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The cost of future
conflict in Sudan

2010



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Foreword by

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With just over one month remaining until 9 January 2011, the scheduled date of Sudan's referenda, the list of logistical tasks to accomplish and outstanding issues to negotiate ahead of the referenda is intimidating in length. Concerns are mounting that a failure to hold timely and credible referenda and to secure agreements on sensitive issues such as border demarcation and oil sharing could spark renewed violence.

Rightly, there has been a great deal of comment and analysis on political developments in Sudan as the referenda approach. There have also been grave warnings about the potential human cost of any return to war – the severity of which must not be underestimated given Sudan's recent history of civil conflict in Darfur and between the North and South.

This report seeks to provide a somewhat different perspective, setting out the potential economic costs to Sudan, Sudan's immediate neighbours and to the international community. It does not argue that such economic considerations are superior to those of a humanitarian nature. But it does help demonstrate how crippling the legacy of a return to war would be over many years. It also shows, in contrast, the potential financial dividends of peace.

The report challenges the Sudanese parties and those governments who have influence over the situation to ask themselves: Are we doing enough to prevent a conflict that could cost over \$100 billion U.S. dollars and hundreds of thousands of lives?

As political scientists from the region, we would like to offer the following recommendations of what must, at a minimum, take place in these remaining crucial weeks. We ask that all Guarantors of the Comprehensive Peace Agreement (CPA), including the AU, IGAD and the League of Arab States:

1. Accelerate international efforts to prepare for and to support peaceful, credible and timely referenda in Southern Sudan and Abyei, including through continued monitoring of the human rights situation by election observation missions.
2. Restate publicly and clearly the internationally recognised right of the people of Southern Sudan to self-determination and their intention to honour and uphold the results of credible referenda.

3. Use all diplomatic leverage at their disposal to assist the Sudanese parties reach agreement on outstanding issues such as border demarcation, oil sharing and citizenship ahead of the referenda.

4. Persuade the National Congress Party of Sudan (NCP) and the Sudan's People's Liberation Movement (SPLM), the two parties to the CPA, to make public commitments that the rights to freedom of movement, residence and property currently afforded to all Sudanese citizens will be preserved regardless of the outcome of the referenda.

5. Ensure that the UN Mission in Sudan (UNMIS) puts in place preventative deployments in flashpoint areas to deter future violence, including in Abyei where the risk of violence is acute.

6. State clearly and publicly that international human rights standards must be respected in Northern as well as in Southern Sudan, including in Darfur, and that the Guarantors will uphold their commitment to the goals of democratic transformation in Sudan.

We hope this report will focus minds on the stakes of failure. When compared to the potential cost of future conflict, a maximalist approach to diplomatic engagement and preventative action now is a very small price to pay.

Executive Summary

- 1.1 In 2011, Southern Sudan will vote in a referendum on whether or not to become an independent state.
- 1.2 The referendum comes six years after the 2005 Comprehensive Peace Agreement brought a formal end to the 22-year civil conflict between the Government of Sudan and the Sudan People's Liberation Movement/Army. An estimated two million people were killed in Sudan and four million displaced between 1983 and 2005.
- 1.3 The security situation in Southern Sudan remains poor, with continuing low intensity violence and lawlessness. While there are substantial financial incentives for leaders on both sides to resist a return to conflict, the referendum is one of many issues which could trigger an escalation of violence.
- 1.4 The analysis in this report suggests that a return to war in Sudan would entail costs in excess of US\$100bn over 10 years, including in excess of:
 - US\$50 billion to Sudan itself in lost GDP;
 - US\$25 billion to neighbouring countries in lost GDP relative to a more stable situation; and
 - US\$30 billion in peacekeeping and humanitarian costs to the international community.
- 1.5 The report recognises the significant difficulties in measuring the costs of potential future conflict. The main report describes in detail the range of uncertainty around these estimates. While recognising these uncertainties, the analysis suggests that those involved in efforts to avoid further conflict in Sudan should ask themselves: *"Are we doing enough to avoid a war that might cost over US\$100 billion and hundreds of thousands of lives?"*
- 1.6 The report deliberately does not attempt to quantify the human suffering and related consequences of a prolonged conflict. The human tragedy of death, displacement and ruined lives cannot be fully captured by any economic analysis.

Economic impact of war

- 1.7 War can affect the economy in a number of different ways over time. While some effects can be positive, the economic impact of civil conflict, as opposed to international wars, is almost invariably negative.
- 1.8 Our approach seeks to separate out the costs to Sudan itself, to other countries in the region and to the international community more widely. In both Sudan and the region, we examine the loss in total economic output (Gross Domestic Product, or GDP) that could arise under each scenario. In doing so, we adopt a "top-down" approach, applying the average effect that conflict has had on economic growth in countries experiencing civil war to Sudan.
- 1.9 We investigate four scenarios:
 - **Low conflict scenario ("Business As Usual"):** Both sides accept the outcome of the referendum but fail to agree on measures required to implement the result. Low-level violence continues in Southern Sudan and Darfur.
 - **Medium conflict scenario:** Khartoum officially respects the referendum vote in favour of independence but actively undermines attempts to resolve outstanding issues of contention. The security situation deteriorates into a seven-year civil war between North and South Sudan.
 - **High conflict scenario:** Khartoum refuses to accept a vote in favour of independence. Violence escalates, culminating in a return to conflict between North and South, and between different factions within the South. Sudan becomes a violent failed state with Khartoum increasingly unable to exert control over the wider country.
 - **Peace scenario:** Both sides accept the referendum result and outstanding issues of contention are resolved quickly. There is a gradual improvement in the security situation between North and South and in Darfur
- 1.10 Drawing on evidence from a wide range of conflicts around the world, analysis by Collier (1999) suggests that, on average, a civil war reduces the growth of real GDP per capita by 2.2 percentage points for every year of the conflict.¹ We model four different paths of economic growth, in line with our four political scenarios. Using Collier's estimate, growth of real GDP per capita is modelled to be 2.2 percentage points lower in years when Sudan is assumed to be experiencing a civil war.

1.11 For the post-war period, we model higher growth rates after the end of each conflict scenario such that GDP gradually converges back to its counterfactual level. To do this, we use the estimate from Collier and Hoeffler (2004), which suggests that, controlling for other factors, growth in post-conflict countries is on average 1.13 percentage points higher than in other countries.²

Costs to Sudan

1.12 To estimate the loss of GDP under each scenario, we calculate the difference between GDP in a conflict scenario and GDP in a specific baseline scenario (often termed a “counterfactual”). The choice of baseline scenario therefore has an important impact. In view of this, we present results in Table 1 below looking at two different baselines: using the low conflict scenario as the baseline; and using the peace scenario as the baseline.

Table 1. Cost of conflict to Sudan (and as a % annual GDP 2010)

	Over 10 years, 2010 real US\$bn	Over 25 years, 2010 real US\$bn
Baseline: peace scenario		
Low conflict scenario	35.2 (54%)	458.3 (697%)
Medium conflict scenario	87.3 (133%)	576.7 (877%)
High conflict scenario	116.0 (176%)	821.3 (1249%)
Baseline: low conflict scenario		
Medium conflict scenario	52.1 (79.2%)	118.4 (180.1%)
High conflict scenario	80.8 (122.8%)	362.9 (552.1%)

1.13 Between 10 – 20% of Sudan’s GDP comes from oil. If the flow of oil were to be shut down with the outbreak of civil war, then Sudan would immediately lose 10 – 20% of its GDP – equivalent to US\$6.5 – 13 billion in 2010. That amount would be lost for every year until oil production was restored. This oil effect alone might be larger, during the war years, than the lost growth rate from other factors, such as destruction and the disruption of economic activity. However, oil represents an asset to Sudan. If it is not drawn upon during the war, it can be drawn upon after the war. Therefore, in all likelihood the US\$6.5 – 13 billion a year is not lost in perpetuity but transferred into the future.

Costs to the region

1.14 The overall cost of conflict in Sudan to neighbouring countries is about 34% of their total annual GDP over a 10-year period. For example, both Kenya and Ethiopia could potentially lose over US\$1 billion a year.

1.15 While there may be some positive impacts on the region (e.g. from investment being redirected from Sudan to other countries in the region), the evidence suggests that the net impact of conflict would be significantly negative.

1.16 Table 2 summarises our quantitative estimates of the impact on Ethiopia, Kenya and Uganda. Other neighbouring countries may also be affected; they are discussed in more detail in the main report. In addition, it is worth noting potential impacts on both Egypt and Tanzania.

1.17 The Egyptian economy is the largest and strongest in the region. In that sense, it might also have the most to lose from conflict. However, most scenarios for conflict would not directly affect Egypt’s border with Northern Sudan. The risk to Egypt is still serious. Apart from specific economic impacts, Egypt has a very strong strategic interest in Sudan because of the Nile. Impacts of conflict and its aftermath on the use of the Nile could have significant economic consequences for Egypt which go beyond the scope of this study to assess.

1.18 Tanzania, as a member of the East African Community (EAC), may also be affected. It is difficult to quantify the precise direct effects (through its trade with Sudan) and indirect effects (through the disruption to other EAC economies that directly border Sudan). The main report contains a more detailed discussion of the issues relating to Tanzania.

Table 2. Regional impact, loss of real GDP (and as a % of 2010 annual GDP)

	Medium conflict scenario (2010 real US\$bn)		High conflict scenario (2010 real US\$bn)	
	Over 10 years	Over 25 years	Over 10 years	Over 25 years
Ethiopia	11.228 (36.7%)	20.007 (65.4%)	17.727 (57.9%)	64.368 (210.4%)
Kenya	11.584 (33.8%)	20.378 (59.5%)	18.397 (53.7%)	63.333 (185%)
Uganda	6.381 (36.0%)	11.178 (63.1%)	10.116 (57.1%)	35.995 (203.3%)

Note: there would likely be impacts on Sudan’s other six neighbouring countries. However, those impacts are less certain and more difficult to quantify. They might, for example, relate to increased border tensions, flows of people fleeing conflict and related issues. In that respect, the aggregate figures to emerge from this analysis are likely to underestimate the total impact.

Costs to the international community

- 1.19 The analysis focuses on quantifying the possible cost to the international community of peacekeeping operations and humanitarian aid. In line with our four scenarios, we modelled possible paths for peacekeeping expenditure using benchmarks from other conflicts and current levels of peacekeeping expenditure in Sudan.
- 1.20 The 2010-11 budget for the United Nations Mission in Sudan (UNMIS) is US\$0.938 billion.³ The budget for the African Union/United Nations Hybrid Operation in Darfur (UNAMID) is US\$1.808 billion.⁴ Building on this experience, we extrapolate a range of potential total costs to the international community in the future.⁵ These are presented in Table 3.

Table 3. Total costs to the international community (real, 2010US\$ billions)

	Over 10 years	Over 25 years
Peacekeeping costs (2010 real US\$ billions)		
Peace and Low conflict scenarios	0 – 22	0 – 43
Medium conflict scenario	24 – 27	45 – 47
High conflict scenario	26 – 43	47 – 65
Humanitarian costs (2010 real US\$ billions)		
Peace and Low conflict scenarios	0 – 3	0 – 11
Medium conflict scenario	5 – 9	13 – 17
High conflict scenario	6 – 12	15 – 23

1. Collier, P. (1999), "On the economic consequences of civil war," *Oxford Economic Papers*, 51: 168-183.

2. Collier, P. & Hoeffler, A. (2004), "Aid, policy and growth in post-conflict societies," *European Economic Review* 48: 1125 – 1145.

3. <http://www.un.org/en/peacekeeping/missions/unmis/facts.shtml>

4. <http://www.un.org/en/peacekeeping/missions/unamid/facts.shtml>

5. Note that unlike estimates of the impact on Sudan and the region, these figures are total rather than incremental costs. They are presented this way because the level of spending is largely at the discretion of the international community. The main report discusses the estimates and their rationale in more detail.

2 Introduction

- 2.1 In January 2011, a six-year peace process will culminate with a referendum on the future of South Sudan. Much has been invested in the process by the Sudanese themselves, regional governments and the international community. The Aegis Trust asked Frontier Economics to look forward: *What would be the cost of a return to war, or the economic benefits of peace, following the referendum?*
- 2.2 This report discusses a range of possible scenarios. It draws on the best available evidence to calculate the costs of each scenario to different participants: to Sudan itself, to countries in the region and to the international community.
- 2.3 There is a great deal of uncertainty in any such calculations. Reliable data is scarce and much is known more qualitatively than quantitatively. Clearly much also depends on the precise events following the referendum, which cannot be known today. Nevertheless, even with wide ranges to capture that uncertainty, it is clear that some scenarios – particularly those relating to increased conflict – could be very costly. Furthermore, a lasting peace could potentially generate large economic gains.
- 2.4 The rest of this report describes our analysis, assumptions and the implications in terms of future costs under different scenarios:
 - Section 3 describes the situation in Sudan and possible future scenarios;
 - Section 4 sets out our approach to deriving the costs of those scenarios;
 - Section 5 presents the results; and
 - Section 6 summarises.
- 2.5 We have benefited from discussions with a number of experts who we thank without implicating in our analysis or findings.

3 The situation: past, present and future

3.1 This section provides a brief background to the situation in Sudan.⁶ It then sets out possible future scenarios used to model possible costs.

Past and present

3.2 In 2011, Southern Sudan will vote in a referendum on whether or not to become an independent state. It is widely expected that the people of Southern Sudan will vote overwhelmingly in favour of independence.

3.3 The referendum marks the end of the interim period of the 2005 Comprehensive Peace Agreement, which brought a formal end to the 22-year civil conflict between the Government of Sudan and the Sudan People's Liberation Movement/Army (SPLM). The interim period of the agreement was seen by some as an opportunity for nation building and to demonstrate the benefits of unity ahead of the referendum.

3.4 Tensions between North and South have existed since colonial times. They have resulted in civil war twice: in 1955-1972 and 1983-2005. The North-South conflict has often been characterised as an ethnic conflict between the largely Arab, Muslim North and the predominantly African, Christian and Animist South. However, both the conflicts between North and South and in Darfur are perhaps best described as conflicts between politically and economically marginalised groups in the peripheral areas of the country and the elites of the major urban centre in the capital, Khartoum.⁷

3.5 Civil wars in Sudan have been extremely destructive. It is estimated that perhaps 300,000 people died in Darfur from 2003 to 2008.⁸ While estimates of the human cost of the 1983-2005 conflict vary, most put the figures at two million people killed and four million people displaced.⁹ The 2005 Comprehensive Peace Agreement brought with it great hopes of an end to the violence and a better quality of life for the people of Sudan.

3.6 Hopes that the interim period of the agreement would be used to forge a relationship of mutual trust and partnership between North and South have not been fulfilled. The security situation remains poor, with violence and lawlessness a fact of life for many people, particularly in rural Sudan. While oil revenues and wider economic growth provide substantial financial incentives for leaders on both sides to resist a return to conflict, the referendum is one of many issues which could lead to an escalation of violence. A return to conflict between North and South, an escalation of violence in Darfur and increasing conflict between different factions within the South all remain real possibilities.

Future

3.7 There are many possible future scenarios, and it is clearly impossible to know precisely how events will unfold between now and January, and after the referendum.

3.8 In order to analyse the potential costs of a range of outcomes, we have developed – in discussion with experts – four possible scenarios for Sudan. These are not intended to be predictions of the future and no attempt is made to estimate the likelihood of their occurrence. Rather, they provide a framework in which a range of possible economic costs can be estimated. Those costs can then inform future actions.

3.9 The report investigates the cost implications of the following four scenarios:

- **Low conflict scenario (“Business As Usual”):** Both sides accept the outcome of the referendum but fail to act to cement that result into a peaceful future. In the case where Southern Sudan votes in favour of independence, Northern Sudan accepts the result but fails to agree to the measures required to implement it. After a number of years, South Sudan becomes independent but low level militia violence (similar to the current situation) continues within South Sudan. Some militias are used as proxies by the North. Low intensity conflict continues in Darfur at the level seen in 2010. In the case where Southern Sudan votes to remain, there is no rapprochement between North and South. Instability and sporadic violence continue, as proxy militias are used to destabilise the situation and weaken political rivals and retain rents earned on oil revenue.
- **Medium conflict scenario:** South Sudan votes in favour of independence. Khartoum officially accepts the referendum result but actively undermines attempts to resolve outstanding issues of contention. There is an increase in skirmishes in contested border regions, and an increase in the use of proxies by both sides to destabilise the situation. With little progress towards independence, both sides experience increasing difficulties in controlling the various factions. The security situation between the North and South deteriorates, to the point where the situation is characterised as civil war. The situation in Darfur fails to improve. The civil war lasts for seven years, the average length of a civil war (see discussion in Section 4), before renewed efforts bring about peace.

- **High conflict scenario:** South Sudan votes in favour of independence and North Sudan refuses to respect the result. There is an escalation of violence, which culminates in a return to conflict between the SPLM and the Government of Sudan, and within Southern Sudan between the SPLM and other factions. At the same time, there is also an escalation of violence in Darfur and Eastern Sudan. Sudan becomes a violent failed state as Khartoum becomes increasingly unable to exert control over the wider country.
- **Peace scenario:** Both sides accept the result of the referendum. International pressure on both parties leads to a relatively swift resolution of the outstanding issues of contention. There is a gradual improvement in the security situation between the North and South and in Darfur, with a gradual reduction in military expenditure, accelerated return of refugees and internally displaced people and an increase in foreign trade and investment.

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6. Much more detail can be found in a very wide range of books and articles. A good starting point is the Assessment and Evaluation Commission that was established under the Comprehensive Peace Agreement: <http://www.aec-sudan.org/>
 7. There are many references about the conflict, its origins and ongoing causes. See, for example, Keen, D. (2001), "Sudan: Conflict and Rationality" in Stewart, F. & Fitzgerald, V. (eds), *War and Underdevelopment, Volume 2: Country Experiences*, Oxford University Press, Oxford, p.220.
 8. Degomme, O and Guha-Sapir, D (2010), "Patterns of mortality rates in Darfur conflict," *The Lancet*, Volume 375, Issue 9711, pp. 294 – 300.
 9. UK Associate Parliamentary Group for Sudan (2010), *On the brink: Towards lasting peace in Sudan*.

4 Approach: calculating the costs of war and benefits of peace

4.1 This section describes the general approach. It sets out the analytical framework used to derive the costs of conflict. Specific assumptions used in its implementation are discussed in the next section.

4.2 It may appear self-evident that war is costly. However, a considerable amount of research has been undertaken to understand precisely how costly. In a world with many competing priorities, understanding how costly a particular war might be helps to understand how much effort (financial, political and other) should be invested in preventing war.¹⁰ Some studies, for example, Chalmers (2007), have estimated the cost of war in the context of explicit cost-benefit analysis of conflict prevention measures.¹¹

4.3 War can affect the economy in a number of different ways over time. While some effects can be positive, the economic impact of civil conflict is almost invariably negative. Civil wars are fought entirely within the country, leading to much local destruction, and they tend to undermine, rather than strengthen, the state.

4.4 There are two possible approaches to estimating the potential costs of future wars.

- One approach (“top down”) is to draw on the extensive experience of wars around the world to try to understand the common impacts of conflicts. This understanding can then be applied to a particular situation, such as that in Sudan, adjusting the international evidence for local circumstances.
- A second approach (“bottom up”) is to closely consider the local circumstances – how the local economy works, the relationships between the various actors in the economy and the composition of GDP – and then try to simulate (quantitatively or qualitatively) the disruptive effect of war and how that feeds through to the economy and wider population.

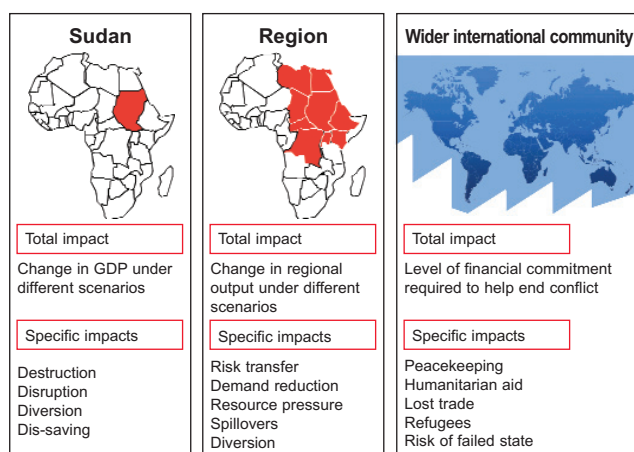
4.5 There are advantages and disadvantages to both approaches. The top-down approach benefits from drawing on a wide range of evidence to inform a view of what might happen. It has the disadvantage of potentially not sufficiently identifying specific local circumstances. The bottom-up approach has the advantage of very clearly picking up on all those local circumstances with the disadvantage of having only a narrow evidence base from which to forecast how things might develop.

4.6 The approach adopted here is to start with a top-down estimate and then to try to modify it, where evidence allows, for local circumstances. This allows us to draw on evidence from a wide range of conflicts and research to estimate the likely magnitude of future costs. We discuss at the end of this report further steps that could be taken to make the analysis more robust by

incorporating greater evidence from a bottom-up perspective.

4.7 Our approach also seeks to separate out the costs to Sudan itself, to other countries in the region and to the international community more widely. The high level approach to each of these three regions is presented in Figure 1 below.

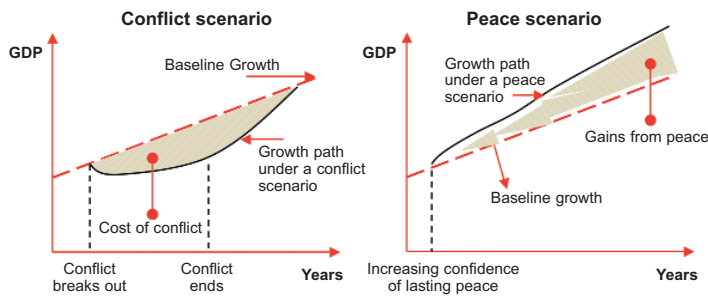
Figure 1. Approach - cost of war



4.8 In both Sudan and the region, we examine the loss in total output (Gross Domestic Product, GDP) that could arise under each of the scenarios. For the wider international community, we focus specifically on potential peacekeeping and humanitarian expenditures that might arise under each scenario.

4.9 To estimate the loss of GDP under each scenario, we calculate the difference between GDP in a conflict scenario and GDP in a specific baseline scenario (often termed a “counterfactual”). The total cost is determined by both the growth rate under the baseline scenario and the impact of conflict. For a given scenario, the greater the level of growth assumed under the baseline, the higher the cost of conflict. For example, if the baseline were GDP growth of 10% per annum and we compared that to our medium conflict scenario, the loss of GDP is much larger than if the baseline was, for example, 2% growth per year. The greater income is under the baseline, the more there is to lose from conflict. The reverse is also true in relation to a peace scenario. The benefits from peace are greater the more pessimistic the baseline. This basic analysis is illustrated in Figure 2.

Figure 2. Relationship between baseline and cost of conflict



4.10 Given the importance of the choice of baseline, we present results looking at two different baselines: using the low conflict scenario as the baseline; and using the peace scenario as the baseline. We discuss below the precise growth rates associated with each of these baselines.

4.11 Alongside the baseline, we also need to determine the growth rate under the scenario in question. Here we draw on a wide range of evidence and analysis that is related to work by Collier, Hoeffler, Reynal-Querol, Knight and others. Collier (1999) identifies five main channels through which civil war affects GDP:¹²

- **Destruction:** The most direct impact of war on the economy is through the reduction in the labour force (through death and injury) and the destruction of physical capital. The destruction of infrastructure is particularly damaging, for example, increasing the transport and energy costs of economic activity. Civil wars are usually fought with lower levels of technology than international wars and so are likely to be less damaging to physical infrastructure. Even so, Hoeffler and Reynal-Querol (2003) report that 40% of immobile capital in the agricultural, communications and administrative sectors in Mozambique was destroyed during the civil war (1977-1992).¹³ In spite of lower levels of technology, civil wars result in large numbers of deaths, especially when deaths resulting from war-induced famine and disease are taken into account.
- **Disruption:** People flee their homes because of the fear of violence, disrupting productive activities and leaving behind many assets to be stolen or destroyed. As refugees and internally displaced persons, people are largely unable to work and are vulnerable to hunger and disease, especially in camps. The breakdown of social order increases the risk and cost of doing business. Security concerns can make transport (of people or goods) difficult, longer and more costly, even when there has been no damage to transport infrastructure, such as roads and bridges.
- **Diversion within country:** During conflict, there is a diversion of government resources away from productive investment to destructive expenditures. This leads to a double loss: not only are resources not spent on infrastructure, health and education, they are also paying for destructive activities that damage the economy. Research by

Knight et al. (1996) suggests that an additional 2.2% of GDP spent on the military (the typical increase during war time) over seven years (the typical length of a civil conflict) leads to a permanent loss of around 2% of GDP.¹⁴

- **Diversion abroad:** Uncertainty about the future lowers levels of investment both from domestic and foreign sources. Knight et al. (1996) find that war has a strongly negative effect on the ratio of investment to GDP. During a civil war, individuals choose to hold a larger proportion of their assets abroad. Collier, Hoeffler and Pattillo (2002) report that private individuals in the typical war country held 8.6% of their wealth abroad before the war, and 19.7% abroad afterwards.¹⁵ Collier argues that almost all types of domestic capital can be gradually transformed into financial capital, which can then be expatriated, in spite of foreign exchange controls, through illicit trade. Human capital also moves abroad, as skilled workers flee the country.
- **Dissaving:** In desperate situations, people are forced to use their savings or sell their assets in order to meet their immediate, basic needs or to secure their safety. The desperation to sell may lead to very low returns on resources which could otherwise have funded more useful and profitable activities.

- 4.12 These changes have an unambiguously negative impact on GDP. The size of that impact has been the subject of much research. Relevant aspects of the research are discussed in the specific context of Sudan in the next section.
- 4.13 The effect of civil war on growth rates in the post-war period is more ambiguous. Many of the effects of civil war are likely to be highly persistent and reduce economic growth even after the fighting itself has ceased. Collier (1999) terms this a “war overhang” effect.
- 4.14 The destruction of infrastructure (unless addressed by a rapid rebuilding programme) will continue to hamper economic growth. Civil conflict often forces people into lower risk sectors such as subsistence agriculture. Continuing uncertainty about the future and (rational) fears of a possible return to conflict keep people in these low risk, low productivity activities. There are also likely to be persistent health impacts that affect economic output and productivity for many years into the future. For example, higher levels of disability and the increased prevalence of HIV/AIDS following mass displacements of people and widespread sexual violence can reduce the labour force for generations.
- 4.15 Furthermore, while government expenditure on the military may fall once the war ends, it is unlikely to return immediately to pre-war levels, especially if there is an expectation of renewed conflict or the need to integrate rebel forces into the national army. There may also have been a permanent loss of social capital, with a shift to norms of lower levels of trust and honesty.
- 4.16 Conversely, it is also possible that the end of conflict might lead to higher rates of growth than would otherwise have occurred: a “peace dividend,” as

refugees return home, reconstruction begins (possibly with international financial assistance) and military expenditures are redirected to more productive uses.

- 4.17 In practice, we model higher growth rates after the end of each conflict scenario, such that GDP gradually converges back to its counterfactual level (as illustrated in Figure 2 above). This is a conservative approach because the costs of conflict would be larger if we assumed that the negative effect of war on growth continued after the end of fighting.
- 4.18 In the box below we provide some more specific inputs to the modelling. In the next section we discuss the precise assumptions under each scenario.

Modelling assumptions and data

The model draws on best practice to derive values for a number of standard parameters required for the analysis:

- **Discount rate:** All financial calculations are in real 2010US\$. Costs and benefits are discounted using a 4% discount rate. This is the discount rate employed by the IMF in their Debt Sustainability Framework to calculate the present value of country debt, including for Sudan and its neighbours. It was recently revised downwards from 5% percent to take into account the recent decline in global interest rates.¹⁶
- **GDP:** All GDP calculations use data and forecasts from the IMF World Economic Outlook until 2015. In the case of Sudan, the model then uses the IMF's long-term growth forecast for Sudan of 5.6% until 2035. In the absence of a long-term growth forecast for Sudan's neighbours, the model extrapolates long-term growth rates using an average of the IMF's forecasts for the period 2013-2015.
- **Population growth:** The model uses the IMF's population assumptions until 2015, after which point we use the long-term population growth rate forecasts for Sudan from the UN Population Division.¹⁷
- **Length of conflict:** For the medium conflict scenario, we have used the average length of a civil war of seven years.¹⁸ For the high conflict scenario, we have modelled a conflict twice as long, 14 years. Given that the two previous conflicts between Northern and Southern Sudan lasted 17 and 22 years, these assumptions appear conservative.

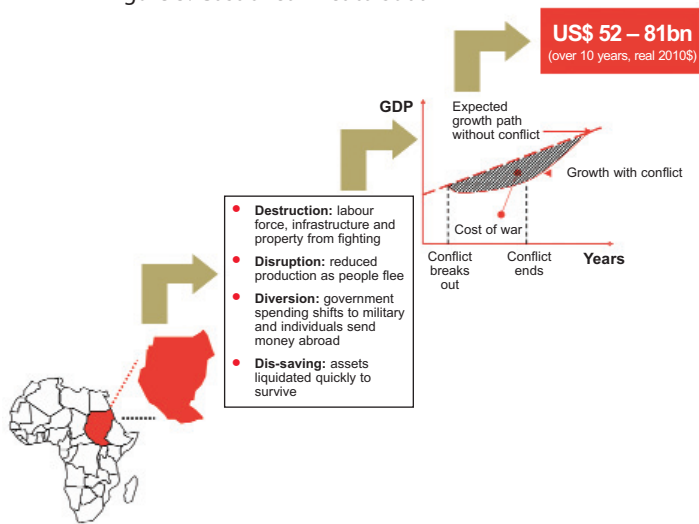
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10. This research does also indicate that there can be positive economic benefits to war. We also note those where relevant to the situation in Sudan.
 11. Chalmers, M. (2007), Spending to save? The cost-effectiveness of conflict prevention, *Defence and Peace Economics* 18(1): 1-23
 12. Collier, P. (1999), 'On the economic consequences of civil war', *Oxford Economic Papers* 51: 168-183
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5 Results: impact on Sudan, the region and the international community

5.1 This section presents the results of the analysis. It discusses the impacts on Sudan, the region and the wider international community separately. In each section, we provide the headline results and then discuss specific assumptions and the range of uncertainties around those headline results.

Sudan

Figure 3. Cost of conflict to Sudan



5.2 The central estimate for the cost of conflict to Sudan is US\$52 to US\$81 billion over a 10-year period.¹⁹ The lower end of the range is based on the medium conflict scenario and is equivalent to 80% of current annual GDP. The upper end of the range is based on the high conflict scenario and is equivalent to Sudan losing over 120% of its current annual GDP.

5.3 This range assumes a baseline of low-level conflict. As discussed in paragraphs 4.9 and 4.10, the choice of baseline is important. If the baseline is better represented by the peace scenario, then Sudan has much more to lose in the case of increased conflict. With a peace scenario as the baseline, the loss in GDP rises to a range of US\$87 billion to US\$116 billion over a 10 year period. That is equivalent to 133% to over 175% of current annual GDP.

5.4 These analyses use the estimate of the effect of a civil conflict from Collier (1999).²⁰ Collier's analysis suggests that, on average, a civil war reduces the growth of real GDP per capita by 2.2 percentage points for every year of the conflict. For the post-war period, we use the estimate from Collier and Hoeffler (2004b), which suggests that, controlling for policy, institutions, governance and aid, growth in post-conflict countries is on average 1.13 percentage points higher than in other countries.²¹

5.5 Collier's estimates draw on evidence from a wide range of conflicts in many different countries. Paragraphs 4.4 and 4.5 discussed the advantages and disadvantages of this approach. In the case of Sudan specifically, about 10% to 20% of GDP comes from oil. If the flow of oil were to be shut down at the outbreak of either a medium or high conflict scenario, then Sudan would immediately lose that proportion of its GDP – equivalent to about US\$6.5 billion to US\$13 billion in 2010. That amount would be lost for every year of war and until oil production was restored following the war. This impact alone might be larger than the lost growth from wider destruction, disruption, diversion and dis-saving *during the war years*. However, it is important to note that oil represents an asset to Sudan. If it is not drawn upon during the war, it can be drawn upon after the war. Therefore, in all likelihood the oil revenue is not lost in perpetuity (which is the case for the lost output discussed above) but transferred into the future. Oil is discussed in more detail below.

5.6 Using the Collier estimates, we model the path of real GDP per capita growth under our four scenarios as follows.

- **Peace scenario.** Real GDP per capita growth remains at IMF forecast levels in 2011 before a steady improvement in the security situation results in a gradual increase in the growth rate over five years. From 2016 onwards, real GDP per capita growth is 1.5 times the current forecast level.
- **Low conflict scenario.** With violence and instability remaining at current levels, real GDP per capita growth follows IMF forecast levels throughout the period.
- **Medium conflict scenario.** Real GDP per capita growth remains at IMF forecast levels for two years. With the onset of civil war in 2013, the annual growth rate is 2.2 percentage points lower than forecast levels for seven years. After the end of the conflict in 2019, the growth rate is 1.13 percentage points above forecast levels until real GDP per capita regains its counterfactual level in 2033.
- **High conflict scenario.** With the immediate onset of civil war in 2011, real GDP per capita growth is 2.2 percentage points below forecast levels for 14 years. After the end of the conflict in 2024, the growth rate is 1.13 percentage points above forecast levels for the rest of the forecast period (real GDP per capita would only regain its counterfactual level after the end of the modelled period).

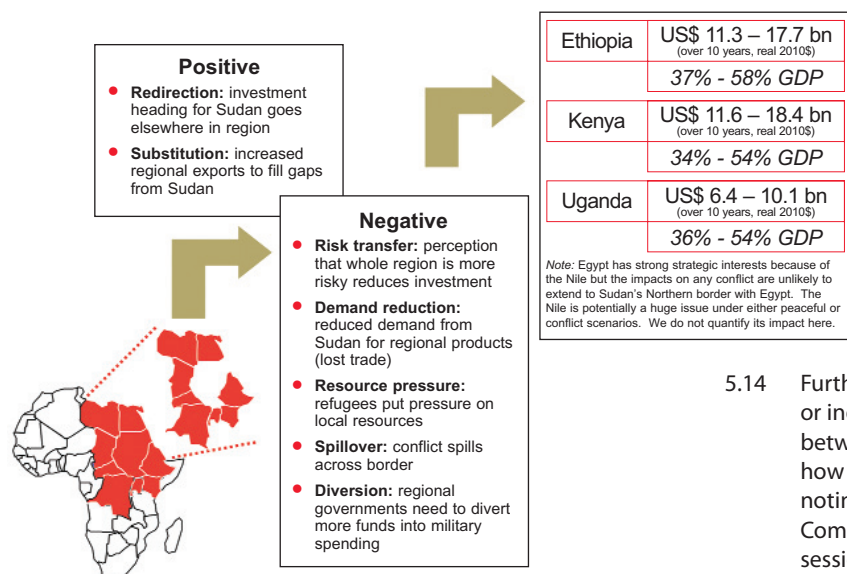
5.7 The loss of real GDP under the three conflict scenarios is calculated as the difference between real GDP in a conflict scenario and real GDP under the peace scenario. The detailed results are presented in Table 4 below.

Table 1. Cost of conflict to Sudan (and as a % of 2010 annual GDP)

	Over 10 years, real 2010 US\$bn	Over 25 years, real 2010 US\$bn
Baseline: peace scenario		
Low conflict scenario	35.2 (54%)	458.3 (697%)
Medium conflict scenario	87.3 (133%)	576.7 (877%)
High conflict scenario	116.0 (176%)	821.3 (1249%)
Baseline: low conflict scenario		
Medium conflict scenario	52.1 (79.2%)	118.4 (180.1%)
High conflict scenario	80.8 (122.8%)	362.9 (552.1%)

The region

Figure 4. Cost of conflict to the region



5.8 The overall cost of conflict in Sudan to neighbouring countries is about 34% of their total annual GDP over a 10-year period. For example, both Kenya and Ethiopia could potentially lose over US\$1 billion a year.

5.9 It is worth commenting further on two countries not specifically mentioned in this analysis: Egypt and Tanzania.

Egypt

5.10 The Egyptian economy is the largest and strongest in the region. In that sense, it might also have the most to lose from conflict. However, most scenarios for conflict would not directly affect Egypt's border with Northern Sudan. Wider investor sentiment about the region may be affected by a conflict, but anecdotal evidence also suggests that the Egyptian economy might be less affected by this.

5.11 However, the risk to Egypt is serious. The same analysis presented in Figure 4 would suggest that, if investors in Egypt did feel less secure because of conflict in Sudan and if some refugees did enter Egypt, then costs could average over US\$7 billion per year against a business-as-usual baseline for Egyptian economic growth (see below for details).

5.12 It is also clear that Egypt has a very strong strategic interest in Sudan because of the Nile. That interest is paramount and exists regardless of how the situation in Sudan evolves. It could have significant economic consequences for Egypt which go beyond the scope of this study to assess.

Tanzania

5.13 Tanzania is a member of the East African Community (EAC) along with some of Sudan's direct neighbours. It is clear that the direct neighbours (Uganda, Kenya, etc) would face significant impacts from further conflict in Sudan; these are discussed below. It is also important to briefly consider the impact on Tanzania itself.

5.14 Further conflict in Sudan could impact Tanzania directly or indirectly. The direct impacts would be felt if trade between the two countries were affected. It is not clear how large this trade is currently. However, it is worth noting that the Sudanese Free Zone and Markets Company Limited organised a pavilion in the 34th session of the International Exhibition in Tanzania in 2010. The pavilion highlighted economic links between the countries and sought to strengthen those links.²² Such links could be endangered by further conflict.

5.15 Indirect impacts on Tanzania would be felt if its trade with Uganda and Kenya were disrupted by conflict in Sudan. Tanzania's exports to the rest of EAC totalled US\$260 million and imports totalled US\$205 million in 2008, the latest year for which data are available.²³ It is difficult to get reliable figures on precise trade with particular EAC countries.

Other neighbours

- 5.16 The rest of this section considers the impacts on countries that border directly on Sudan.
- 5.17 The overall impact on regional economies is a balance between some potentially positive impacts with larger potentially negative impacts:
- Potential positive impacts:
 - Investment that would have gone to Sudan is redirected to neighbouring countries.
 - Neighbouring countries experience an export boost as Sudan is unable to meet export demand. The significance of this dynamic is weakened by the fact that Sudan's major export is oil, which cannot be substituted within the region.
 - Refugee populations boost the local economy of the area of the host country.²⁴
 - Goods are looted from the conflict-affected country and re-sold in neighbouring countries for local profit.
 - Potential negative impacts:
 - Civil conflict in Sudan increases perceptions of risk in the whole region, leading to lower levels of investment in neighbouring countries.
 - Lower economic growth reduces demand in Sudan for neighbouring countries' exports. For example, the Kenya Commercial Bank (KCB), which has about 11 branches in Southern Sudan could be affected by increased conflict.²⁵
 - Large numbers of refugees can put strong pressure on scarce local resources. Further, the presence of refugees from particular ethnic groups can ignite local ethnic tensions in the host country.
 - Refugees can carry with them illnesses against which the local population have little or no immunity. For example, analysis by Montalvo and Reynal-Querol (2007) suggests that 1,000 refugees generate between 2,000 and 2,770 new cases of malaria in the host country.²⁶
 - Violence, lawlessness and small arms from the conflict country can spill over the border, leading to a deterioration of the security situation in border areas of neighbouring countries.
 - Collier and Hoeffler (2002) show that levels of military spending are correlated with military spending in neighbouring countries.²⁷ Higher levels of military spending in Sudan could lead to an increase in military expenditure by its neighbours, with detrimental effects on growth in neighbouring countries.²⁸
- 5.18 Evidence suggests that the overall impact of a civil war on rates of economic growth in neighbouring countries is negative (in other words, the potential positive impacts are outweighed by the negative impacts); Murdoch and Sandler (2001), Chauvet (2003) and Collier and Hoeffler (2004) all find significant, negative economic effects of civil war on neighbouring countries.²⁹

- 5.19 Analysis by Collier and Hoeffler (2004a) suggests that, if a country has a five-year civil war, the country's neighbours will each experience a reduction in their annual growth rate by 0.89 percentage points over the five-year period. We use this figure to estimate the possible effects of a civil war in Sudan on its neighbours. Using the IMF World Economic Outlook forecasts for real GDP per capita growth, we model a baseline real GDP scenario for each neighbouring country.³⁰ We then model alternative growth paths for each country under medium and high conflict scenarios in Sudan.
- **Medium conflict.** Growth in neighbouring countries remains at IMF forecast levels for two years, before the situation in Sudan descends into civil war in 2013. For the seven years of conflict in Sudan (2013-2019), its neighbours' growth rates are reduced by 0.89 percentage points each year. Following Collier and Hoeffler (2004a), we assume that growth rates are higher in the immediate post-conflict phase and that neighbouring countries recover their counterfactual level of real GDP after 10 years (in 2029).³¹
 - **High conflict.** With the onset of civil war in Sudan in 2011, neighbouring country growth rates are 0.89 percentage points below IMF forecast levels for each year of the 14-year conflict. Growth in the post-war decade is higher than IMF forecast levels so that countries regain their counterfactual level of real GDP in 2034.
- 5.20 Table 5 provides a breakdown of the detailed results for the three neighbouring countries where the impact is most pronounced.

Table 2. Regional impact, loss of real GDP, US\$bn (and as a % of 2010 annual GDP)

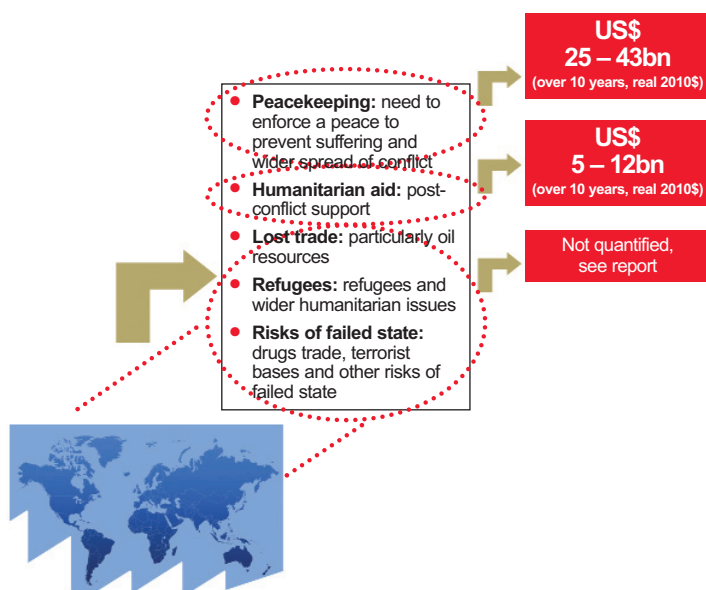
	Medium conflict scenario (2010 real US\$bn)		High conflict scenario (2010 real US\$bn)	
	Over 10 years	Over 10 years	Over 10 years	Over 10 years
	Ethiopia	11.228 (36.7%)	20.007 (65.4%)	17.727 (57.9%)
Kenya	11.584 (33.8%)	20.378 (59.5%)	18.397 (53.7%)	63.333 (185%)
Uganda	6.381 (36.0%)	11.178 (63.1%)	10.116 (57.1%)	35.995 (203.3%)

Note: There would likely be impacts on Sudan's other 6 neighbouring countries. However, those impacts are less certain and more difficult to quantify. They might, for example, relate to increased border tensions, flows of people fleeing conflict and related issues. In that respect, the aggregate figures to emerge from this analysis are likely to underestimate the total impact.

Specifically in the case of Egypt, it is thought unlikely that conflict in Sudan would extend sufficiently far North to affect Egypt directly. However, Egypt has the largest economy in the region and to the extent that investors and importers of regional goods view the conflict as increasing the risk of the region as a whole, Egypt could suffer (see paragraph 5.10). Egypt also has an over-riding strategic interest in the Nile river. Any effect of the conflict on the Nile could have very serious consequences for Egypt.

Wider international community

Figure 5. Cost of conflict to the wider international community



- 5.21 Our analysis focuses on quantifying the possible cost to the international community of peacekeeping operations and providing humanitarian aid. By their nature, these costs depend on choices made by the international community about their level of involvement. Consequently, it is difficult to forecast these in the same way as the costs to the region or to Sudan. Based on relevant benchmarks from other conflicts, and from ongoing assistance in Sudan, the costs could range from US\$30 billion to US\$55 billion.
- 5.22 There is also a large range of possible wider impacts. These include lost trade, the cost of hosting refugees and the risks to the international community of a failed state during and following a war. The costs of any of these may be very high but have not been quantified in this analysis. Therefore, the total costs to the international community resulting from the analysis in this section are likely to be an underestimate.
- 5.23 Finally, Sudan is an important, if not crucial, supplier of oil. It currently supplies about 0.6% of world oil. Increased conflict may interrupt that oil supply with potential consequences to large importers of Sudanese oil. About 5% of China's oil supply came from Sudan in 2008, the latest year for which figures are available.³² The impact of a reduction, or cessation, of production during a conflict depends on capacity elsewhere in the world and the ease with which importers can switch to alternative sources. We discuss oil in more detail in the box below.

The impact of conflict on oil production

- 5.24 There is little doubt that an escalation of the conflict would interrupt oil production, with the possible exception of the relatively small amount of production located in the North. Either army might have sufficient strength to secure the oil installations but is unlikely to be able to operate them during a conflict. Furthermore, the pipeline used to transport oil from the oil fields in the South runs through Northern Sudan to Port Sudan on the Red Sea. The ability of Southern Sudan to export oil is therefore dependent for the immediate future on the agreement of Khartoum. This raises the question of the impact of a sudden interruption in the oil supply.
- 5.25 As noted above, Sudan produces about 0.6% of world oil. This places it 31st amongst oil producing nations. It represents around 10% to 20% of Sudan's GDP and 98% of South Sudan's government revenue.³³
- 5.26 China, Japan, India and Malaysia are the biggest investors in Sudan's oil sector. China imported around US\$129 billion of crude oil in 2008, of which US\$6.3 billion, or 4.9%, came from Sudan.³⁴ The China National Petroleum Corporation (CNPC) is the biggest equity partner in all but one of the currently productive oil fields.
- 5.27 For a supply interruption to have a significant impact on international oil prices would require two conditions to hold: (1) inability of other suppliers to increase production to compensate; (2) inability of current importers to switch to alternative suppliers. In practice, those conditions are unlikely to hold except over a very short time period in the event of a very unexpected outbreak of violence. In practice, despite the levels of investment in the Sudanese oil sector, it is relatively small by international standards and importers would likely anticipate an interruption and make alternative arrangements.
- 5.28 The impact on Sudan itself would clearly be significant. An interruption in the oil supply would eliminate revenue to the South and have an immediate impact on Sudanese GDP. Paragraph 5.5 discusses this in more detail.
- 5.29 Given the difficulties associated with quantifying and costing the indirect effects of a civil conflict on the international community, we have focused our analysis on the direct costs: the costs of humanitarian relief efforts and peacekeeping operations. In each case, we use relevant benchmarks to estimate the potential future costs in Sudan.

5.30 **Peacekeeping:** As noted above, the international community would be able to choose the level of funding it wishes to allocate for peacekeeping operations in the event of a conflict in Sudan. The analysis of peacekeeping costs is therefore different to the type of analysis undertaken above for regional and national impacts. We investigate relevant benchmarks to understand the size of requests that might be made to the international community.

5.31 The 2010-11 budget for the United Nations Mission in Sudan (UNMIS) is US\$0.938 billion.³⁵ The 2010-11 budget for the African Union/United Nations Hybrid Operation in Darfur (UNAMID) is US\$1.808 billion.³⁶ In line with our four scenarios, we have modelled possible paths for peacekeeping expenditure in Sudan. In all but one of the scenarios we assume that peacekeeping expenditure in Darfur remains unchanged:

- **Low conflict scenario:** With current low levels of violence continuing throughout the period, expenditure on UNMIS remains constant at current levels.
- **Medium conflict scenario:** UNMIS expenditure remains at current levels until 2013, when the onset of civil war requires increased peacekeeping capability in Southern Sudan during the seven years of the conflict. We model higher and lower expenditure scenarios during the conflict:
 - Annual spending on UNMIS increases by 46% to the current budget of MONUSCO, the UN mission in the Democratic Republic of the Congo (US\$1.369 billion);
 - Annual spending on UNMIS increases by 93% to the current budget of UNAMID (US\$1.808 billion).

After the conflict ends in 2019, UNMIS expenditure returns to current levels.

- **High conflict scenario:** Peacekeeping expenditure in Sudan increases immediately in 2011, as the security situation following the referendum quickly descends into a civil war that lasts 14 years. We model three levels of peacekeeping expenditure during the conflict:
 - Annual spending on UNMIS increases to the current budget of MONUSCO (US\$1.369 billion);
 - Annual spending on UNMIS increases to the current budget of UNAMID (US\$1.808 billion);
 - Annual spending on UNMIS increases to the current budget of UNAMID (US\$1.808 billion) and annual spending on UNAMID increases by the same proportion (by 93 percent from US\$1.808 billion to US\$3.485 billion) to deal with the deterioration in the security situation in Darfur.

After the conflict ends, UNMIS expenditure returns to current levels.

5.32 **Humanitarian aid:** In order to analyse potential humanitarian aid costs, we have used benchmarks from Sudan's recent history. The Global Humanitarian Assistance (GHA) initiative³⁷ gathers and collates the information that is available to produce data on

humanitarian aid at the country level (both donors and recipients).³⁸

5.33 The GHA 2010 Report estimates that humanitarian assistance in Sudan in 2008 (the most recent year for which data is available) totalled US\$1.419 billion. Sudan was the largest recipient of humanitarian aid for the fourth consecutive year in 2008.

5.34 Forecasting the nature and scale of a humanitarian crisis provoked by a possible return to conflict is very difficult. It is clear, however, that any escalation of conflict in Southern Sudan would increase required humanitarian relief above its current level. Therefore, we have modelled low, medium and high need scenarios to illustrate a possible range of the additional expenditure that would be required, using increases on current expenditure of 25%, 50% and 75%. As with peacekeeping expenditure, we have modelled different expenditure paths, in line with the four political scenarios outlined above.

- **Peace scenario:** Spending on humanitarian assistance remains at current levels (US\$1.419 billion) for two years, after which the improving security situation allows a reduction in expenditure of 10 percent per year for the rest of the forecast period.
- **Low conflict scenario:** With current low levels of violence and instability continuing throughout the period, expenditure on humanitarian relief remains constant at current levels.
- **Medium conflict scenario:** Humanitarian expenditure remains at current levels until 2013, when a seven-year conflict creates greater levels of need in South Sudan. We model low, medium and high expenditure scenarios during the seven years of conflict, using a 25/50/75% increase on current expenditure levels. After the conflict ends in 2019, humanitarian relief spending returns to current levels.
- **High conflict scenario:** Expenditure in Sudan increases immediately in 2011, as the security situation following the referendum quickly descends into a civil war lasting 14 years. We model low, medium and high expenditure scenarios during the fourteen years of conflict, using a 25/50/75% increase on current expenditure levels. After the conflict ends in 2024, humanitarian aid returns to current levels.

5.35 Table 6 below provides the detailed costs of peacekeeping and humanitarian aid under these assumptions. We provide total cost estimates here, rather than costs relative to a baseline as in previous tables. This is done because much of the expenditure is discretionary for the international community. However, current expenditure is about:

- US\$2.7 billion for peacekeeping throughout Sudan (i.e. combining UNMIS and UNAMID); and
- US\$1.4 billion for humanitarian aid.

That would suggest that the incremental cost relative to a counterfactual in which current expenditure continues is:

- US\$2.4 – 21 billion for peacekeeping over 10 years; and
- US\$ 1.6 – 10.1 billion for humanitarian aid over 10 years.

Therefore, the international community might be facing incremental costs, over and above its current contributions, of US\$4 – 31 billion over 10 years.

Table 3. Total costs to the international community (real, 2010US\$ billions)

	Over 10 years	Over 25 years
Peacekeeping costs (real 2010 US\$ billions)		
Peace and Low conflict scenarios	0 – 22	0 – 43
Medium conflict scenario	24 – 27	45 – 47
High conflict scenario	26 – 43	47 – 65
Humanitarian costs (real 2010 US\$ billions)		
Peace and Low conflict scenarios	0 – 3	0 – 11
Medium conflict scenario	5 – 9	13 – 17
High conflict scenario	6 – 12	15 – 23

Note: This table presents *total* costs during and after a new conflict, rather than the incremental costs of conflict above a counterfactual that were presented in previous tables. The reasons are discussed in the main text. See paragraph 5.35 for a discussion of how to translate these numbers into incremental impacts.

- All numbers here and elsewhere (unless noted otherwise) are in real 2010 US\$. They have been converted at current exchange rates and discounted as discussed in Section 4.
- Collier, P. (1999), "On the economic consequences of civil war", *Oxford Economic Papers*, 51: 168-183
- Collier, P. & Hoeffler, A. (2004), "Aid, policy and growth in post-conflict societies", *European Economic Review* 48: 1125 – 1145.
- See: http://www.sfszudan.com/sfzen/index.php?option=com_content&view=article&id=44:joomla-security-strike-team&catid=1&Itemid=49
- East African Community Statistics: http://www.eac.int/statistics/index.php?option=com_content&view=article&id=141&Itemid=111#trade
- See Alix-Garcia, J. & Saah, D. (2010), "The Effect of Refugee Inflows on Host Communities: Evidence from Tanzania," *World Bank Economic Review* 24 (1): 148-170.
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- Collier, P. & Hoeffler, A. (2002), *Military Expenditure: Threats, Aid and Arms Races*, World Bank Policy Research Working Paper No. 2927, Washington D.C.
- Empirical estimates in Knight et al. (1996) suggest that high levels of military expenditure detract from economic growth both because they reduce more productive investment and because they distort resource allocation.
- Murdoch, J. C. & Sandler, T. (2002) 'Economic Growth, Civil Wars, and Spatial Spillovers', *Journal of Conflict Resolution*, 46: 91-110. Chauvet, L. (2003), *Economie de l'aide dans un contexte d'instabilité socio-politique*, Doctoral Thesis, CERDI, Université d'Auvergne Clermont-Ferrand 1. Collier, P. & Hoeffler, A. (2004) *Conflicts*, in Lomborg, B. (ed) *Global Crises, Global Solutions*. Cambridge University Press.
- The baseline scenario is the equivalent of the "low conflict" scenario in our other calculations. We do not model a "peace" scenario in this instance because, while it is likely that a more stable and secure Sudan would boost growth rates in neighbouring countries (through increased trade and investment), the scale of such a peace dividend is very difficult to estimate.
- In the absence of research on the growth rates of neighbouring countries in the post-conflict period, Collier and Hoeffler assume that neighbours recover their counterfactual level of real GDP over a similar period to the conflict country itself.
- See the United Nations Commodity Trade Statistics Database.
- IMF Sudan Article IV consultation staff report, <http://www.imf.org/external/pubs/ft/scr/2010/cr10256.pdf> Government of Southern Sudan 2010 budget, <http://www.goss.org>
- See the United Nations Commodity Trade Statistics Database
- <http://www.un.org/en/peacekeeping/missions/unmis/facts.shtml>
- <http://www.un.org/en/peacekeeping/missions/unamid/facts.shtml>
- <http://www.globalhumanitarianassistance.org/about-gha>
- <http://www.globalhumanitarianassistance.org/about-gha>

Estimating total amounts of humanitarian aid in any one country is difficult because of the large number of diverse donors and providers, and the lack of a common accounting and reporting framework. The GHA initiative provides a good overview of total aid at a national level.

6 Summary and conclusions

- 6.1 The analysis in this report suggests that a return to war in Sudan would entail costs in excess of US\$100bn over 10 years, including in excess of:
- US\$50 billion to Sudan itself in lost GDP;
 - US\$25 billion to neighbouring countries in lost GDP relative to a more stable situation; and
 - US\$30 billion in peacekeeping and humanitarian costs to the international community.
- 6.2 The report deliberately does not attempt to quantify the human suffering and related consequences of a prolonged conflict. As noted above, about 2 million people died and 4 million were displaced in the previous conflict between North and South Sudan, while perhaps 300,000 people have died during the conflict in Darfur. The human tragedy of each of these deaths cannot be fully captured by any economic analysis.
- 6.3 Measuring the costs of conflict is fraught with difficulties. It is, on one level, impossible to know the precise consequences of the many different types of conflicts that might take place, or indeed the precise consequences of a peaceful resolution of issues. Work in this area, even when examining past conflicts, is renowned for the high degree of uncertainty around estimates, reflected in wide ranges around central estimates of costs and benefits. Estimates of future conflicts are even more uncertain, because they involve predictions about events that have not yet occurred.³⁹
- 6.4 Sudan may not return to war. Many politicians, policy-makers, businessmen and diplomats within Sudan, among its neighbours and in the international community are working to navigate Sudan through this risky period. However, this analysis suggests that those involved in efforts to avoid further conflict in Sudan should ask themselves: *“Are we doing enough to avoid a war that might cost over US\$100 billion and hundreds of thousands of lives?”*

39. A number of measures could be taken to improve the estimates in this report. The most immediate would be to further adjust the evidence used here for particular circumstances in Sudan. For example, a more detailed understanding of the nature of business activity and trade between Southern Sudan, Uganda and Kenya might allow a more detailed assessment of the regional impact of conflict. Similarly, more specific modelling around how international intervention would take place, what equipment and size of force would be needed and related issues, would allow a more precise estimate of the international costs. This level of detail was beyond the scope of this report but could provide further insight into the precise burden of conflict in Sudan and how it is shared between countries.

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The cost of future
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