs fully supported: Korea

* Full supply costs for water deliveries to farms include: operation and maintenance costs (e.g. maintaining and repairing the irrigation infrastructure) and capital costs, both renewal capital costs (e.g. replacing irrigation canals) and new capital costs (e.g. constructing dams).

No information is available on the following OECD countries: Belgium, Czech Republic, Germany, Iceland, Luxembourg, Norway, Slovak Republic.

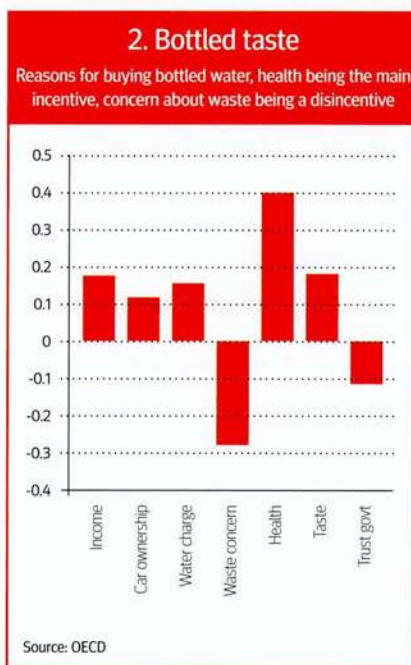
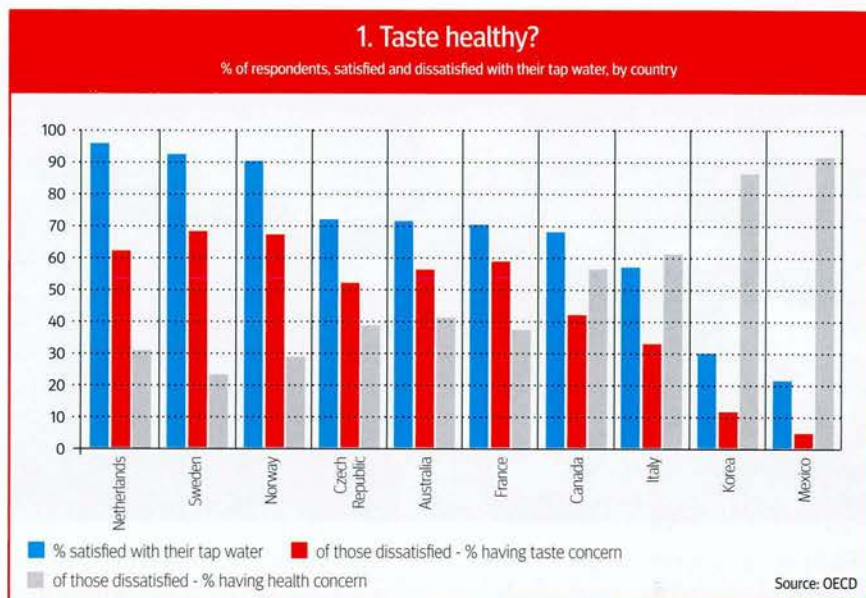
Water quality and conservation

Although agriculture and industry are the thirstiest of all water consumers, household water use accounts for some 10-30% of total consumption in developed countries. As governments develop strategies to promote water conservation, an OECD survey of households conducted in 2008 offers insight into what really works. Based on some 10,000 responses across 10 countries, the answer is as clear as what comes out of the tap: having to pay for water encourages water-saving behaviour and investment in water-saving appliances, thus reducing consumption.

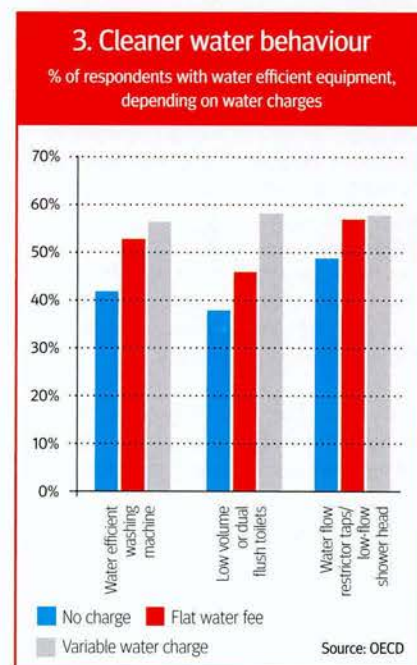
People's perceptions of tap water quality is a good place to start. The survey finds that two thirds of the respondent households drink tap water regularly. Moreover, the greatest satisfaction with the quality of tap water is reported in the densely populated Netherlands, though Swedes and Norwegians also report being highly satisfied with the quality of their tap water, whereas Canadians report lower satisfaction (graph 1). Where satisfaction was low, in some countries, such as France, this largely reflected concerns about taste, whereas in Korea and Mexico potential health impacts were the main concern. How much the subjective opinions in the survey relate to objective criteria of water quality demands more research.

People who are dissatisfied with their tap water can either demand improvements in public water services and/or switch to bottled water for drinking. On the one hand, households were willing to pay an average of €14 more per year for further improvements to public tap water quality. On the other hand, people who choose to buy bottled water do so for health reasons, though also for reasons of taste and because they can afford it (graph 2). They are also more likely to own a car—the easiest way to bring the bottles back home. But concern about plastic waste puts people off bottled water, the survey suggests.

The survey finds that water charges affect consumption: households that are charged according to how much water they use consume an average of 25% less water than those households that either pay a flat fee or



have free access to water services. People who pay by volume of water used also tend to be more likely to conserve water by turning off the tap while brushing their teeth, collecting rainwater or recycling wastewater. They are also more likely to have water-efficient devices, such as washing machines that use less water, dual-flush toilets or water-flow restrictors



(see graph 3). Australians, who face severe water scarcity in their country, report particularly high levels of investment in such equipment.

More survey results are available at www.oecd.org/environment/households. For more information, contact Yse.Serret@oecd.org or Nick.Johnstone@oecd.org

Aquaculture: A catch for all?

Albert GJ Tacon, Technical Director, Aquatic Farms Ltd



© Sukree Sukplang/Reuters

Could fish farming help secure the food supply of the future? Yes, but there are challenges.

Aquaculture—which covers more than just fish, but the farming of aquatic animals and plants as well—is widely viewed as an important weapon in the global fight against malnutrition and poverty, particularly within developing countries, where over 93% of global production is currently realised. In fact, the aquaculture sector provides in most instances an affordable and much needed source of high-quality animal protein, lipids and other essential nutrients.

Aquaculture has been the fastest growing animal food-producing sector globally for over half a century, with production, excluding aquatic plants, growing at an average compound rate of 8.1% per year since 1961, compared with 3% for terrestrial farmed meat production, 3.4% for egg production and 1.5% for milk production over the same period. According to the UN Food and Agriculture Organization (FAO), over 340 different species of farmed aquatic plants and animals were produced in 2007, the latest year for which complete statistical information exists.

Total global production that year was reported at 65.2 million tonnes worth some \$94.5 billion. Finfish accounted for 48.9% of production, aquatic plants 22.7%,

mollusks 20.1% and crustaceans 7.5%. Over 91.1% of total global production that year was produced in Asia, followed by the Americas with 3.8%, Europe with 3.6%, Africa with 1.3% and Oceania with 0.2%. China alone produced over 41.2 million tonnes of farmed aquatic produce in 2007 or 63.2% of total aquaculture production worldwide.

In marked contrast with capture fisheries, where the bulk of the fish species harvested are marine carnivorous fish species positioned high in the aquatic food chain, the mainstay of farmed fish production are omnivorous and herbivorous fish species positioned low in the aquatic food chain, including carp, tilapia and catfish.

Moreover, whereas the per capita supply of food fish for direct human consumption from capture fisheries has not been able to keep pace with population growth—per capita food-fish supply from capture fisheries decreased by 10.4%, from 10.6 to 9.5 kg/capita, from 1995 to 2007—food-fish supply from aquaculture continues to grow. It increased by 74.4%, from 4.3 to 7.5 kg/capita, from 1995 to 2007 and, at its current growth rate, is expected to match food supply from capture fisheries in 2012. At present, food fish contributes more than 25% of the total animal protein supply for about 1.25 billion people within 39 countries worldwide, including 19 sub-Saharan countries.

As with the terrestrial livestock production sector, the aquaculture sector has not been without its problems and critics. Major issues have been mainly related to the unregulated development of more intensive industrial-scale production systems, in particular farming systems for producing high-value crustacean and carnivorous finfish species. These issues have raised environmental concerns regarding habitat loss, pollution, escapes, genetic and disease interactions with wild populations, and possible marine mammals, turtles and bird interactions.

They raise resource concerns too, notably regarding feed selection and use, water use, land use, energy use and wild seed collection. There are also social issues to address, particularly the displacement of coastal fishing and farming communities by large operators, disruption of seafood prices and local food security. Other problems include livelihood impacts, reduced access to community resources, salinisation of drinking water and ground water, social exclusion, potential conflicts with tourism, recreational fishing and commercial fishing. And there are potential food-safety concerns regarding the possible contamination of farmed produce with unwanted heavy metals, pollutants, chemicals, medicants and pathogens.

The list goes on. Most of these issues and concerns are usually species-, farm- and country-specific and affect a fraction of the whole industry. They can be mitigated, or their impacts greatly minimised, by stricter adherence to the principles and guidelines within the *FAO Code of Conduct for Responsible Fisheries*. The solution is better governance to ensure this adherence, not just by policymakers, but by operators, too. Unless action is taken to ensure implementation of the principles and guidelines, the concerns could undermine what is a truly promising sector.

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Frulact - The Natural Selection

The Frulact Group has been created in 1987, with the aim to develop activities that add value to the agroindustrial sector and to the production of food products designed for industrial markets dealing with Dairy products, Beverages, Ice-creams and Pastry products. Frulact currently is the leader in various international markets dealing with fruit-based preparations.

Frulact holds six industrial units settled geostrategically - Frulact Maia is the unit where the general offices are established, and where the Innovation and Development Center operates; Ferro and Tortosendo units are located in the fruit growing region of Cova da Beira in Portugal; Fruprep Maroc took root in the large strawberry growing region of Larache in Morocco, and is used as a platform to export to North-African and Middle-Eastern markets; Fruprep France is located in Apt, dully fitted with the purpose of strategic growth into Benelux and South European markets; and finally Frulact Algérie is localized in Akbou and fully dedicated to this emerging market.

Our daily drive is the passion and motivation to track the whole process of our fruit and vegetables: cultivation, growth, harvest and preparation process so that we can then transform these Nature's gifts into truly innovative products.

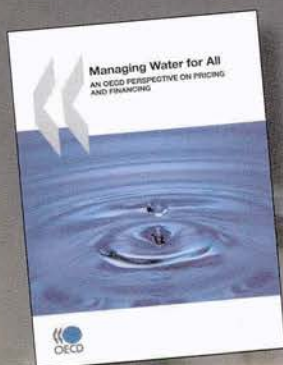
In order to achieve this, we are actively involved in the first link of the supply chain, optimizing the performance of our suppliers through support and training in the implementation of Quality, Hygiene and Food Safety Procedures, highly valued in the industrial markets we operate.

Furthermore there is our commitment to the environment. We interact with Nature and thus we put all our efforts in its preservation, implementing environmental management policies in all our processes.

Our success is our clients' success. We work in close partnership, permanently pursuing differentiating processes and products, seeking to anticipate market trends, always working on providing safe, healthy and high quality food to our millions of consumers.



Water matters



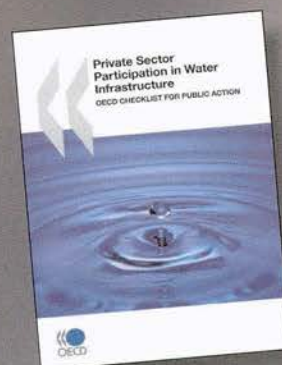
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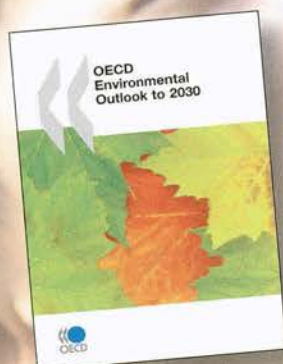
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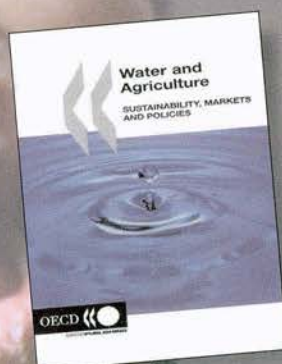
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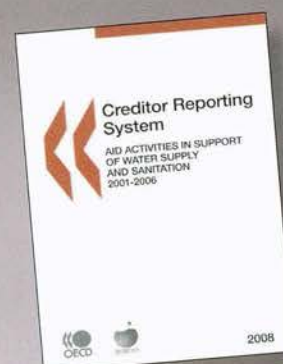
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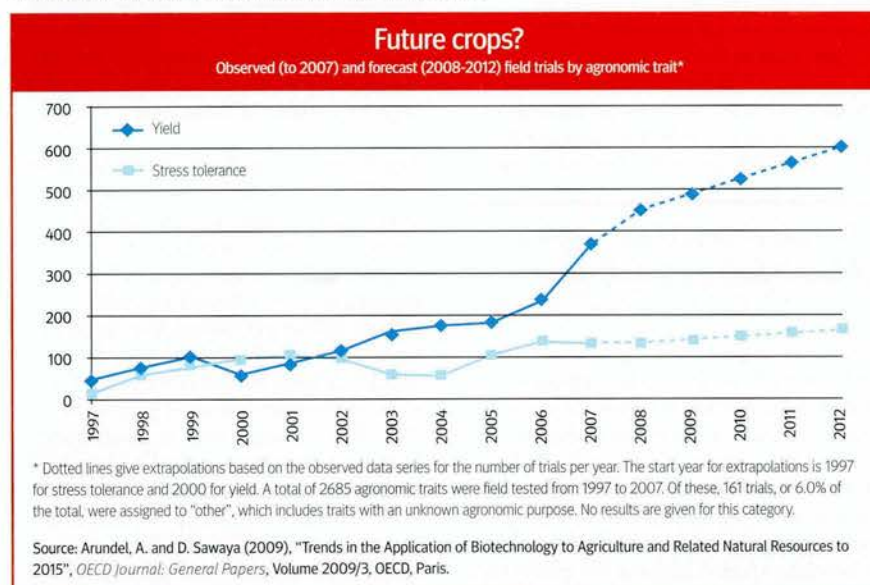
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The bioeconomy to 2030: Designing a policy agenda

Michael Osborne, Director, OECD International Futures Programme



Biotechnology has steadily evolved to become a potential motor of environmentally sustainable production and a proven source of a diverse range of innovations in agriculture, industry and medicine. Could we be at the dawn of a new bioeconomy? Public policies will influence the answer.

Since the dot.com boom years, debates have raged about where the future sources of rapid growth will lie. Biotechnology has been one widely cited candidate. But experts are divided: some laud biotechnology as a solution to problems such as overcoming disease and boosting food supply, while others see it as a risky and invasive technology.

Can the biological sciences overcome these differences, not only to contribute to solving complex global problems, but to become a driver of economic and societal progress? This is where a bioeconomy comes in. An easy way to think about this idea is to imagine a world driven by a marriage of biology and technology, rather than, say, communications or oil.

However, rather than narrow biotechnology down to some "killer app" such as the micro-chip or the internal combustion engine, consider it more in terms of its

pervasiveness and potential to drive whole areas of the economy in different ways.

Already a substantial share of economic output is partly dependent on the development and use of biological materials. This fact alone has attracted considerable government attention.

The OECD has been examining biotechnology for decades, and in 2006, our International Futures Programme launched an interdisciplinary, strategic project to examine the future of a bioeconomy and the way in which policy action could shape its longer term development.

What have we found out? One key message is that the contribution biotechnology could make to economic activity is significant. By 2030 the use of biotechnologies is estimated to contribute up to 35% of the output of chemicals and other industrial products that can be manufactured using biotechnology, up to 80% of pharmaceuticals and diagnostic production and some 50% of agricultural output.

Even without new policies or major breakthroughs, biotechnology could contribute up to approximately 2.7% of GDP in the OECD by 2030. For developing countries this share could be

higher, thanks to the greater importance of primary and industrial production in overall output. Moreover, as these figures assume business as usual, they probably underestimate the potential effects on energy, health and farming.

A striking implication of these estimates is that the economic contribution of biotechnology is potentially greatest in industrial applications, with 39% of the total output of biotechnology in this sector, followed by agriculture with 36% of the total and health applications at 25% of the total.

Also striking is how much these estimates are out of step with the present focus of R&D expenditures by businesses, where a massive 87% of private sector biotech R&D investment went to health applications in 2003, but only 4% on primary production and just 2% on industrial applications.

This mismatch could partly reflect higher R&D productivity in agricultural and industrial biotechnology compared to health biotechnology, though a lack of policy incentives, supporting regulations, skilled researchers and a public lead in R&D investment could also play a role. If a bioeconomy is to properly unfold, then this is a mismatch which policymakers can help correct.

Building in the short term

A closer look at biotechnological developments will make these conclusions clearer. Consider the three main sectors where biotechnology can be applied: primary production, healthcare and industry. While primary production includes all living natural resources, including forests, plant crops, livestock, insects and marine resources, the main current uses of biotechnology are for plant and animal breeding. The main human health applications are therapeutics, diagnostics and pharmacogenetics to improve prescribing practices. Then there are industrial applications which include the use of biotechnological processes to produce chemicals, plastics and enzymes, environmental applications, such as bioremediation, biosensors, methods to reduce the environmental effects or costs of resource extraction and the production of biofuels.

How advanced are these? To be sure, several applications, such as biopharmaceuticals, diagnostics, some types of genetically modified crops and enzymes are comparatively “mature” technologies. But many other applications in areas such as biofuels and bioplastics have limited commercial viability and rely on supportive policies or are still in the experimental stage, such as regenerative medicine and health therapies via cell-based RNA interference. Based on these advances, it is possible to predict some near term impacts of biotechnology with some precision, thanks in part to regulatory requirements for some agricultural and health biotechnologies that leave a data trail about what will possibly reach the market over the next five to seven years.

Also, while biotechnology is frequently used as a process technology to make existing products such as fuels, plastics and crop varieties, it can also be used to produce entirely new products, such as anti-cancer medicines. In these cases, the problems that need to be solved are already quite well known, from the diseases to the types of crop traits and biomass with the potential to improve agricultural and industrial outputs.

The size of the potential market for products such as biofuels or anti-cancer drugs can also be estimated with reasonable accuracy, though there are many unknowns, about the rate of technological advance in other, non-biotech cancer treatments and so on.

Take agriculture, where the use of biotechnology is developing fast. By 2015, approximately half of global production of the major food, feed and industrial feedstock crops could come from plant varieties developed using one or more types of biotechnology.

These biotechnologies include not only inter-species genetic modification but also intragenics, which involves the transfer of genes between species that are able to crossbreed, gene shuffling, which targets traits to improve cell performance, and marker-assisted selection, which helps identify and select those traits of possible value for productivity, disease resistance, quality and the like.

Research into how biotechnology can improve both yields and resistance to stresses such as drought, salinity and high temperatures has increased rapidly since the late 1990s, as shown by the increase in the number of GM field trials (see chart). Research results are useful for finding out

The main markets for a bioeconomy will be in developing countries

which crop varieties with agronomic traits could be ready for the market between 2010 and 2015, particularly for major food and feed crops such as maize and soybeans. Some of the agronomic traits will also be available for alfalfa, cotton, potato, rice, tomato and wheat varieties. Biotechnologies, other than genetic modification, are likely to be widely used to improve the quality and health of livestock for dairy and meat.

Healthcare is also reasonably straightforward to predict in the short term, with biotechnological knowledge ready to play a role in most therapies by 2015, including both small molecule and large molecule biopharmaceuticals, and with the design of clinical trials and prescribing practices being influenced through the use of pharmacogenetics.

As for industry, the value of biochemicals (other than pharmaceuticals) could increase from 1.8% of all chemical production in 2005 to between 12% and 20% by 2015. Biofuel production, for instance, could partly shift from starch-based bioethanol to higher energy density fuels manufactured from sugar cane or developing bioethanol products based on lignocellulosic feedstock such as grasses and wood.

All of these scenarios suggest a thriving biotechnological sector, but more is needed for this to become a bioeconomy in the longer term, say, by 2030 and to reach the levels of contribution to GDP our figures suggest it can. A successful innovation system is needed for this to happen.

Biotechnology R&D must be performed, paid for and result in commercially viable products and products. This process is influenced by many factors, including

regulatory conditions, intellectual property, skills and development. Social attitudes, market structure and business models will also play a role. Improvements can be made to policy in many of these areas.

Regulations are needed to ensure the safety and efficacy of biotechnology products. But regulatory costs are an influential factor. For instance, regulatory costs for genetically modified plant varieties (ranging in the US from \$0.4 million to \$13.5 million per variety) have limited the use of this technology to a small number of large market crops, while the costs for the open release of genetically modified micro-organisms (approximately \$3 million per release in the US) have held back deployment of techniques, such as bioremediation to clean up polluted soils. In some cases these costs reflect social concerns about health and safety, and these concerns have to be allayed. However, in other cases, especially in agriculture, the costs may also reflect a disjointed global regulatory environment, with researchers and investors facing similar compliance requirements in different countries.

Creating a more internationally harmonised regulatory scene would help reduce these costs by creating a level and more transparent playing field that producers, not least those developing applications for small markets, and consumers would benefit from. Policy action to ease regulatory costs would give those technologies that are ready the market access they need to grow and improve. Intellectual property rights must also be harnessed for the bioeconomy to grow. There is an opportunity for both firms and universities to use IPR to encourage knowledge-sharing through collaborative mechanisms such as patent pools or research consortia.

This will influence new business models too. Two new business models could become increasingly important to 2030: collaborative models for sharing knowledge between entities and reducing research costs, which will bolster smaller biotech firms in agriculture and in industry, and integrator models that bring key protagonists together in areas such as healthcare to manage the complexities of predictive and preventive medicine, drug development and major database analysis.

Designing a policy agenda

Clearly, realising a bioeconomy by 2030 will take work and require a policy framework for addressing technological, economic and institutional challenges across agriculture, health and industry. Mature biotechnology applications may need some minor assistance, but other areas of biotechnology, such as personalised medicines, need a major policy drive with new mechanisms. Such measures will have to manage cross-cutting issues for intellectual property and integration across applications, and tackle local and global challenges, from investment and trade barriers to health and environmental concerns.

One of the promising prospects associated with bioeconomy is that its main markets will be in developing countries, reflecting rapid income and population growth. Rising levels of educational achievement across the developing world, particularly at the tertiary level, will create centres of biotechnology research that can address some of the problems that are likely to develop in these countries, including a growing need for low carbon energy, clean water and high-yield, resistant agricultural crops.

But whether the goal is to improve food security, enhance health therapies or boost the sustainability, safety and productivity of industry, obtaining the full benefits of biotechnologies will require leadership, primarily by governments but also by important firms, as well as informed civil society and consumer groups. Regional and international agreements will likely be needed too, as will mechanisms to ensure that policy can flexibly adapt to new opportunities.

In short, the structural conditions required for success must be put in place. If this is done, then a dynamic and beneficial bioeconomy would take hold and brighten the long-term future of the entire planet.

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Visit www.oecd.org/futures/bioeconomy

E-ffective healthcare

Mark Pearson, OECD Directorate for Employment, Labour and Social Affairs and **Elettra Ronchi**, OECD Directorate for Science, Technology and Industry

The use of information and communication technologies in the health sector lags behind its use in many other parts of the economy, yet the advantages and potential savings are evident. Policymakers can do much to help close the gap.

Juanita Doe lives on Formentera, a remote island in the Balearic archipelago. Although Formentera attracts five times its population in tourists every summer, access to specialist emergency care has been the island's major predicament. There are not enough people living on Formentera year-round to justify supplying the local hospital with all the highly-skilled personnel and equipment that can be found in a major city. So, when Juanita's husband had a stroke, she feared the worst.

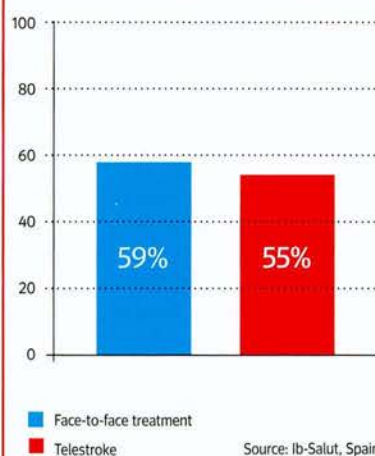
During a stroke, every minute counts and access to neurological care soon after onset of initial symptoms makes the difference between life and death. But Juanita's husband is one of the many patients who

have been treated successfully through the Balearic Telestroke programme since it was first established in 2006. Through the use of advanced video-imaging technologies, broadband and electronic health records (EHRs), neurologists from the capital city, Palma, can today provide life-saving remote care. This is not second-best treatment: the quality of care provided is proving to be every bit as high as that given to those physically present in Palma.

Jens Doe is a Swedish pharmacist. Like all his colleagues in Sweden, when giving patients the medicines they need, he no longer has to try to interpret the bizarre hieroglyphs that some doctors think pass for writing. Instead, doctors input the necessary information directly into an e-prescription system, which can be accessed directly by Jens. Processing prescriptions has become safer, quicker and easier in Sweden since Apoteket, a state-owned company selling pharmaceuticals, made a decision in 2001 to deploy e-prescription nation-wide. The system in Sweden has virtually eliminated the transcription errors associated with

Online outcomes

% of patients fully recovering, 2006-2008



How good are the outcomes using e-care techniques compared with face-to-face doctor visits? Very—at least in the Telestroke programme in the Balearic Islands of Spain. The percentages of patients who were treated using the remote-care programme and fully recovering from a stroke were nearly identical to those who were treated in person. Telestroke involves a dedicated staff and a broadband system that can send and receive digital images, including computed tomography (CT) scans—to evaluate for intracranial hemorrhage—audio, and electronic health records. When a patient has a neurological symptom resembling a stroke, the patient goes to the local hospital emergency for what is, essentially, a highly sophisticated video conference call with a neurologist at the main hospital, Son Dureta, in Palma. The neurologist then has instant access to the patient's full health records and radiological scans and can do a real-time visit with the patient. While the patient remains online, the neurologist can begin treatment and monitor the patient's reaction to the treatment.

paper prescriptions. It also picks up safety issues, making sure that over-prescribing is avoided, that generic drugs are used when possible, and that potential drug-drug interactions are signalled automatically. Overall, customer satisfaction has been improved, with doctors and pharmacists each saving as much as 30 minutes per day, allowing staff to provide new services that help diversify the pharmacy's revenue base.

John Doe lives in the US state of Massachusetts, where he has access to some of the best quality healthcare in the world. John is fortunate enough to have healthcare coverage, but would rather that it did not cost so much. A major challenge across the state is the rising premium inflation. Recently, he was thrilled to find that since joining the New England Healthcare Electronic Data Interchange Network, a consortium of providers and payers, his care provider had made massive savings in the costs of administrative functions, such as billing, patient scheduling and paper forms. Claims that previously cost \$5 per paper transaction are now being processed electronically at 25 cents.

The three Does are fictitious characters, but their situations are real and increasingly common, as analysed in a new OECD report (see references). Their examples show how greater use of information and communication technologies can improve quality of care and reduce costs.

But making sure that IT is in place is only the first step on a long and difficult journey towards taking full advantage of these technologies in healthcare. Indeed, it is fair to say that while the potential gains from greater use of these technologies have been apparent for years, most countries are still facing major implementation and adoption challenges, and their use in the health sector lags way behind many other parts of the economy.

There are three main reasons for this. First, the way healthcare is financed and organised can create disincentives for physicians in pursuing these systems. For example, good quality electronic health

records can improve disease management and save unnecessary tests. But the main beneficiaries from the use of these records are often going to be patients and payers, whereas the costs of purchasing and inputting routine data into the systems falls on physicians, hospitals and other healthcare providers. Doctors might well gain something as well—as in the case of Jens Doe—but perhaps not enough to justify the considerable investment. Hence, many countries have put subsidies and special incentives programmes in place to motivate doctors to use these systems in clinical care. Clearly, what is needed is a “business model” to ensure that those who benefit from e-health technologies can compensate those whose costs go up.

A second reason for the low IT uptake concerns privacy issues, which are particularly sensitive in healthcare. People worry about possible security breaches and their medical records being too freely accessible. The trouble is that the regulations put in place to guarantee privacy also often prevent the potential gains from easier access. For example, in the Canadian province of British Columbia, an unintended consequence of the commitment to protect privacy has been to prevent government from accessing critical health data to carry out the studies they need to improve services. Striking the right balance is a key policy challenge.

The third reason is the health sector's own very mixed results with large-scale e-care projects. Health systems have remained largely like cottage industries, with a fragmentation that inhibits the economies of scale and scope that have spurred technology diffusion in other sectors. Effective system-wide exchange of medical information continues to be logistically difficult. In addition, too often, projects have been started without the clear systems that are needed to make progress, for instance, setting the objectives in terms of the health gains expected or introducing the appropriate workflow redesign, change management, education and training. This lack of governance is also reflected in the

absence of reliable monitoring systems and good ways of assessing the effectiveness of the IT investments. The three Doe examples from Spain, Sweden and the US are among the few that have been evaluated properly and where oft-trumpeted gains from investment in e-health can be quantified.

The message is simple yet urgent: the sustainability and affordability of health systems is a growing challenge, and information and communications technologies are key for ensuring value for money. But realising this potential will not happen by market forces alone. Governments will need to intervene to overcome the difficulties in ensuring that e-health improves the quality and efficiency of healthcare.

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Transforming the global energy system

Nobuo Tanaka, Executive Director, International Energy Agency (IEA)



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As energy ministers from more than 50 countries gather for the International Energy Forum in Cancún, Mexico, at the end of March, the need—and opportunity—for dialogue between producers and consumers is more relevant than ever.

With energy demand continuing to rise strongly in the oil and gas exporting countries, energy ministers are increasingly confronting some of the same problems OECD energy consumers have long faced: how to restrain demand, how to protect the environment and how to diversify energy sources. Maintaining energy security, promoting stable economic growth and preventing global warming and climate change are real challenges. The costs are high, so the sooner we start, the more manageable they will be. Moreover, many of the steps we need to take have wider economic benefits.

Quite simply, current global energy trends are just not sustainable. Continuing on today's energy path would mean rapidly

increasing dependence on fossil fuels, with alarming consequences for climate change and energy security. We meet in Cancún only weeks after the landmark conference on climate change in Copenhagen. Governments are now addressing the targets they will need to set and the actions they will need to take to avoid catastrophic global warming later in the century.

The energy sector will be critical in this, and the IEA's *World Energy Outlook 2009* sets out how energy policies might be adapted to achieve stabilisation of CO₂-equivalent concentrations in the atmosphere at 450 ppm (known as our "450 scenario"), limiting the global temperature increase to 2°C. Undertaking such an energy transition will not be possible without using every opportunity we have at our disposal to enhance international co-operation. It is a huge task—but feasible, if we act now.

In tandem with the ministerial gathering at the forum, it is also customary to bring

together leaders of the major national and international energy corporations for the International Energy Business Forum. Joint discussion with the ministers, and the informality of these exchanges, are a vital part of dialogue process. A worry for both CEOs and ministers this year will be how well the world economy is coming out of the recession, and how the critical levels of investment in the world energy economy can be sustained.

Combating energy poverty must also be a priority. By our estimates, 1.5 billion people still lack regular access to energy supply, mainly in rural Africa and South Asia. Universal access could be achieved with \$35 billion of additional investment per year—only about 6% of global annual power-sector investment on current plans. The accompanying increase in primary energy demand and CO₂ emissions would be very modest.

In any realistic scenario, demand for oil and gas will continue to increase over the next two decades, prices are likely to rise and revenues to increase in real terms. Of course, sustained investment on an enormous scale will be necessary to enable producers to benefit fully from this rising demand. Helping that investment materialise will require clear, concerted policy action in the short and medium term against a backdrop of more efficient, open, predictable and transparent markets, physical and financial.

Energy markets and volatility have been a particular concern for many governments, both producers and consumers. Although oil prices have been relatively stable over the past year, price fluctuations and volatility are, to a certain degree, normal features of any market. But we should do everything we can to avoid the huge price swings we saw in 2007 and 2008. When growth in oil and gas demand returns, markets will need to be reassured that investment is in place to meet it.

To this end, access to reliable and timely energy data is essential. The Joint Oil Data

When growth in oil and gas demand returns, markets will need to be reassured that investment is in place

Initiative (JODI), of which the IEA was a founding member, has been influential in improving the transparency of markets. This can only work on a worldwide basis. The IEA has worked closely with the other six JODI partner organisations—APEC, Eurostat, International Energy Forum (IEF), OLADE, OPEC and UN Statistics Division—in contributing up-to-date statistics to a central data base. These statistics shine a light on monthly and annual levels of production, stocks, trade, processing and demand. We welcome the recent steps that have been taken to extend the initiative to

gas and the consideration being given to including data on upstream investment.

The IEA has been looking closely at the various factors driving volatility and, together with the Japanese government, organised an expert workshop in Tokyo in February 2010 bringing together market participants, regulators and other government and business representatives. Meanwhile, we have outlined a programme of co-operation at expert level with OPEC and the IEF secretariat to take forward work in this and other areas, thereby strengthening the producer-consumer dialogue.

The IEF has played an important part in enhancing this dialogue. Representatives of the major energy importing and exporting countries have been meeting every two years since the first producer-consumer dialogue meeting was hosted by the French government in 1991. It is now the world's

largest regular gathering of energy ministers. The IEA has been a strong supporter of this producer country–consumer country dialogue and an active participant in the work of the forum since the beginning. The IEF attracts not only IEA and OPEC countries but also Russia, China and India, as well as a range of developing countries for most of whom energy is a vital economic issue. Since 2005, non-OECD countries have represented more than 50% of the world's primary energy demand, and over the next 20 years they will account for almost all of the very substantial increase in demand that we are likely to see. Only by working together can we ensure cleaner, more stable and secure energy markets for the future.

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Visit www.iea.org and www.ief.org

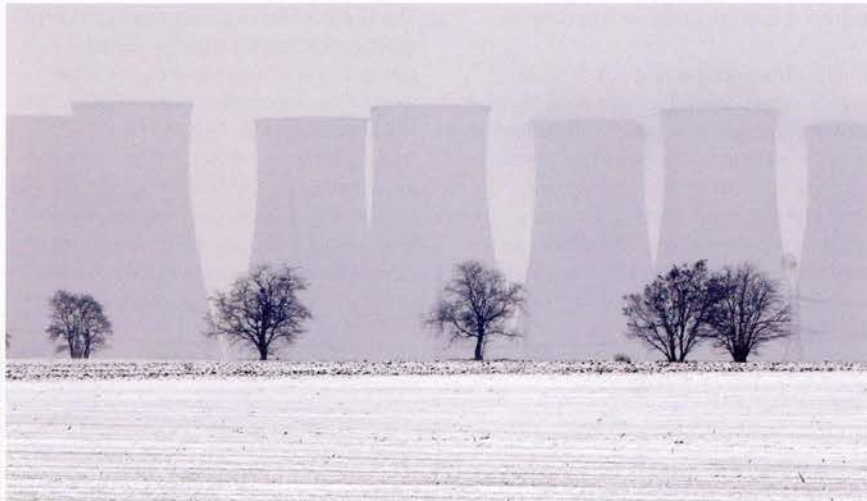


Companhia das Lezírias natural values



Climate change: The case for nuclear energy

Luis Echávarri, Director-General, OECD Nuclear Energy Agency



Reducing greenhouse gas (GHG) emissions is a key objective of energy policies in many countries. As energy consumption will continue to increase in the medium and long term, even if the recent financial crisis might curtail this rise momentarily, there is a general consensus on the need to foster the development and use of all carbon-free options for energy supply. What role can nuclear energy play?

The Intergovernmental Panel on Climate Change (IPCC) has estimated that to stabilise global temperatures at 2°C above pre-industrial levels—the cut required to avoid catastrophic consequences for the planet—global GHG emissions in 2050 should be reduced by at least 50% below 2000 levels. This could imply reductions of up to 80% by 2050 for OECD countries.

With expected population and energy demand growth, this means reducing the carbon intensity of the world energy system by a factor of four. This is an enormous challenge, and it cannot be faced without mobilising all the available options, including energy conservation and the large-scale deployment of low-carbon energy sources. No surprise, then, that policymakers from many countries should be expressing a new—or renewed—interest in nuclear

energy as a means to address climate change issues. This is because countries producing electricity with nuclear plants clearly feel they would benefit from carbon emissions savings, as nuclear energy replaces fossil sources. However, nuclear energy was excluded from the two international flexibility mechanisms of the Kyoto Protocol, i.e. the Clean Development Mechanism (CDM) and the Joint Implementation (JI). The CDM allows developing countries to receive the benefits for greenhouse gas reductions they achieve on behalf of developed countries with commitments to reductions. It also plays an important role in facilitating foreign direct investment and technology transfer. Given the challenges, this is surely the right moment to take a closer look at the role nuclear energy can play in this context.

Consider greenhouse gas emissions first of all. Throughout the entire nuclear energy chain, from construction to operation and decommissioning, these emissions are negligible compared to their fossil-fuel equivalents and are comparable with renewable sources such as solar or wind. Furthermore, the GHG emissions of the nuclear chain are mainly due to fossil-fuel consumption associated with construction of nuclear power plants, including the likes of cement production, as well as with uranium enrichment. But even these sources are expected to decrease

with technological progress. In particular, the deployment of centrifuge technology for enrichment will cut greenhouse gas emissions per unit of nuclear energy produced.

Looked at in terms of equivalent CO₂ emissions per kilowatt hour of energy output, the nuclear chain emits an average of some 8 g CO₂-eq./kWh, while the gas chain, assuming use of the combined-cycle technology, emits around 400 g CO₂-eq./kWh and the coal chain with state-of-the-art power plants emits around 1,000 g CO₂-eq./kWh. Carbon capture and sequestration could drastically reduce the emissions of coal-fired power plants; however, this is not yet a mature and competitive technology. Most renewable energy chains for electricity generation

In OECD countries, the GHG emissions from the energy sector would increase by one-third if nuclear power plants were shut down and replaced by fossil-fuelled power plants

emit between 5 and 60 g CO₂-eq./kWh, hydropower being on the lower side of the range and photovoltaic sources on the higher side.

Nuclear energy already contributes to lower carbon emissions in the world's economies, especially in OECD countries where it provides more than 20% of total electricity supply. It has been estimated that, since the commercial development of nuclear electricity generation, the cumulative savings of CO₂ emissions as a result of nuclear power plants substituting for coal-fired units is around 60 Gt CO₂-eq., representing some 20% of the cumulated emissions of the power sector during that period. At present, the emissions avoided thanks to nuclear electricity generation are around 2 Gt CO₂-eq. per year, assuming that electricity from nuclear energy would be substituted by other technologies in proportion to their current share in the energy mix. That means nuclear energy helps “decarbonise” the economy. In fact,

in OECD countries, the GHG emissions from the energy sector would increase by one-third if nuclear power plants were shut down and replaced by fossil-fuelled power plants.

With the ongoing process of plant life extension, the existing global fleet—439 reactors as of June 2008—will continue producing carbon-free electricity for several decades and the reactors under construction—around 50 at present around the world—will add scores of gigawatts to installed nuclear capacity by 2015. In many OECD countries, however, concrete steps towards ordering and building new nuclear power plants have not yet been taken. In short, most energy scenarios show only a moderate increase in installed nuclear capacity worldwide in spite of the repeated announcements of a nuclear revival.

The Nuclear Energy Agency projects that in 2050, nuclear capacity worldwide could range between 540 and 1400 GWe, compared with 370 GWe today. Under the high scenario, the share of nuclear energy in total electricity generation would reach 22%, i.e. 7% more than in 2008, but in the low scenario it would be only 9%, i.e. 6% less than in 2008. The annual savings of CO₂ emissions that would result from these low and high nuclear scenarios amount to some 4.5 and 11.5 Gt CO₂-eq. respectively. These quantities are not at all negligible and, in the high scenario, would contribute massively to reaching CO₂ reductions identified by the IPCC in its business-as-usual scenarios.

More rapid deployment of nuclear energy could improve on this scenario and is achievable from the technical, industrial and financial viewpoints, but would require stronger political and social support.

This also means overcoming some of the main challenges to its further development. It is high time the nuclear industry and governments addressed the legitimate public concerns about radioactive waste disposal, for instance, and reinforced safeguards in non-proliferation agreements. In addition, the financial risks of nuclear projects need to be discussed openly. Like

other low-carbon technologies, such as renewables, the cost structure of nuclear energy is characterised by high capital costs and low variable costs, which can be a disadvantage in liberalised power markets with volatile prices. On the other hand, nuclear energy has the advantage that its average costs over the full life cycle of the plant are highly competitive. Suitable financing models and government support can address the question of capital costs for nuclear as well as for other low-carbon technologies.

The challenge to reduce carbon emissions cannot be overstated. It is now time to recognise the value of nuclear energy for reducing greenhouse gas emissions

in the legal and institutional framework being developed. This would provide the impetus needed to deal with the challenges and realise the full potential of nuclear energy as a reliable part of our energy and environmental future.

This article was originally published at www.oecdobserver.org in December 2009.

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Visit www.nea.fr

Coal light of day

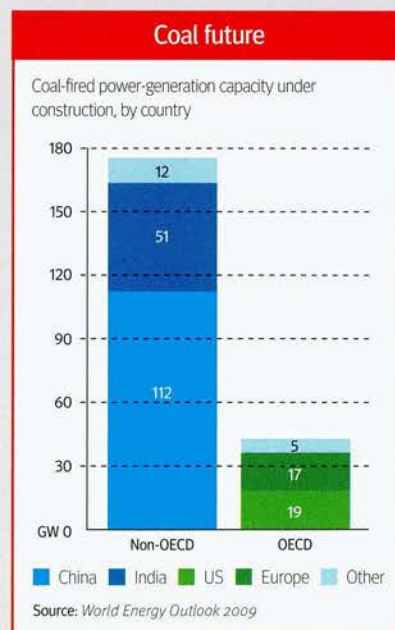
Despite the repeated warnings about its effects on climate change, as well as resource depletion, the most recent projections from the *World Energy Outlook 2009* show that coal will still remain the principal power-generating fuel for decades to come. In fact, its usage is set to double by 2030, 5% more compared with pre-existing projections. The adjustment takes into account a projected 10% consumption increase in non-OECD Asia, as well as an 8% decrease in the OECD area. Nowadays, an additional 217 GW of coal-fired capacity is being developed throughout the world, over 80% of which is located in non-OECD countries, mostly in China.

The continued improvement of the efficiency of coal-fired generation will likely encourage more usage. So-called supercritical and ultra-supercritical technologies are projected to increase the efficiency rates from 35% in 2007 to 40% by 2030. This improvement means a relative decrease in CO₂ emissions. And as the gasification and liquefaction of coal could represent alternative sources of transportation fuels, coal is becoming an even more attractive power source than before.

However, while the reputation of coal as a pollutant may improve, the core problem remains: accessible and affordable coal

reserves are fewer—according to British Petroleum, at current rates of exploitation, world reserves may run out in a little over a century. If efficiency and usage rise even further, then that decline could accelerate.

World Energy Outlook 2009, available at www.oecd.org/bookshop, ISBN 978-92-64-06130-9





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President Sarkozy visits OECD Conference Centre



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French President Nicolas Sarkozy is joined by European Commission President José Manuel Barroso (left) and OECD Secretary-General Angel Gurría, to unveil a plaque to mark the new OECD Conference Centre in Paris, 8 March 2010. The plaque dedicates the building, which was designed by French-American architects SCAU Macary, Menu & Delamain, and Pei, Cobb, Freed & Partners and completed in 2008, "to the co-operation and solidarity between nations and for a stronger, cleaner, fairer world economy".

Visit www.oecd.org/conferencecentre

Food futures

Meeting of the Committee for Agriculture at Ministerial Level, 25-26 February 2010

Agriculture ministers and other high-level representatives from OECD countries, the EU, Chile, Estonia, Israel, Romania, the Russian Federation, and Slovenia met in Paris in late February to discuss food security, trade, climate change, resource constraints, innovation and food price volatility. The meeting was co-chaired by Nikolaus Berlakovich, Austrian federal minister of agriculture, forestry, environment and water management, and David Carter, New Zealand's minister of agriculture, minister of biosecurity and minister of forestry.

The context is trying, since, as the final communiqué notes, the future will be "characterised by economic, demographic, technological, market and environmental changes that will bring both opportunities and challenges to farmers, food businesses, consumers and governments."

The final communiqué stressed the need for an integrated approach to food security that includes domestic production, international trade, stocks, and safety nets for the poor. Participants also highlighted the role of agriculture in green growth and in reducing global greenhouse gases. The 2010 meeting was the first in 12 years, but given the challenges and rapid pace of change, ministers agreed to meet again not later than "mid-decade" to take stock of progress.

For the full communiqué, visit www.oecd.org/agriculture. See also Roundtable, page 17.

Irish visit

Enda Kenny (left in the photo below), leader of Ireland's main opposition party, Fine Gael, meets with the OECD's deputy secretary-general and chief economist, Pier Carlo Padoan, 12 February 2010. Mr Kenny led a frontline political team of seven parliamentarians to the OECD, including Richard Bruton, Fine Gael's spokesperson on finance and deputy leader; Leo Varadkar, spokesperson on enterprise, trade and employment; Simon Coveney, spokesperson on communications, energy and natural resources; and Kieran O'Donnell, deputy spokesperson on finance. The team also included Mark Kennelly, the chef de cabinet, and Andrew McDowell, the director of policy. Discussions with OECD experts focused on policy areas of pressing interest to Ireland, including financial market regulation, taxation, pensions, jobs, education and the environment.

Visit www.finegae.org



Recent speeches

by Angel Gurría

For a complete list of speeches and statements, including those in French and other languages, go to www.oecd.org/speeches

International Conference on Access to Civil Nuclear Energy

8 March 2010

Introductory speech at the International Conference on Access to Civil Nuclear Energy, OECD Conference Centre, Paris, France.

The role of innovation in feeding the world

26 February 2010

Remarks delivered at the Working Dinner of the OECD Agriculture Ministerial Meeting 2010, Paris, France.

Food and agriculture policies for a sustainable future

25 February 2010

Opening remarks delivered at the OECD Agriculture Ministerial Meeting 2010, Paris, France.

The road to recovery: Under construction—competition policy at work

18 February 2010

Opening remarks delivered at the 9th Global Forum on Competition, Paris, France.

OECD Secretariat Projections of ODA in 2010: First Estimates

17 February 2010

Opening remarks delivered at the presentation of projections of official development assistance, Paris, France.

A reinforced commitment to relevance and impact: High-level dialogue with parliamentarians

17 February 2010

Introductory remarks delivered to the NATO Parliamentary Assembly, OECD Conference Centre, Paris, France.

The Road to Mexico: Strategies and vehicles for successful climate change negotiations 2010

3 February 2010

Remarks delivered during a workshop on climate change organised by the EU and the Spanish EU Presidency, Paris, France.

Obama plan for banks can help to avoid a new financial crisis

25 January 2010

Interview with Bloomberg news at the World Economic Forum in Davos, Switzerland.

Joint release of OECD Economic Survey of Israel and Review of Israel's Labour Market and Social Policy

20 January 2010

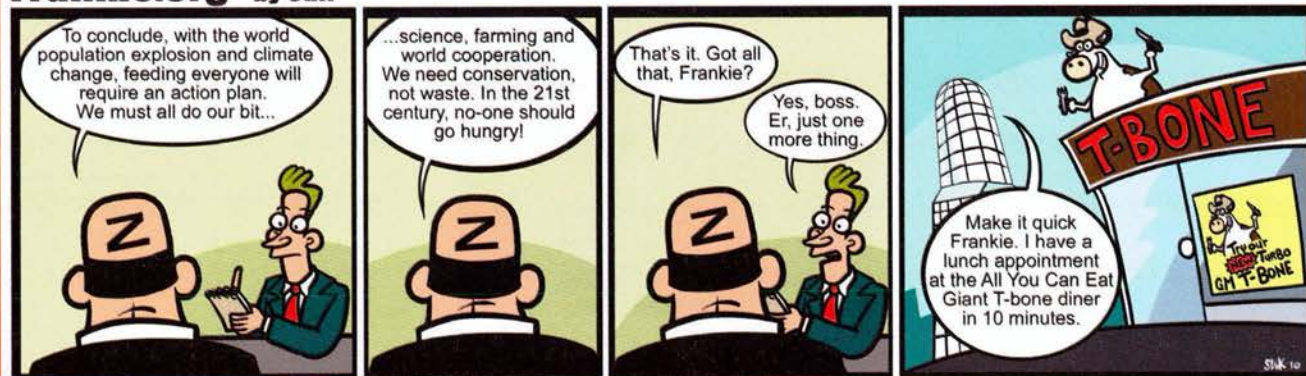
Remarks made during the joint launch of the Economic Survey of Israel 2009 and the Review of Israel's Labour Market and Social Policy, Jerusalem, Israel.

Calendar of forthcoming events

Please note that many of the OECD meetings mentioned are not open to the public or the media and are listed as a guide only. All meetings are in Paris unless otherwise stated. For a more comprehensive list, see the OECD website at www.oecd.org/media/upcoming, which is updated weekly.

MARCH		MAY	
10	30 Years After: The Impact of the OECD Privacy Guidelines , roundtable organised by the Directorate for Science, Technology and Industry.	4-7	Improving the Information Base to Better Guide Water Management Decision-making , workshop organised by the Directorate for Trade and Agriculture.
12	Green Technologies: A Case for International Co-operation , workshop organised by the OECD.	10-11	Global Forum on Environment , organised by the Environment Directorate.
15-17	Water Economics and Financing , meeting organised by the Environment Directorate. Three new OECD reports on the water sector.	25	Cities and Green Growth , meeting of the OECD Roundtable Strategy for Urban Development.
22-23	Delivering Financial Literacy: Challenges, Approaches and Instruments , workshop organised by the Reserve Bank of India and the OECD Directorate for Financial and Enterprise Affairs. Bangalore, India.	26-27	OECD Forum: Road to Recovery: Innovation, Jobs and Clean Growth .
23-26	Agri-environmental Indicators: Lessons Learned and Future Directions , workshop organised by the Direction for Trade and Agriculture, and the Environment Directorate. Switzerland.	26-28	Transport and Innovation: Unleashing the Potential , ministerial meeting of the International Transport Forum, organised under the presidency of Canada. Leipzig, Germany.
24	The Role of Entrepreneurship in Fostering Innovation and Growth , workshop organised by the Directorate for Science, Technology and Industry.	27-28	OECD Council meets at ministerial level. Publication of OECD Economic Outlook .
24-26	South-South Co-operation and Capacity Development: Contributions to a More Effective Co-operation Architecture , high-level meeting organised by the Development Assistance Committee (DAC) and the government of Colombia. Bogotá, Colombia.	27-28	African Economic Outlook 2010 , published during the annual meetings of the African Development Bank. Abidjan, Ivory Coast.
26	Launch of OECD Economic Survey of Germany , with the Secretary-General. Berlin, Germany.	JUNE	
29-30	E-Government Indicators , workshop organised by the Directorate for Public Governance and Territorial Development.	4-5	G20 finance ministers meet . Seoul, Korea.
		10-11	The Economics of Adapting Fisheries to Climate Change , workshop organised by the Directorate for Trade and Agriculture. Busan, Korea.
		14-15	OECD-FAO Agricultural Outlook published. Rome, Italy.
		26-27	G-20 Summit . Toronto, Canada.
		JULY	
		11-15	Transport Research Society , World Conference with participation of the OECD International Transport Forum. Lisbon, Portugal.

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Putting women in their right place

Has gender equality improved since International Women's Day was first launched a century ago? The answers heard during this year's global events on 8 March were mixed. Yes, progress has been made, but discrimination continues everywhere, which not only harms women but holds back society's potential too. Take development. Promoting gender equality and empowering women is the third of the eight UN Millennium Development Goals, but as the *Atlas of Gender and Development: How Social Norms Affect Gender Equality in non-OECD Countries* shows, gender discrimination still spans the world. Many studies, including at the OECD, measure women's progress in terms of, say, how many women attend secondary school or university, or how many are members of parliament. This book takes a different approach, focusing on 124 developing countries to see how fundamental social institutions, including family codes, the right to freedom of movement and dress, and access to land, property and credit, determine women's progress—or lack thereof—in society.

The OECD, which developed these indicators of gender equality together with

a research team from Göttingen University, has also published a series of studies on donor aid targeting gender equality and women's empowerment, called *Aid in Support of Gender Equality and Women's Empowerment*. The studies present charts, graphs and detailed financial information for each member country of the OECD's Development Assistance Committee.

Gender and Sustainable Development: Maximising the Economic, Social and Environmental Role of Women, meanwhile, focuses on the crucial wider role of women in securing the future of our world. And the OECD Development Centre's Wikigender project aims to gather and disseminate information on gender equality through an interactive website, www.wikigender.org.

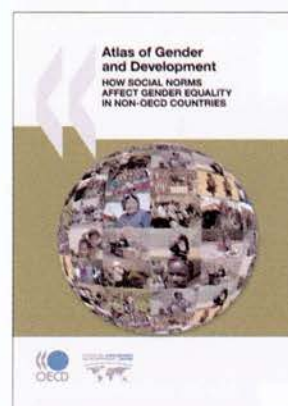
Gender is frequently covered by the *OECD Observer*, with issues such as development and discrimination, international migration, labour, education and most recently, entrepreneurship in the Middle East and North Africa (see No 275, November 2009 and see www.oecdobserver.org/gender).

Atlas of Gender and Development: How Social Norms Affect Gender Equality in non-OECD Countries, ISBN 978-92-64-07520-7

Aid in Support of Gender Equality and Women's Empowerment, available at www.oecd.org/dac/gender

Gender and Sustainable Development: Maximising the Economic, Social and Environmental Role of Women, ISBN 978-92-64-04990-1

Visit www.oecd.org/gender



Less frequent flyers

Despite a 12.5% decline in international tourism travel in the first quarter of 2009—the depths of the current recession—international tourism has been growing slightly faster than the world economy and is expected to continue to do so, with a projected average annual growth rate of about 4% over the long term.

Clearly, though tourism has slowed, “getting away from it all” still has resonance in the crisis. Also, as *OECD Tourism Trends and Policies 2010* notes, people have been discovering new places to get away to. The focus of international travel, once fixed on Europe and North America, has spread south and east: China is one of the most popular tourist destinations in the world, and the Asia-Pacific region now ranks second—behind Europe and ahead of the Americas—as an international tourist destination and in income from tourism.

Meanwhile, the market shares of Africa and the Middle East are growing strongly. In Egypt, for example, tourism now accounts for more than 6% of the country's GDP and 13% of total employment, while in South Africa, tourism represents more than 7% of both GDP and total employment.

Tourism has an impact throughout the economy. With the current economic slowdown, whole sectors, and particularly employment opportunities, could suffer. As *OECD Tourism Trends and Policies 2010* suggests, long-term strategies are essential, and governments must take the lead in developing cross-sector policies to promote responsible tourism.

OECD Tourism Trends and Policies 2010 offers country-specific data on tourism for 42 countries. It also provides policymakers and those involved in the industry with

recommendations on how to develop tourism sustainably in the face of concerns about climate change and biodiversity, and how to manage and protect historic monuments from the wear and tear of so many visitors.

ISBN 978-92-64-07741-6



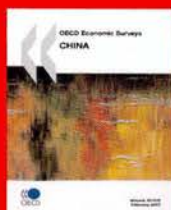
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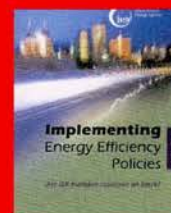
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Are students able to analyse, reason and communicate their ideas effectively? How well-equipped are they to continue learning throughout life? OECD's PISA Programme aims to answer these questions

through three-yearly surveys that examine 15-year-old students' performance in reading, mathematics and science. PISA 2009 focuses on reading. This book presents the theory behind the development of the latest survey. The re-worked and expanded framework for reading literacy includes not only the assessment of reading and understanding printed texts, but also an innovative component to assess how well students read, navigate and understand electronic texts. Additionally, this publication provides the basis for measuring mathematical and scientific competencies.



Concerns about energy security, climate change and rising energy costs make it imperative for all countries to significantly improve their energy efficiency. To assist them in doing so, the IEA has proposed 25

energy efficiency recommendations. These recommendations could, if implemented globally without delay, reduce global CO₂ emissions by 8.2 gigatonnes per year by 2030—equivalent to roughly two times the amount of current EU CO₂ emissions. This innovative book provides the first assessment of IEA member countries' progress on implementing energy efficiency policy. Using a rigorous evaluation process, it finds that while these countries are implementing a full range of energy efficiency measures, their efforts fall short.



Lobbying can improve policy making by providing valuable insights and data, but it can also result in unfair advantages for vested interests. This report is part of OECD's

groundbreaking efforts to promote integrity in the public sector by mapping governance and corruption risks and setting standards for cleaner, fairer and stronger economies. Volume 2 in this series will focus on options for self-regulation by lobbyists.



Eco-innovation will be a key driver of industry efforts to tackle climate change and realise "green growth" in the post-Kyoto era. This book presents the research and analysis

carried out during the first phase of the OECD Project on Sustainable Manufacturing and Eco-Innovation. Its aim is to provide benchmarking tools on sustainable manufacturing and to spur eco-innovation through better understanding of innovation mechanisms.



In many OECD countries, tax systems usually include "tax expenditures" – provisions that allow certain groups of people, or those who have undertaken certain

activities, such as charitable donations, to pay less in taxes. The use of tax expenditures by governments is pervasive and growing. At a time when many government budgets are threatened by population ageing and adverse cyclical developments, there is a pressing need to avoid inefficient government programmes, some of which may use tax expenditures. This book sheds light on the use of tax expenditures through a study of OECD countries.

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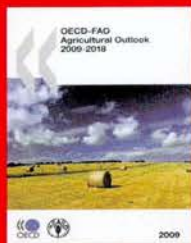
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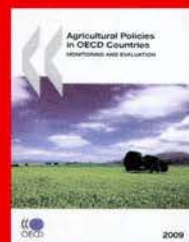
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This 15th edition of the *Agricultural Outlook* presents the outlook for commodity markets during the 2009 to 2018 period and analyses world market trends for the main agricultural products, as well as biofuels. It provides an assessment of agricultural market prospects for production, consumption, trade, stocks and prices. Because macroeconomic conditions are changing so quickly, this report complements the standard baseline projections with an analysis of revised short-term GDP prospects and alternative GDP recovery paths. A sensitivity analysis to highly uncertain crude oil prices shows the important links between energy and agricultural prices. The *Agricultural Outlook* also reports on the current impacts of the global economic crisis and credit market constraints, and examines such issues as food security, land availability, productivity gains, water usage and climate change.

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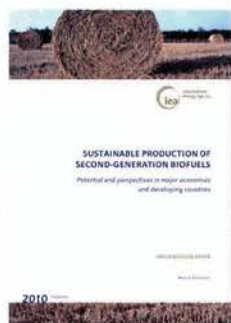
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Biofuels: A second chance



As biofuel production grew fourfold from 2000 to 2008, criticism of the industry seemed to increase nearly as dramatically. Production of these transport fuels, which are based on food crops such as

grains, sugar cane and vegetable oils, competes with food crops and drives up food prices, experts argue. Also, from land-clearance needed for cultivation, production and use, these biofuels may actually increase, rather than reduce, greenhouse gas emissions.

Now, people are turning their attention to so-called second-generation biofuels which, depending on the feedstock source and techniques used, could overcome these

drawbacks. But caution is still required, according to *Sustainable Production of Second-Generation Biofuels: Potential and perspectives in major economies and developing countries*.

Most second-generation biofuels, still in the R&D stage in a few developed countries and some large emerging economies like Brazil, China and India, are produced from woody, lignocellulosic plants that can either be cultivated as dedicated energy crops or retrieved from agricultural and forestry residues. Using residues would have a particular advantage over first-generation biofuels in that there would be no immediate need to cultivate more land or compete with food crops.

According to the authors, the estimated \$125-250 million cost of commercial second-generation biofuel plants could be financed by both foreign direct investment and domestic funding in most of the eight countries studied—Brazil, Cameroon, China,

India, Mexico, South Africa, Tanzania and Thailand. Moreover, these countries tend to have the skilled engineers required for biofuel conversion.

But there are still a lot of unknowns, including the environmental impact of production, which depends on how the feedstock is converted to biofuel and site-specific conditions, such as climate, soil type and crop management. Land use must be carefully mapped and planned to avoid changes that could be detrimental to the environment or end up driving out food crops again. Also, the introduction of non-native energy crops could threaten local biodiversity. The book recommends intensive R&D over the next 10-15 years and more detailed research, including a global road map for technology development, an impact assessment of commercial second-generation biofuel production, and improved data on available land.

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Water aid

Development aid for water supply and sanitation projects has risen in recent years after a decline in the late 1990s. Considering the importance of safe water, perhaps it hasn't risen far enough. In 2007-08, OECD Development Assistance Committee countries committed on average \$5.1 billion in bilateral annual aid to the water supply and sanitation sector, 50% up on 2003-04 in real terms. When combined with aid from multilateral agencies, the total was \$6.6 billion. Over the 2003-08 period, bilateral aid to water increased by an annual average of 15%, while multilateral aid rose 3% annually. Still, for DAC countries, aid to the water supply and sanitation sector rose to just 7% of all aid commitments in 2007-08, only slightly up from 6% in 2003-04.

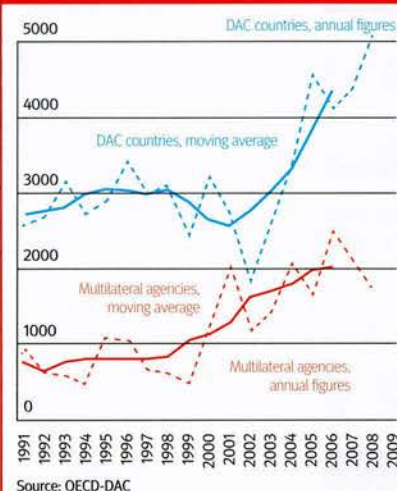
Water aid is provided by only a small number of large donors. Japan has been the biggest donor, accounting for 25% of total aid to the sector in 2007-08, followed by the International Development Association of the World Bank, accounting for 15%, and Germany at 11%. Most Japanese aid, and nearly half of German aid, was in the form of loans for infrastructure projects in a handful of countries. However, many countries where safe water supplies are still not widely available received no aid to that sector at all.

See also "Aid flow", in OECD Observer No 254, March 2006 and "Water aid and development: Improving the flow", in OECD Observer No. 236, March 2003.

Visit www.oecd.org/dac

Rising water aid

Trends in development aid to water supply and sanitation, 1991-2008, 5-year moving average (except where marked annual), constant 2006 prices, \$ millions



Like father, like son

Income levels of sons are often influenced by the income levels of their fathers, recent OECD research shows. The height of each bar on the graph measures the extent to which sons' earnings levels reflect those of their fathers. The correlation is strongest in the UK, Italy and the US, and much less so in Denmark, Australia and Norway.

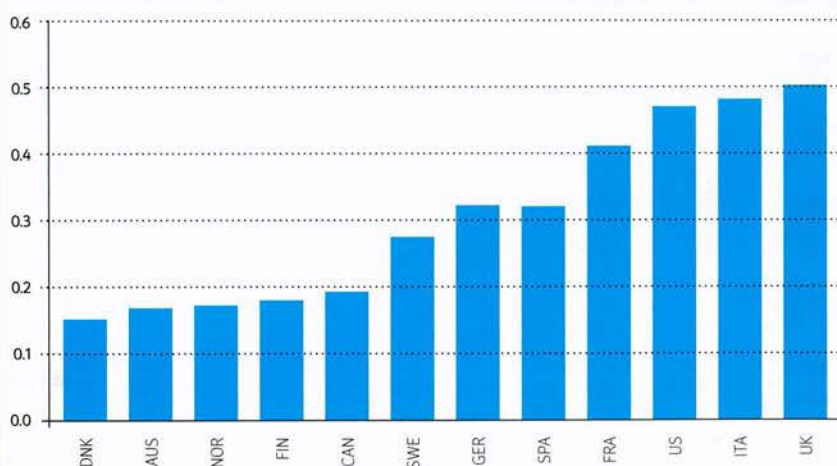
One of the factors determining wages is education, and in many European countries, individuals whose fathers had attended university earn substantially more than those whose fathers' education stopped after secondary school. For instance, the study shows that in the UK, having a father who holds a university degree raises a son's wages by 20% or more, compared with a son whose father has a diploma from a secondary school.





















The study also makes clear, though, that parents can influence their children's success in the labour market in a variety of ways, including by transmitting work ethics or building social networks. "Like father, like son" may be a truism, but it is not an inevitable destiny.


















Economic Policy Reforms 2010: Going for Growth is available at www.oecd.org/bookshop, ISBN 978-92-64-07996-0

Intergenerational earning

Estimated elasticities of income similarities between father and son, Denmark less similar, UK more similar



				% change from:					
				previous	previous	level:			
				period	year				
						current	same period		
						period	last year		
	Australia	Gross domestic product	Q4 09	0.9	2.7	Current balance	Q2 09	-10.13	-14.45
		Leading indicator	Jan. 10	0.6	3.7	Unemployment rate	Jan. 10	5.3	5.0
		Consumer price index	Q4 09	0.5	2.1	Interest rate	Feb. 10	4.16	3.16
	Austria	Gross domestic product	Q4 09	0.4	-1.8	Current balance	Q3 09	2.53	4.62
		Leading indicator	Jan. 10	0.7	7.6	Unemployment rate	Jan. 10	5.3	4.2
		Consumer price index	Jan. 10	-0.3	1.2	Interest rate	..	..	..
	Belgium	Gross domestic product	Q4 09	0.3	-0.8	Current balance	Q3 09	0.73	-4.52
		Leading indicator	Jan. 10	0.7	10.8	Unemployment rate	Jan. 10	8.0	7.5
		Consumer price index	Feb. 10	0.4	0.7	Interest rate	..	..	..
	Canada	Gross domestic product	Q4 09	1.2	-1.2	Current balance	Q4 09	-9.25	-6.40
		Leading indicator	Jan. 10	0.9	13.0	Unemployment rate	Jan. 10	8.3	7.3
		Consumer price index	Jan. 10	0.3	1.9	Interest rate	Feb. 10	0.38	1.22
	Czech Republic	Gross domestic product	Q4 09	-0.6	-4.0	Current balance	Q3 09	-0.58	-1.22
		Leading indicator	Jan. 10	0.7	0.9	Unemployment rate	Jan. 10	8.2	5.2
		Consumer price index	Jan. 10	1.2	0.7	Interest rate	Feb. 10	1.52	2.50
	Denmark	Gross domestic product	Q4 09	0.2	-3.3	Current balance	Q3 09	4.05	1.98
		Leading indicator	Jan. 10	0.8	8.7	Unemployment rate	Dec. 09	7.3	4.0
		Consumer price index	Nov. 09	0.3	2.0	Interest rate	Feb. 10	0.83	3.22
	Finland	Gross domestic product	Q4 09	0.0	-5.1	Current balance	Dec. 09	0.21	0.53
		Leading indicator	Jan. 10	0.4	13.1	Unemployment rate	Jan. 10	9.0	7.1
		Consumer price index	Jan. 10	0.1	-0.2	Interest rate	..	..	..
	France	Gross domestic product	Q4 09	0.6	-0.3	Current balance	Dec. 09	-5.21	-1.51
		Leading indicator	Jan. 10	0.3	11.6	Unemployment rate	Jan. 10	10.1	8.7
		Consumer price index	Jan. 10	-0.2	1.1	Interest rate	..	..	..
	Germany	Gross domestic product	Q4 09	0.0	-2.4	Current balance	Q4 09	66.00	44.63
		Leading indicator	Jan. 10	0.9	16.0	Unemployment rate	Jan. 10	7.5	7.2
		Consumer price index	Jan. 10	-0.6	0.8	Interest rate	..	..	..
	Greece	Gross domestic product	Q4 09	-0.8	-2.6	Current balance	Dec. 09	-2.81	-2.58
		Leading indicator	Jan. 10	-0.2	0.8	Unemployment rate	Sep. 09	9.7	7.5
		Consumer price index	Jan. 10	-0.7	2.4	Interest rate	..	..	..
	Hungary	Gross domestic product	Q4 09	-0.4	-5.2	Current balance	Q3 09	1.20	-3.17
		Leading indicator	Jan. 10	0.2	16.8	Unemployment rate	Jan. 10	11.1	8.8
		Consumer price index	Jan. 10	1.4	6.4	Interest rate	Feb. 10	5.64	9.60
	Iceland	Gross domestic product	Q3 09	-5.7	-8.0	Current balance	Q4 09	-0.04	0.06
		Leading indicator	..	..	..	Unemployment rate	Q4 09	7.8	4.6
		Consumer price index	Feb. 10	1.2	7.3	Interest rate	Feb. 10	8.25	18.30
	Ireland	Gross domestic product	Q3 09	0.3	-7.6	Current balance	Q3 09	-2.10	-4.05
		Leading indicator	Jan. 10	1.0	3.7	Unemployment rate	Jan. 10	13.8	9.4
		Consumer price index	Jan. 10	-0.6	-3.9	Interest rate	..	..	..
	Italy	Gross domestic product	Q4 09	-0.2	-2.8	Current balance	Oct. 09	-8.33	-7.20
		Leading indicator	Jan. 10	0.7	14.2	Unemployment rate	Jan. 10	8.6	7.2
		Consumer price index	Feb. 10	0.1	1.2	Interest rate	..	..	..
	Japan	Gross domestic product	Q4 09	1.1	-0.9	Current balance	Dec. 09	12.24	6.49
		Leading indicator	Jan. 10	1.2	10.7	Unemployment rate	Jan. 10	4.9	4.2
		Consumer price index	Jan. 10	-0.2	-1.3	Interest rate	Jan. 10	0.21	0.61
	Korea	Gross domestic product	Q4 09	0.2	6.3	Current balance	Jan. 10	-0.46	-1.15
		Leading indicator	Jan. 10	0.3	12.6	Unemployment rate	Jan. 10	4.8	3.4
		Consumer price index	Jan. 10	0.4	3.1	Interest rate	Jan. 10	2.88	3.22
	Luxembourg	Gross domestic product	Q3 09	4.2	-2.6	Current balance	Q3 09	1.44	0.51
		Leading indicator	Jan. 10	0.8	13.4	Unemployment rate	Jan. 10	5.9	5.4
		Consumer price index	Jan. 10	-0.8	2.1	Interest rate	..	..	..
	Mexico	Gross domestic product	Q4 09	2.0	-2.4	Current balance	Q4 09	0.69	-5.31
		Leading indicator	Jan. 10	0.0	12.7	Unemployment rate	Jan. 10	5.6	4.7
		Consumer price index	Jan. 10	1.1	4.5	Interest rate	Feb. 10	4.64	7.32
	Netherlands	Gross domestic product	Q4 09	0.3	-2.6	Current balance	Q3 09	12.95	14.36
		Leading indicator	Jan. 10	0.7	9.8	Unemployment rate	Jan. 10	4.2	2.8
		Consumer price index	Feb. 10	0.7	0.8	Interest rate	..	..	..
	New Zealand	Gross domestic product	Q3 09	0.2	-0.7	Current balance	Q3 09	0.23	-2.84
		Leading indicator	Dec. 09	0.1	4.4	Unemployment rate	Q4 09	7.2	4.7
		Consumer price index	Q4 09	-0.2	2.0	Interest rate	Feb. 10	2.73	3.40

				% change from:				level:	
				previous period	previous year			current period	same period last year
	Norway	Gross domestic product	Q4 09	0.1	-1.2	Current balance	Q3 09	13.47	20.65
		Leading indicator	Jan. 10	0.0	1.9	Unemployment rate	Nov. 09	3.2	2.9
		Consumer price index	Jan. 10	0.2	2.5	Interest rate	Feb. 10	2.27	3.48
	Poland	Gross domestic product	Q4 09	1.2	2.8	Current balance	Oct. 09	-1.23	-1.95
		Leading indicator	Jan. 10	0.7	4.8	Unemployment rate	Jan. 10	8.9	7.4
		Consumer price index	Dec. 09	0.0	3.7	Interest rate	Feb. 10	4.15	4.51
	Portugal	Gross domestic product	Q4 09	0.0	-0.8	Current balance	Dec. 09	-3.58	-2.20
		Leading indicator	Jan. 10	1.1	10.0	Unemployment rate	Jan. 10	10.5	8.5
		Consumer price index	Jan. 10	-0.5	0.1	Interest rate	..	..	..
	*Slovak Republic	Gross domestic product	Q4 09	2.0	-3.5	Current balance	Q3 09	0.18	-1.59
		Leading indicator	Jan. 10	1.0	22.6	Unemployment rate	Jan. 10	13.7	9.7
		Consumer price index	Jan. 10	0.3	0.4	Interest rate	..	..	..
	Spain	Gross domestic product	Q4 09	-0.1	-3.1	Current balance	Dec. 09	1.16	-4.27
		Leading indicator	Jan. 10	0.4	10.5	Unemployment rate	Jan. 10	18.8	15.8
		Consumer price index	Jan. 10	-1.0	1.0	Interest rate	..	..	..
	Sweden	Gross domestic product	Q4 09	-0.6	-1.5	Current balance	Q4 09	5.63	8.79
		Leading indicator	Jan. 10	0.8	7.6	Unemployment rate	Jan. 10	9.1	6.9
		Consumer price index	Jan. 10	-0.6	0.6	Interest rate	Feb. 10	0.22	0.85
	Switzerland	Gross domestic product	Q4 09	0.7	0.0	Current balance	Q3 09	10.28	-5.59
		Leading indicator	Jan. 10	1.1	12.3	Unemployment rate	Q4 09	4.6	3.7
		Consumer price index	Jan. 10	-0.1	1.0	Interest rate	Jan. 10	0.25	0.53
	Turkey	Gross domestic product	Q3 09	1.8	-3.5	Current balance	Q3 09	-5.31	-11.35
		Leading indicator	Jan. 10	1.1	15.2	Unemployment rate	Sept. 09	13.1	9.9
		Consumer price index	Jan. 10	1.8	8.2	Interest rate	Apr. 08	16.65	17.86
	United Kingdom	Gross domestic product	Q4 09	0.3	-3.3	Current balance	Q3 09	-7.72	-14.82
		Leading indicator	Jan. 10	0.6	12.0	Unemployment rate	Nov. 09	7.8	6.3
		Consumer price index	Jan. 10	-0.1	3.5	Interest rate	Feb. 10	0.60	2.08
	United States	Gross domestic product	Q4 09	1.4	0.1	Current balance	Q3 09	-108.03	-184.18
		Leading indicator	Jan. 10	0.9	11.0	Unemployment rate	Jan. 10	9.7	7.7
		Consumer price index	Jan. 10	0.3	2.6	Interest rate	Feb. 10	0.19	1.16
	Euro area	Gross domestic product	Q4 09	0.1	-2.1	Current balance	Dec. 09	2.81	-17.80
		Leading indicator	Jan. 10	0.6	12.5	Unemployment rate	Jan. 10	9.9	8.5
		Consumer price index	Jan. 10	-0.8	1.0	Interest rate	Feb. 10	0.66	1.94
Non-members									
	¹ Russian Federation	Gross domestic product	Q3 09	1.0	-9.2	Current balance	Q4 08	9.28	25.01
		Leading indicator	Jan. 10	0.4	15.1	Unemployment rate	..	..	..
		Consumer price index	Jan. 10	1.6	8.0	Interest rate	Dec. 09	8.66	23.10
	² Brazil	Gross domestic product	Q3 09	1.3	-1.5	Current balance	Q1 09	-3.06	-8.38
		Leading indicator	Jan. 10	-0.2	14.2	Unemployment rate	..	..	..
		Consumer price index	Jan. 10	0.7	4.6	Interest rate	Feb. 10	7.08	9.22
	² China	Gross domestic product	..	..	..	Current balance	..	..	..
		Leading indicator	Jan. 10	0.1	8.4	Unemployment rate	..	..	..
		Consumer price index	Dec. 09	1.0	0.8	Interest rate	Dec. 09	1.86	1.90
	² India	Gross domestic product	Q3 09	3.0	6.8	Current balance	Q2 09	-5.81	-9.02
		Leading indicator	Jan. 10	-0.1	5.1	Unemployment rate	..	..	..
		Consumer price index	Jan. 10	1.8	16.2	Interest rate	..	..	..
	² Indonesia	Gross domestic product	Q4 09	1.5	5.4	Current balance	Q3 09	2.23	-0.50
		Leading indicator	Jan. 10	0.6	11.7	Unemployment rate	..	..	..
		Consumer price index	Feb. 10	0.3	3.8	Interest rate	Jan. 10	7.48	11.34
	² South Africa	Gross domestic product	Q3 09	0.2	-2.5	Current balance	Q1 09	-3.88	-6.20
		Leading indicator	Dec. 09	0.6	3.8	Unemployment rate	..	..	..
		Consumer price index	Jan. 10	0.4	5.9	Interest rate	Feb. 10	7.08	9.22

Gross Domestic Product: Volume series; seasonally adjusted. **Leading Indicators:** A composite indicator based on other indicators of economic activity, which signals cyclical movements in industrial production from six to nine months in advance. **Consumer Price Index:** Measures changes in average retail prices of a fixed basket of goods and services. **Current Balance:** Billion US\$; seasonally adjusted. **Unemployment Rate:** % of civilian labour force, standardised unemployment rate; national definitions for Iceland, Mexico and Turkey; seasonally adjusted apart from Turkey. **Interest Rate:** Three months; *refers to Euro area.

..=not available

¹Accession candidate to OECD

²Enhanced engagement programme

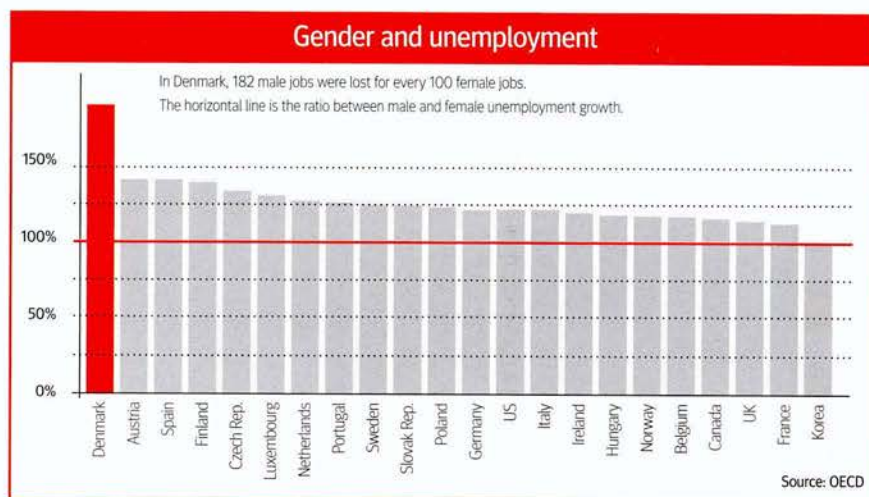
Source: *Main Economic Indicators*, October 2009

Mancession?

Unemployment in the OECD area is predicted to reach some 10% in 2010, up from about 5.6% in 2007. Men have been hit harder than women: across the OECD area, male employment has fallen by 3% since the recession started, while the decline for women stood at a tenth of that, at 0.3%. Hence the "mancession" tag bloggers and commentators have used to characterise the jobs crisis.

Why the difference? In large part, men are more likely to work in sectors of the economy that are more prone to initial job losses from this downturn, such as construction and manufacturing. By contrast, job losses have been less severe in services in which women are heavily represented.

However, stripping away the impact of, say, the construction downturn on job losses reveals that women are at higher risk of



losing their jobs than men as they are more likely to work part-time or in temporary work and are, as such, easier for employers to let go. On average, recent job losses have mostly occurred in labour-intensive male-dominated sectors like construction, but this trend could shift, with more women among the unemployed. In Denmark,

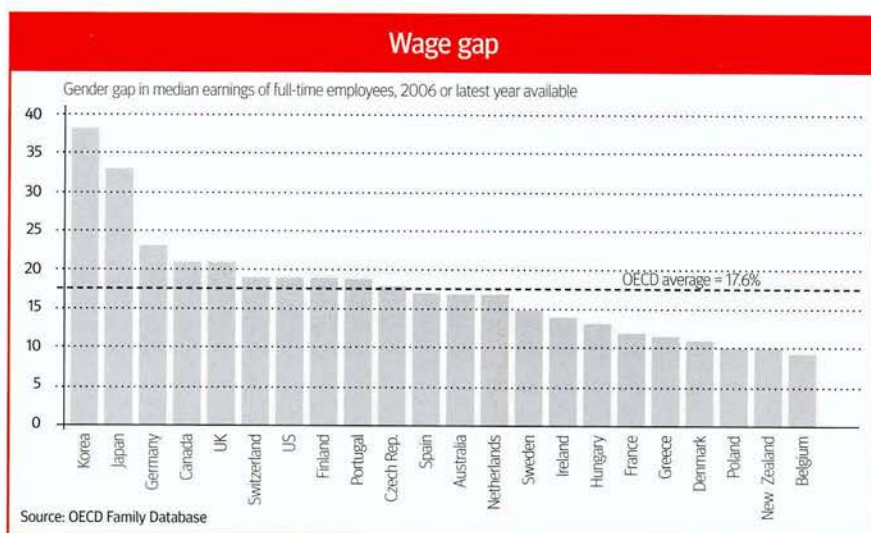
for instance, 182 male jobs were lost for each 100 female jobs, but in Korea, female unemployment rose slightly faster than male unemployment.

For more graphs, see Factblog at www.oecd.org and see www.oecd.org/gender

Mind the gap

More women go to work today than 40 years ago, but their pay has not kept pace with men's. Some 58% of women on average in the OECD area worked in 2008, up from 45% in 1970, ranging from 70% of women in the Nordic countries to less than 50% in Greece, Italy, Mexico and Turkey. Indeed, with fewer women staying at home, dual-earner families are now commonplace in most OECD countries; only in Japan, Mexico and Turkey are single-income families more common. However, men are often still the main earners in dual-earner families because so many women work part-time and for lower wages than their husbands. In the Netherlands, a relatively egalitarian country, 60% of women work part time, compared with 16% of men.

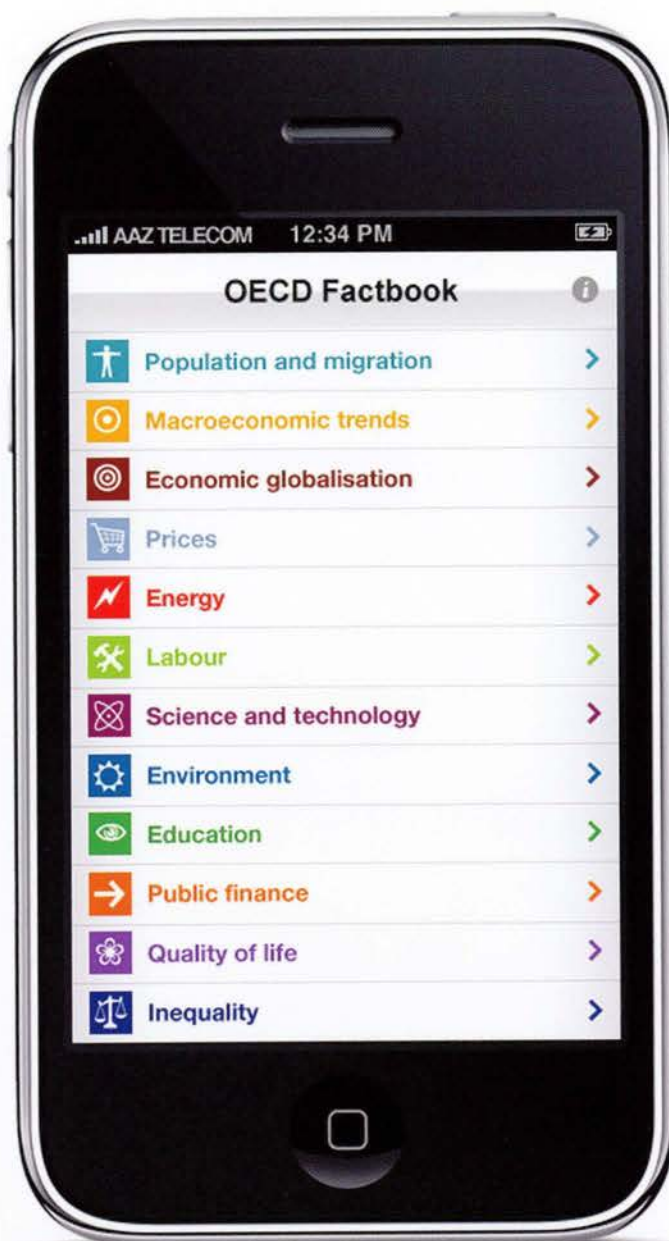
In all OECD countries, the median earnings of men are higher than those of women, with an average difference of



around 18%. In Japan and Korea, men's earnings are more than 30% higher than those of women, and in Belgium and New Zealand those differences narrow to a still sizeable gap of around 10%. While unequal pay prevails partly because women are more

likely to work in lower-paid occupations than men, the pay gap persists across the jobs spectrum and is in fact larger among high earners.

See www.oecd.org/gender



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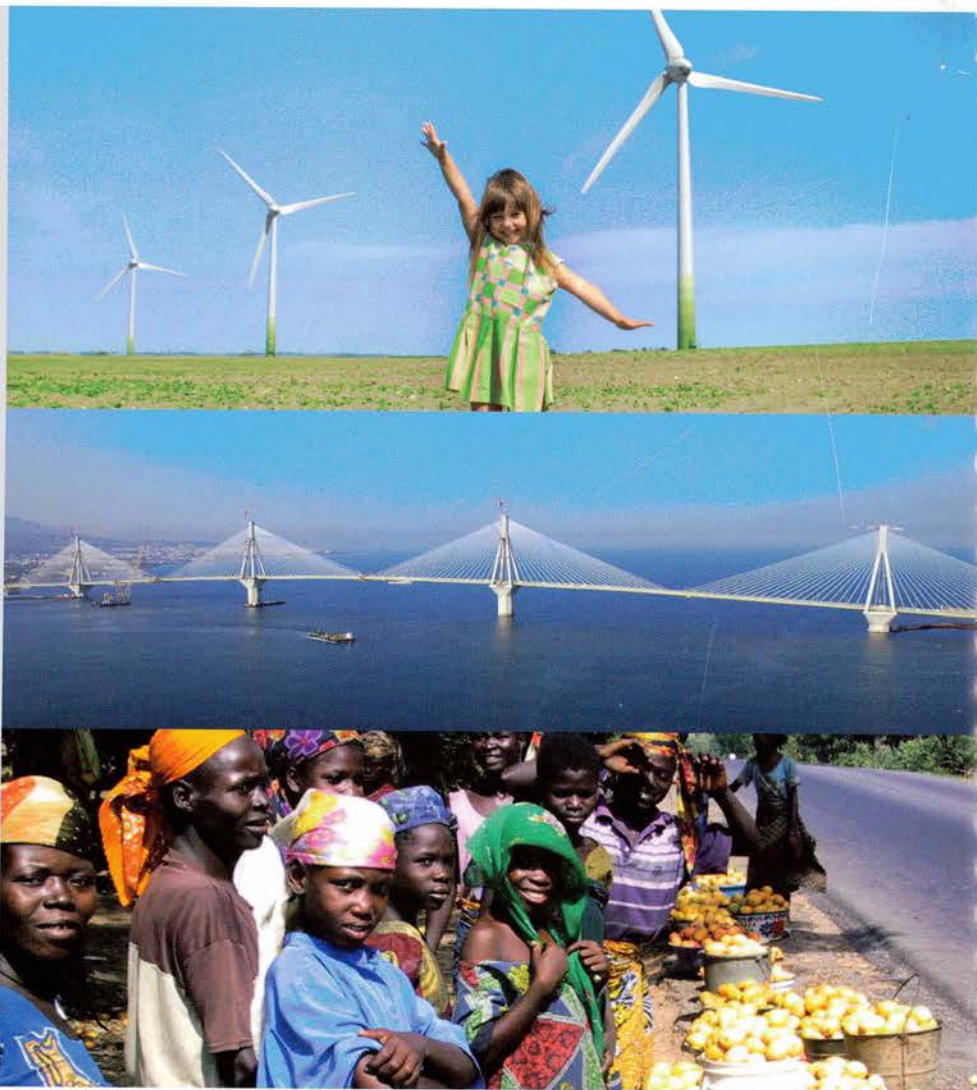
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