

## Policy Paper 08

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Low and middle income countries rich in natural resources could make huge strides towards universal schooling if they managed resource revenues better and devoted a significant share to education.

## Turning the ‘resource curse’ into a blessing for education

One of the most striking paradoxes of development is the ‘resource curse’: countries rich in non-renewable natural resources, such as oil and minerals, have experienced slower economic growth than resource-poor countries. Many are far from reaching the Education for All (EFA) goals and other development targets.

But the curse is escapable. This policy paper<sup>1</sup> shows that there is considerable potential for resource-rich countries to close the gap in financing that is preventing them from reaching Education for All. In seventeen countries already rich in resources or with recently discovered deposits, including Ghana, the Niger and Uganda, revenue from natural resources could finance access to primary school for 86% of out-of-school children if their governments maximized the revenue generated and dedicated a significant share to education. About 42% of out-of-school adolescents in these countries could also have access to school.

As donors cut back spending and some turn away from education, developing countries need more than ever to maximize sources of finance for education. Ensuring that resource-rich countries embark on a path towards efficient, transparent and fair management of natural resources should therefore be a central concern of the EFA community.

### The risks of natural resource wealth

Most low and middle income resource-dependent countries<sup>2</sup> have struggled to harness their riches in ways that assure sustained development for future generations. Many of these countries have been unprepared to deal with the sudden discovery of an oil field or ore deposits. Governments have often struck poor deals with multinational companies. Others have been

unable to maintain a steady flow of revenue through good and lean years. Many countries have mismanaged the income, either through corruption or inadvertently through misguided spending choices.

Natural resource revenue has also often been used to finance armed conflict. ‘Blood diamonds’ fuelled civil wars in Liberia and Sierra Leone. In the Democratic Republic of the Congo, high-value minerals such as coltan and tin ore, used in mobile phones, have provided armed militias responsible for human rights violations with a lucrative source of revenue.

Resource discovery can also create macroeconomic disruptions through ‘Dutch disease’, a term coined by economists to describe the experience of the Netherlands after a significant natural gas discovery in the 1960s. Because natural resources are mostly paid for outside a country, for example from oil sales in foreign markets, they can increase the value of the local currency and make exported products less competitive.

To transform natural resources into a blessing, governments must maximize their revenue from extractive activities, manage them transparently and invest the wealth in sectors that will generate higher, equitable benefits for the population. Education is a sector that has delivered such benefits: resource-rich countries such as Botswana have used their economic success to expand schooling. Using natural resource wealth to fund education today can be a way to escape the resource curse tomorrow.

### Striking a good deal

The current high prices for non-renewable commodities mean that potential revenue for governments from these resources is greater than ever. In Sub-Saharan Africa, the region



furthest from reaching the EFA goals, potential profit per capita from non-renewable natural resources tripled between 1998 and 2008. While commodity prices are vulnerable to economic crises such as that of 2008–2009, they have been following an overall upward trend.

A first step towards translating natural resource wealth into development outcomes is for governments to obtain a fair share of the profit. One key decision in this regard is who will extract and sell the resources. Three options are generally available. First, some countries, such as Malaysia and the Bolivarian Republic of Venezuela, choose to manage extraction directly through a state institution, which means they take all the risk but earn all the profit.

Second, governments may enter into agreement with a private company to share the risk and cost of extraction, which can be considerable. Third, governments can grant concessions to private companies for exploration and extraction, then raise revenue by imposing royalties on production or taxes on profit, including windfall taxes. The last approach is best when there is major uncertainty or when exploitation requires technology and capital that the country lacks.

Botswana is an example of a country that has chosen the second option and entered into an agreement with a private company. Diamonds are mined through a 50-50 arrangement with De Beers. Around half of diamond exports translated into government revenue in 2007/08, compared with 20% on average for other mineral-rich countries. This positive experience is underpinned by good governance, a competent civil service and political stability. Returns to investment in foreign financial assets, managed by a special fund, have been directed towards social services. Botswana has consistently spent over 5% of its GNP on education since the mid-1970s, reaching 8.2% in 2010. Today, it is one of the richest countries in Sub-Saharan Africa and not only has it achieved universal primary education but its secondary gross enrolment ratio stands at 82%, double the average for the continent.

Whether governments enter into partnerships or grant concessions, considerable capacity is needed to manage the relationship. Many governments are in a weak bargaining position vis-à-vis private mining and oil companies. As a result, they are not getting nearly as much as they could, as the example of Zambia shows (Box 1). These countries are missing an opportunity to finance their own development.

#### Box 1: Getting a better deal for Zambia's mineral resources

Zambia has some of the world's largest reserves of copper and cobalt, but after initial success in using this wealth towards economic and social development it has suffered a severe case of the resource curse. In 1970, Chile, another leading copper producer, was four times as rich as Zambia in terms of GDP per capita. By 2010, the gap had widened to fifteen times.

Copper prices were high during the first ten years of Zambia's independence. The mines were owned by the state and generated two-thirds of government revenue. However, a sharp drop in prices in the mid-1970s unleashed a severe debt crisis, leading to the privatization of mines under advice from the IMF and World Bank.

Largely secret agreements offered mining companies favourable terms, such as royalties at 0.6% of production instead of the 3% set in the 1995 Mines and Minerals Act, and profit taxes at 25%, compared with 35% for other sectors. As a result, government revenue fell

and spending on social sectors could not be sustained. While the primary net enrolment ratio was as high as 85% in 1986, it had dropped to 70% by 1999. It was estimated that Zambia lost US\$63 million in revenue between 2002 and 2004, when copper prices began rising again, because it taxed mining activities insufficiently.

The situation in Zambia could turn around, however. After pressure from civil society, a new Mines and Minerals Development Act promulgated in 2008 has helped ensure that the full royalty payments are made. Revenue from mining taxes more than tripled between 2009 and 2011 to reach 3.2% of GDP. Moreover, the new government doubled royalty rates to 6% in late 2011. Some of this new income will be used for education, where many challenges remain. While the primary net enrolment ratio had bounced back to 91% by 2010, there are still considerable challenges with progression and learning. The government also needs to show greater commitment towards education: Zambia spent only 1.5% of its GNP on education in 2010, one of the lowest shares in the world.

In the Democratic Republic of the Congo, a parliamentary investigation estimated that in 2008, the government lost US\$450 million in revenue through a mix of bad management, corruption and insufficient taxation. This is a sum larger than the country's entire education budget, and enough to send 7.2 million children to primary school. Even in the United Republic of Tanzania, which is closer to achieving EFA, if royalties paid by gold mining companies rose from the current 3% of production to the 5% recommended by a presidential commission, it would generate an additional US\$12 million a year in government revenue. That could cover the cost of sending more than 132,000 children to primary school.

### **Transparency is a precondition for maximizing government revenue**

The natural resources extracting industry has been characterized by opacity, with details of contracts between states and companies often shrouded in secrecy. Recently, however, the international community has been pushing for norms of transparency for resource extraction and revenue generation. The Publish What You Pay campaign, launched in 2002, brought more than 230 non-government organizations together to put pressure on governments and companies to make their transactions fully transparent and publicly available. A year later, the Extractive Industries Transparency Initiative (EITI) was launched. Today fourteen countries fully comply with its standard for 'companies to publish what they pay and for governments to disclose what they receive', and a further twenty-two countries have taken steps to adhere to them.

In 2010, in another landmark development in resource revenue transparency, the Dodd-Frank Wall Street Reform and Consumer Protection Act required mining companies based in the United States to disclose their tax and revenue payments publicly. While details have yet to be worked out and resistance from affected industries is strong, the Act could set a precedent. The European Commission recently followed suit, issuing a draft directive that would require listed companies involved in natural resource extraction to disclose their payments to governments.

Transparency has considerable power to help turn the resource curse into a blessing. Liberia's natural resources, including iron ore, diamonds, gold, timber and rubber, were at the centre of the country's fourteen years of civil war, which left it with some of the lowest education indicators in the world. By the end of the war in 2003, the net enrolment ratio in primary school was just 35%. After elections in 2005, one of the first actions of the new government was to vow to assure transparency in how revenue from natural resources was managed, as a means to promote national growth, development and reconciliation. Liberia has participated in EITI since 2006. Transparency is not only helping build government legitimacy but also ensuring that funds from natural resources are used to strengthen education and other social sectors.

### **Invest natural resource revenue for future generations**

There is broad agreement that natural resource revenue should be used wisely, either by saving it or investing it for the benefit of future generations. Education is a key ingredient of long-term equitable economic and social development; therefore natural resource revenue should be also used to fund education – whether to build infrastructure or to pay teachers' salaries.

For countries still in the initial stages of economic development, targeted investments in sectors that promote long-term growth and development, including education, yield high returns. Investing in a skilled workforce, for example, can help diversify the economy.

Legal or institutional mechanisms may be needed to prevent corruption and to ensure that an important share of natural resource revenue is spent on education. Natural resource revenue may be channelled into a special fund and earmarked for specific purposes. Ghana's legal framework for its new oil revenue management includes a provision that 70% of spending must go to priority sectors.

Governments also need to demonstrate a commitment to education more broadly. Botswana, for example, adopted in 1994 a Sustainable Budget Index, a formula which directs some of its mineral revenue to health

and education. The existence of an institutional mechanism does not in itself guarantee that revenue will be used for education however, as Chad's experience shows (Box 2).

As an alternative approach to minimizing opportunities for corruption, some commentators recommend that countries distribute new resource wealth directly to citizens in the form of cash transfers instead of spending it via government budgets to build schools, hospitals or roads. This 'oil-to-cash' concept has many attractions, as it is based on the positive experience of cash transfers in addressing poverty, together with the possibility that it could help mitigate the resource curse. Transferring resources directly to citizens, it is argued, gives them greater incentives to hold their governments to account. Alaska, the United States, is an example of such an approach: its government sends an annual cheque based on oil revenue to every person living in the state. The payments amount to 3% to 6% of household income.

However, there are drawbacks to this approach. Unlike conditional cash transfers in countries like Brazil and Mexico that target poor households and have been successful in improving education outcomes, the oil-to-cash idea does not incorporate the redistributive element of approaches that have been successful in targeting poverty. In addition, where the supply of public services is inadequate, transferring most or all natural resource revenue directly to citizens may not

improve education outcomes for those most in need. In many countries, strengthening the education system as a whole is required: schools need to be built and teachers properly trained and paid. Cash transfers are more likely to be effective when accompanied by improvements in education provision. Brazil's impressive results in increasing access to education and improving learning illustrate this. Its success has been made possible by a combination of conditional cash transfers and equitable distribution of government resources: the Bolsa Familia programme transfers 1% to 2% of the gross national income to 12 million of the poorest households, while education budget reforms distribute a larger share of government spending to the poorest states, allowing for greater public investment in building schools and paying teachers.

### Seizing the opportunity: natural resource revenue can fund education

Several of the countries that are furthest away from achieving the EFA goals are endowed with natural resource wealth but have failed to generate enough revenue, have not managed it efficiently or have not invested it in productive sectors like education. Meanwhile, natural resource discovery is expected to grow significantly in coming decades in some regions, including Sub-Saharan Africa. Several countries that have recently made oil or mineral discoveries are set to join the list of resource-rich countries.

#### Box 2: Chad's unsuccessful Oil Revenue Management Law

Originally intended to guarantee that oil revenue would be used to improve social services, Chad's Oil Revenue Management Law has effectively been dismantled by the government. The law, promulgated in January 1999, was a condition for the country to receive World Bank finance for the construction of a pipeline to Cameroon.

The initial version of the law stipulated that, of the total revenue, 10% would be saved and, out of the remainder, 5% would go to the oil producing region, 15% to general government expenditure and 80% to 'priority sectors', including education. However, an amendment in 2006 redirected the savings component to 'priority sectors', whose definition was extended to include security. The government, which was

under pressure from a rebel force insurgency, redirected public expenditure for military purposes. Military expenditure as a percentage of non-oil GDP increased from 2% in 2005 to more than 14% in 2009. Education had been scheduled in the National Poverty Reduction Strategy to receive 21% of the budget in 2004–2007 but only received 13%.

Chad's oil wealth could have supported an education system that is failing: only one pupil in three reaches the last grade of primary, and only 45% of men and 24% of women were literate in 2010. Chad's experience shows that even legal provisions requiring spending of natural resource revenue on priority sectors cannot guarantee that education receives a large enough share.

Table 1 lists low and middle income countries with youth literacy rates below 90% that are either dependent on natural resources or have recently discovered oil, gas or minerals. It shows the considerable potential for natural resource revenue to fund education and increase access to primary and lower secondary schooling. The scenario is based on two assumptions. First, it is assumed that governments would maximize the amount of revenue raised from natural resources (measured by the ratio of natural resource revenue to export receipts). Thus, mineral-rich countries would convert 30% of their mining export receipts into government revenue. On average, mineral-rich countries currently retain around 20%, though Mauritania has reached 30% and Botswana and Mongolia have passed 50%. For oil-rich countries, the scenario would bring all countries up to the current average of 75% of oil exports being converted to government revenue.<sup>3</sup> Government revenue from oil tends to be higher because it is easier to quantify and tax than minerals, it involves lower up-front investment and a good share of world oil production is done through nationally owned companies. Second, the scenario assumes that countries will channel 20% of these new resources to education. Low and middle income countries currently spend, on average, 16% of their budget on education.

The potential gains for education are enormous. Several countries, including Ghana, Guinea, the Lao People's Democratic Republic, Malawi, Uganda and Zambia, could reach universal primary education without needing any more aid from donors. In a group of seventeen countries where extra revenue could be raised, natural resources could fund schooling for 86% of the 12 million out-of-school children and 42% of the 9 million out-of-school adolescents.

While the potential is considerable, so are the challenges. Some mineral-rich countries, such as the Democratic Republic of the Congo, Sierra Leone and Zambia, currently receive less than 10% of export income as government revenue. They are still struggling with the first step: bargaining with extracting companies. Nigeria, on the other hand, already retains 72% of oil exports as government revenue, meaning that the extra funding for education from the scenario presented here could only send 23% of the country's 10.5 million out-of-school children to primary school. In this case the challenge is to manage, distribute and use the revenue better and to ensure that education is a top priority for the government.

In other countries, oil wealth holds great potential for building an education system, but capacity constraints may act as a barrier. South Sudan became independent in 2011 and is already resource-rich, since it possesses most of the oil of the former Sudan. Capacity is weak, however, and the education system has been largely destroyed by decades of war. There are more than 1 million out-of-school children and massive shortages of qualified teachers, and a major school building drive is needed. As part of the Comprehensive Peace Agreement reached in 2005, oil revenue was shared 50-50 between north and south, but it is unclear how it will be split now that the south is an independent state, as terms are still being negotiated.

If the agreed share were to hold, South Sudan could in principle derive enough income to send all primary school-aged children to school. The challenge will be to gradually increase the capacity of the education system, manage oil funds efficiently and work towards a more diverse economy with less dependence on oil. The government has derived 98% of its revenue from oil, which leaves it badly exposed to drops in world prices such as those witnessed during the world financial crisis of 2008-2009.

Countries that have recently discovered natural resource riches are in a unique position to tackle these challenges, as they can learn from the experience of others, and vastly extend access to primary and secondary schooling. In countries such as Ghana, new oil discoveries could complement mineral wealth to provide additional development spending (Box 3). The extractive industries boom is reaching all corners of the world, and the opportunities are significant (Figure 2):

- In the Lao People's Democratic Republic, revenue from copper and gold mining in 2012 will be worth more than double its value in 2008, which could double the education budget.
- In the Niger, oil and uranium extraction is set to increase massively between 2011 and 2016. Maximizing government revenue could send nine out of ten out-of-school children to primary school.
- In Uganda, following recent oil discoveries, the government's total budget is set to almost double by 2016. This could lead to a doubling of the education budget and send all primary and lower secondary school-aged children to school.

## Box 3: Ghana's natural wealth: a new source of education financing

Ghana's strong record on governance and development allows for cautious optimism about how it will manage its newly discovered oil riches to reduce poverty. In coming years, oil revenue is expected to make up a larger proportion of government income than aid.

Oil revenue started to flow into government coffers in 2011, and the Petroleum Revenue Management Act was passed in April of that year. The Act stipulates that 50% to 70% of oil revenue will be spent through the regular budget, with a minimum of 70% going to twelve priority sectors, including human resources development and education. The remaining 30% to 50% will be put into a heritage fund (a savings fund) and a stabilization fund. Transparency is to be guaranteed by following EITI principles and adhering to a strong framework of public accountability. Reports on revenue are to be published in national newspapers and the oil funds are to undergo annual external audits.

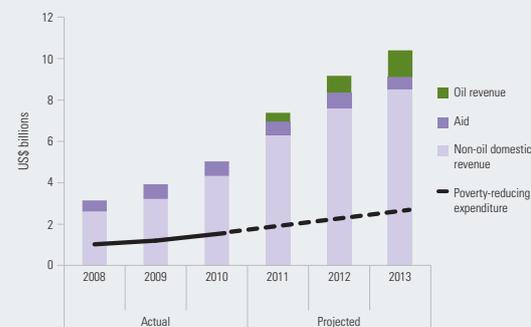
Ghana is set to use both oil and non-oil revenue to double expenditure on reducing poverty between 2009 and 2013, which is likely to benefit education and other social sectors (Figure 1). The new oil wealth will be supplemented by greater revenue collection on the country's existing gold riches, with

corporate taxes on mining set to increase from 25% to 35% and a new windfall profit tax of 10% to be introduced.

If Ghana were to maximize revenue from oil and mineral wealth as outlined in Table 1, the education budget could increase by 43%, and all children and adolescents currently out of school could have access to primary and lower secondary education.

**Figure 1: Ghana's increased revenue is set to boost expenditure on reducing poverty**

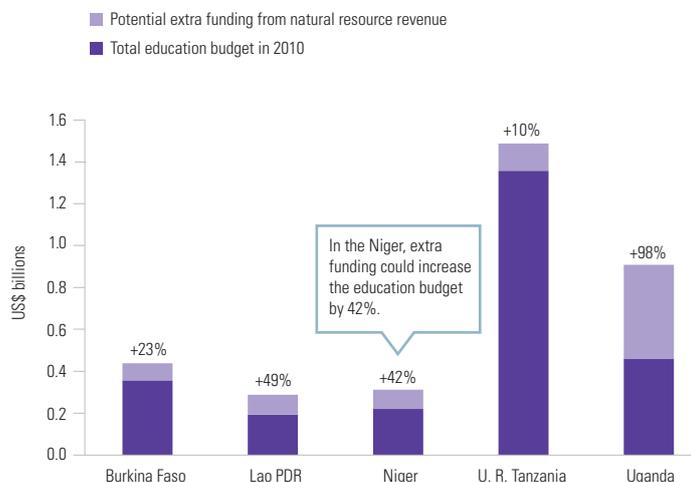
Actual and projected government revenue and poverty-reducing expenditure, 2008 to 2013



Source: IMF (2012a).

**Figure 2: Natural resource revenue could significantly increase education budgets**

Potential extra funding from maximizing natural resource revenue relative to 2010 total education budget, selected countries, in billion US dollars



Note: Maximizing natural resource revenue is assumed to take place in two steps: (i) an increase in the share of revenue from natural resource exports to 30% for minerals and to 75% for oil; and (ii) the allocation of 20% of this additional revenue to education.

Source: EFA Global Monitoring Report team calculations (2012) based on UIS database and IMF Article IV reviews.

Table 1: Many resource-rich countries could reach Education for All if they raised more revenue and increased focus on education

Country	Current situation						Potential	
	Conflict-affected <sup>1</sup>	Youth literacy rate (%)	Education as share of total public spending (%)	Natural resource revenue		Potential extra education funding from natural resource revenue <sup>2</sup>	Out-of-school children who could be funded by natural resource revenue <sup>3</sup>	
				% natural resource exports	% total public revenue		Number (thousand) <sup>4</sup>	%
		2005–2010	2010	2007–08	2007–08	US\$ million		
<b>Resource dependent</b>								
<b>Oil and gas</b>								
<i>Iraq</i>	Yes	83	...	111	89	...	...	...
<i>Angola</i>	Yes	73	9	54	81	2 245	493	100
<i>Yemen</i>	Yes	85	16	77	72	...	...	...
<i>Nigeria</i>	Yes	72	...	72	79	457	2 374	23
<i>Congo</i>	No	80	...	54	83	271	56	100
<i>Chad</i>	Yes	47	10	41	72	247	1 895	...
<i>Cameroon</i>	No	83	18	39	34	203	179	100
<b>Minerals</b>								
<i>D. R. Congo</i>	Yes	65	9	8	20	223	3 620	...
<i>Zambia</i>	No	74	...	8	10	159	184	100
<i>Papua New Guinea</i>	No	68	...	24	37	49	334	...
<i>Guinea</i>	Yes	63	19	11	22	45	355	100
<i>Mauritania</i>	No	68	15	30	25	...	...	...
<i>Sierra Leone</i>	Yes	59	18	4	2	11	97	...
<i>Liberia</i>	Yes	77	12	...	15	...	...	...
<b>Recently discovered deposits<sup>5</sup></b>								
<b>Oil and gas</b>								
<i>South Sudan</i>	Yes	37	...	...	...	762	3 876	...
<i>Uganda</i>	Yes	87	15	...	...	450	623	100
<b>Minerals</b>								
<i>Afghanistan</i>	Yes	...	...	...	...	120	1 786	...
<i>U. R. Tanzania</i>	No	77	18	...	...	130	137	100
<i>Lao PDR</i>	No	84	13	...	...	95	23	100
<i>Burkina Faso</i>	No	39	21	...	...	82	596	58
<i>Malawi</i>	No	87	15	...	...	12	62	100
<b>Both</b>								
<i>Ghana</i>	No	81	24	...	...	692	567	100
<i>Niger</i>	No	37	17	...	...	92	916	91

**Notes:** The countries included in the table are those with youth literacy rates below 90%. Cambodia, Côte d'Ivoire, Madagascar and Mali are also set to increase extraction of natural resources in coming years, but the potential quantity of exports is not yet known. Countries in italics are the seventeen included in the aggregate figure used in the text.

1. According to the list of conflict-affected countries compiled for the 2011 EFA Global Monitoring Report.

2. 'Potential extra education funding from natural resource revenue' is based on assumptions that (a) governments increase the share of revenue raised from natural resource exports to 30% for mineral-rich countries and 75% for oil- and gas-rich countries and (b) governments spend 20% of the extra revenue (i.e. above what is already being raised) on education. Because Iraq and Yemen already raise more than 75% from oil exports, and Mauritania 30% of minerals exports, there is no extra education funding available.

3. Pupil unit costs were calculated for primary school and lower secondary school using either EPDC and UNESCO (2009) costings (therefore including improvements in quality) or actual unit costs as reported in the statistical tables of this Report. For countries where data were unavailable, an income group average was used.

4. For countries with available data, the potential number of pupils that could be funded was capped at the number of current out-of-school children, with funds remaining in many cases. For countries without out-of-school figures, the total number of pupils that could be funded is shown in italics. The inclusion of this number does not mean that there are necessarily that many children out of school.

5. For countries with recently discovered deposits, an annual average over 2010–2015 of current IMF projections on exports for natural resource revenue was used to calculate potential education funding.

**Sources:** EFA Global Monitoring Report team calculations (2012) based on IMF Article IV reviews and EPDC and UNESCO (2009); Annex, Statistical Tables 2 and 9.

## Conclusion

The potential for natural resource revenue to finance the achievement of EFA and other development goals is enormous. With commodity prices increasing and new exploration and extraction opportunities arising, developing countries – with those in Sub-Saharan Africa at the forefront – could raise sums vastly surpassing what they currently receive from aid donors.

For the seventeen countries with available data, total extra funding for education from natural resource revenue could reach US\$5 billion a year. This is equivalent to two and a half times the amount that these countries received in aid to education in 2010. Ensuring that 'old' and 'new' resource-rich countries maximize the revenue they get from extractive activities, that funds are managed efficiently and transparently, and that a good share is spent on education should be central concerns for EFA actors: international organizations, national and international civil society groups, donors and governments.

To encourage fair and productive use of natural resource revenue, education advocates should concentrate on three fronts. First, they should support EITI and other transparency and fair taxation measures, pushing all governments to comply with their standards.

Second, they should get involved in national debates on the use of natural resource revenue, and make the case for education as a long-term investment essential to diversify the economy and avoid the resource curse. Third, each country should explore options to ensure that this income is spent on education.



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## Notes

1. This Policy Paper draws on sections of the 2012 EFA Global Monitoring Report. All references to the evidence presented in this paper can be found in that Report.
2. Resource-dependent countries are those that derive at least a quarter of government revenue or exports from natural resources.
3. These shares are an average for 2007–2008.