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SPECIAL REPORT

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ABOUT THE REPORT

This is one of a series of USIP special reports on state building in the Republic of South Sudan following its creation on July 9, 2011. Each report analyzes a different aspect of the state-building challenge in the new country and recommends priorities for the government of South Sudan within the sector under analysis. This report focuses on South Sudan's substantial oil reserves and how they can be used to build and support the new nation. Subsequent reports will focus on gender, youth, education, and nationality, among other topics.

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Oil and State Building in South Sudan

New Country, Old Industry

Summary

- Oil started being produced in Sudan in the 1990s and has become the mainstay of the economies of the north and south. Most, but not all, of the oilfields are in South Sudan, but the export pipelines, Red Sea export terminal, and refineries are in the north. Agreement to share control over oil resources and revenues was a central part of the 2005 Comprehensive Peace Agreement, but up to the eve of South Sudan's secession, north and south had not resolved how to divide the industry or its revenues.
- The Republic of South Sudan starts independence facing huge challenges in using its oil wealth to jump-start development in the country, where over 50 percent of its people live below the poverty line and over 80 percent are illiterate. Without new investment to increase output, or successful exploration that finds additional resources, South Sudan faces declining oil production from 2015—too little time under any circumstances to diversify the economy and develop alternative sources of government revenue. As the most oil-dependent state in the world, the government of South Sudan faces the certainty that its income will fluctuate from year to year with global oil prices, a circumstance known to make sound macroeconomic management difficult.
- The Government of South Sudan (GoSS) should have three priorities for the oil sector. First, in the short term, it should focus on developing a detailed understanding of what it now owns and what the long-term prospects are for its oil industry. Second, it needs to maximize revenues from the existing industry. Third, it must make the best use of its revenues for development.
- Information on the potential for, and barriers to, increasing production and incentivizing new exploration is essential to developing a realistic oil industry strategy. This requires a technical and economic reserves evaluation study and disclosure of data by the oil companies—to which the new government will be entitled as a partner in production shar-

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ing contracts. To overcome the problem of revenue fluctuations, the government should explore working with donors to use aid to help moderate variations in government income and consider the possibility of oil-backed loans, that is, obtaining immediate funds for infrastructure to be paid with future oil production.

- To secure new oil investment, South Sudan needs to overcome the toxic reputation of Sudan's oil industry by committing immediately to joining the Extractive Industries Transparency Initiative, the international program for oil sector transparency, and allow its industry's environmental and human rights performance to be audited against current international standards, developing a remediation program as needed. The government also should be ready to consider offering incentive terms to good-quality oil companies to secure their investment in enhanced oil recovery and exploration.
- Most important of all, as violent conflict has emerged in some of the oil areas in the months preceding independence, South Sudan and the international community must ensure security for oil workers and installations so that the new state gets the oil income it depends on.

The Republic of South Sudan, born on July 9, 2011, has two almost entirely separate economies. The informal sector, in which a large majority of South Sudan's 8 million to 9 million citizens live, is dominated by subsistence agriculture. According to a 2009 household survey, almost 50 percent of households had not used money at all in the previous week.[1] The formal economy, which provides almost all the income of the Government of South Sudan (GoSS) as well as a small amount of employment for South Sudanese, is dominated by production and export of crude oil and, to a lesser extent, by multilateral, bilateral, and nongovernmental organization (NGO) aid. This report sets out the key immediate opportunities and challenges for the new Republic of South Sudan in managing its oil sector and using its oil wealth to bridge the gap between its informal and formal economies, consistent with South Sudan's objective to "strengthen the management of petroleum resources in a way that contributes fully to economic prosperity and economic development."[2] After summarizing key background information, the report analyzes critical challenges in the oil sector the new country will face and offers recommendations for making South Sudan's oil work in the interests of its people, with a focus on the first years of independence.

Background

Although Sudan is a small player on the global oil stage, oil has been a dominant factor in the economics and domestic and international politics of north and south since it was first discovered in the late 1970s. Oil wealth contributed to the second phase of Sudan's civil wars, and the sharing of oil revenue was a key component of the 2005 Comprehensive Peace Agreement (CPA). It has been a major issue in postreferendum negotiations.

The international interest in Sudan's oil has been complicated by the country's persistent unrest and human rights violations. U.S. company Chevron's plans to establish production fields in Sudan were cancelled in the 1980s, largely because of large-scale conflict in the oil areas.[3] The country emerged as an oil producer a decade later, in 1993, when smaller independent oil companies invested in oil exploration and production. Subsequently, Sudan was the first country in Africa to receive large-scale Chinese oil investment when the China National Petroleum Corporation (CNPC) invested in 1996, followed by the Malaysian-owned Petronas and the Indian-owned Oil and Natural Gas Corporation Limited (ONGC), which financed development of the current set of oil fields and built the network of pipelines, refineries, and export terminals that enabled the sector to grow. From an output of only

2,000 barrels per day (bpd) in 1993, by 2009 Sudan's production reached 490,000 bpd.[4] Government data show that production was some 3 percent lower in 2010.[5] Sudan—north and south—holds 0.5 percent of the world's proven oil reserves and accounts for some 0.6 percent of world production.[6] In global oil terms it lines up by size with Ecuador and Equatorial Guinea as a minor oil producer. However, under U.S. sanctions in place since 1997, U.S. companies are not allowed to explore for, produce, or purchase Sudanese oil, and human rights activists effectively pressed for Western companies to withdraw from the oil sector in the early 2000s.[7]

Several Sudanese oilfields lie in the border area dividing Sudan and the new Republic of South Sudan, and in the months leading up to independence, the north and south negotiated the precise division of oil revenue after southern secession. The broad outline of what oil resources lie in South Sudan is clear, but the details of how the fields straddling the border are to be allocated and managed are not.[8] South Sudan has three areas where oil is currently being produced (map 1). These areas contain two types of crude oil of differing value, with fields on different production trajectories. The first area, blocks 1, 2, and 4—parts of which fall on both sides of the border and have not yet been definitively allocated between the two countries—yield Nile Blend crude oil and are on a trend of declining output. Nile Blend is a good-quality crude, readily traded in international markets at prices comparable to Minas Blend, a Malaysian crude with similar attributes.[9] The second area, Block 5A, is wholly within South Sudan. This field also produces Nile Blend crude, but on a much smaller scale. The third main producing area is the concession that contains blocks 3 and 7, which also lie wholly in South Sudan. Output from this area is increasing, but the oil produced is the lower-value Dar Blend: Waxy and acidic,[10] it has a limited market because not all refineries are equipped to handle it and because U.S. sanctions prevent sales to refineries in the United States that can process it. Therefore Dar Blend sells at a substantial discount on the market; during the financial crisis of 2009 this discount reached over 60 percent compared with the benchmark Brent crude. Discounts have been falling since and could potentially fall further if U.S. and European refineries were to purchase the oil.[11] However, the changes in sanctions rules issued by the U.S. Treasury in April 2011 maintain restrictions on U.S. trade in oil from South Sudan.[12] Table 1 describes the production levels, oil transport methods, and shareholders for each of these three areas of production.

The dominant players in South Sudan's oil production sector—CNPC, Petronas, and ONCG—are wholly or partly state-owned oil companies that have been on a path of very rapid international expansion over the past ten years and are now all major international oil companies. Table 2 provides additional information on each of these producers; in addition, Total, the French-based international oil company, holds a very large exploration concession in South Sudan, though this is currently not being worked.

Sudanese oil production appears to have reached a plateau, at least as far as current fields and production technologies are concerned. According to the World Bank, oil output from the north and south is expected to peak in 2012, at around 527,000 bpd, and to decline sharply starting in 2015 unless new discoveries are made or recovery factors are increased.[13] There is little certainty about the likelihood of new finds in South Sudan[14] or the commercial attractiveness of investment in enhanced recovery. The initial results of an assessment sponsored by the government of Norway are that there may be large potential for using enhanced oil recovery methods to increase output from blocks 1, 2, and 4.[15] By contrast, reports of an independent reserves audit for ONGC Videsh-OVL, one of the shareholders in blocks 3, 7, and 5A, suggest that reserves there may be lower than previously estimated.[16] Historically the success rate for oil exploration in Sudan has been high, suggesting good potential, though wells drilled in the south (Block 5A) in 2007 and 2008 were dry.[17]

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Map 1. European Coalition on Oil in Sudan

Block 16
Wadi Halfa
Block 13
Red Sea
Block 14
Port Sudan
Block 15
Block 12A
Ed Damer
Block 9
Khartoum
Kassala
Block 10 Free
Block 11
Block 12B Free
Medani
Gedaref
El Fasher
El Geneina
El Obeid
Rabak
Block 8
Nyala
Block 17
El Fula
Ed Da'ein
Ed Damazin
Block 6
Block 7
Block 17
Block 2
Melut
Block C
Block 1
Block 4
Block 3
Malakal
Bentiu
Block A
Aweil
Nasir
Raga
Block 5A
Block Ea
Block 5B
Wau
Pibor
Rumbek
Block B
Yirol
Bor
Yambio
Juba
Torit
Yei

concession area
oilfield
pipeline
North-south boundary
state boundary
city/town

0 250 km

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Table 1. South Sudan's Oil Production

Concession	Production (thousands of barrels/year)	Transport	Shareholders*
Greater Nile Petroleum Operating Company (GNPOC); part of blocks 1, 2, and 4 belong to South Sudan (South Sudan's share under negotiation and not determined as of May 2011).	Nile blend 2005: 102,937 2006: 92,151 2007: 89,649 2008: 74,946 2009: 64,167 2010: 55,000	1,610 km pipeline from the production centers to Port Sudan for export and to the Khartoum refinery	CNPC (40 percent) Petronas (30 percent) ONGC Videsh (25 percent) Sudapet (5 percent)
Petrodar blocks 3, 7	Dar Blend 2005: 0 2006: 24,047 2007: 63,764 2008: 71,011 2009: 88,214 2010: 92,694	1,400 km pipeline to Port Sudan	CNPC (41 percent) Petronas (40 percent) Sudapet (10 percent) Sinopec (6 percent) Al-Kharafi (3 percent)
White Nile Petroleum Operating Company (WNPOC) Block 5A	Nile Blend 2005: 0 2006: 4,346 2007: 8,586 2008: 8,067 2009: 7,152 2010: 6,102	Link in to GNOPC pipeline	Petronas (69 percent) ONCG (24 percent) Sudapet (7 percent)

*Shareholders prior to South Sudan's independence. In final negotiations over postreferendum arrangements, shares may be changed, especially those of Sudapet.

Source: Energy Information Administration, "Sudan Country Analysis Brief," November 2010; ECOS, "Sudan's Oil Industry on the Eve of the Referendum"; Republic of Sudan, Ministry of Petroleum, Sudanese Petroleum Corporation, "Statistics for Crude Oil and Productions," http://www.spc.sd/en/statics_crude.php.

Oil Issues in Secession Negotiations

Oil issues were prominent in the negotiations between north and south both before and after the referendum of January 2011. The key questions concerned who owned the oil fields straddling the (not yet fully demarcated) north-south border; whether a revenue-sharing formula would be retained, and, if not, what price the south would pay to access export pipelines and ports in the north; and how state-owned oil assets, including those held by the state oil company Sudapet, would be distributed after southern secession. These issues were unresolved between the parties at the time of the January referendum, although agreements were made about security arrangements in order to ensure that oil would keep flowing.[18]

In the postreferendum period, as of May 2011, no definitive agreements had been made on the division of oil industry assets and revenues between the two new states. Critical unresolved questions include how the oil fields in blocks 1, 2, and 4 straddling the border are to be owned and operated. Will there be a system of joint north-south ownership for some or all? Will the Greater Nile Petroleum Operating Company (GNPOC) consortium (see table 1) continue to operate the fields? How will profits be split? Will there be an independent third party arbitrator to resolve disputes? It is not known if the south will be able to secure guaranteed access to northern pipelines for export of its oil. If they do, what fees will be payable to the pipeline owners and the north for transit rights? Further, at the time of the referendum in January, articles in

Table 2. Profile of Main Oil Companies Operating in South Sudan

Company	Type	International presence
China National Petroleum Company (CNPC)	Chinese integrated national oil company, majority state owned and with a stock exchange–listed arm (PetroChina) ranked second largest in the world (2010).*	Exploration or production in twenty-nine countries worldwide. Largest shareholder in blocks 1, 2, 4 and 3, 7.
Petronas	Integrated national oil company of Malaysia. Part listed on the Kuala Lampur stock exchange (Petronas Gas, Petronas Chemicals, Petronas Dagangan Bhd: downstream products).	Exploration or production activities in twenty-three countries. Largest shareholder in Block 5a, present in all South Sudan blocks.
ONGC Videsh (OVL)	Indian state oil company; part listed on the Bombay stock exchange. Ranked twenty-first-largest listed oil company internationally.	Operates in fifteen countries internationally.

* "PFC Energy 50," http://www.pfcenergy.com/pfc50.aspx. Ranking based on market capitalization on December 31, 2010.

the Wealth Sharing Agreement[19] within the CPA that addressed identifying and compensating for any social or environmental weaknesses in existing oil contracts, and compensating any people whose rights had been violated, had not been implemented.

Limited progress has been made on other issues. North and south decided jointly in March 2011 to move forward on a long-mooted comprehensive accounting for oil-wealth sharing during the CPA period through an audit conducted by an international accounting company. However, no contract has been awarded, nor has the work started, despite the stated intention to have the audit results by July 2011.[20] The U.S. government has been reviewing the applicability of its sanctions on South Sudan, though U.S. investment in and purchase of oil exported from South Sudan through the existing infrastructure—which is the only export infrastructure available—remains prohibited unless a special licence is issued. That said, unless north-south talks entirely fail to reach agreement on economic issues, which could lead to a shutdown of the oil sector, the finances of South Sudan are sure to gain a boost with independence because the south gains an expected larger (though as yet undetermined) share of oil revenues and because global oil prices likely will be higher if the trends in 2011 to date are maintained. The South Sudan budget for 2011 produced before the referendum and the rise in oil prices suggest that oil revenues will provide all but 2 percent of the new country's $2.3 billion budget.[21]

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July 2011: The Beginning of the South Sudan Oil Industry

The Republic of South Sudan does not have a blank slate on which to determine how to manage its oil industry. Long-term contracts have been made with oil companies, infrastructure has been laid down, and patterns of oil revenue management and budgeting were established during the period of semi-autonomy under the CPA. The challenge for the new state is to determine the need for and scope to make changes in these initial conditions in order to realize the development and diversification it needs.[22] This section describes the initial conditions for the oil industry of the new republic as a prelude to recommending policy priorities for the GoSS in its constrained situation.

Exploration

Much of the area of South Sudan already has been let for oil exploration, and there is potential for further exploration within the blocks that are under production. The only areas not yet

marked out are in the far south. However, no significant exploration is currently underway. The largest exploration block in South Sudan is Block B, licensed to Total, which has undertaken minimal exploration to date.[23] The smaller Block 5B is held by the Moldovan company Ascom, which has rights until the end of 2012 and has undertaken seismic surveys and some drilling, with as yet no success in finding oil, and is reported to have ceased active exploration.[24] Block Ea is large but not wholly in South Sudan. It was leased in August 2010 to Star Petroleum. No information is available on what exploration activity, if any, Star is undertaking.

Pipelines

The oil produced in South Sudan is exported via two main pipelines that run through the north to the export terminal at Port Sudan, on the Red Sea. Before the referendum, there was much discussion about the prospects for constructing an alternative pipeline that would take oil from South Sudan to export through Kenya. However, this would take at least three years to design and build—probably much longer—and there are as yet no clear proposals for how to finance it. In the history of international oil and gas pipelines, far more are mooted than built, and political will alone cannot create them; there needs to be the oil to put in them and a compelling commercial case for investment. The existing export pipelines from Sudan were financed and built by the consortia of oil companies producing oil in Sudan. There is little economic incentive for these companies or anyone else to finance a multibillion-dollar pipeline unless there is additional oil to export through it. If South Sudan cannot get reliable access to the existing export network, then a southern pipeline will be essential. However, this would sharply cut into the government's oil revenue, whether the state finances the pipeline itself or offsets construction costs as part of oil company costs.

Production

South Sudan is expected to honor existing production sharing contracts, so that broadly the same consortia will keep operating. Before secession, Sudapet had a share in each oil concession. These shares are among the assets to be divided between the two states. In the division of assets, Sudapet may lose its shares in the oil fields that are transferred to South Sudan, or the Sudapet shares may be divided to provide matching shares for Sudapet and Nilepet, the embryonic state oil company South Sudan established during the CPA period. The latter would be a positive step, creating a shared interest between the two states in the smooth operation of the oil industry. It is also possible that the requirements for the oil companies in environmental standards and community development will be expanded, as was the case when Total's exploration concession was renegotiated in 2004,[25] and likely that the government will seek commitments from the oil companies to invest in training and employing South Sudanese nationals.[26]

Institutions, Policies, and the Legal Framework of the Oil Industry

Under the CPA, the oil sector was managed by the National Petroleum Commission (NPC), in which both north and south were represented and which was intended to provide for full sharing of information and decision making. In practice, the NPC did not function well. Thus, South Sudan begins its independence with limited detailed knowledge of the industry, the companies involved, the geology, or the minutiae of the concession contracts wherein lie the opportunities for increasing or reducing the state's share of oil profits.[27]

The draft transitional constitution of South Sudan[28] sets out at a high level the proposed arrangements for managing the petroleum sector in the new country (Part 12, Chapter 111). It provides for three bodies: a national petroleum council with overall responsibility for

Box 1. Oil Sector Institutions in the Draft Transitional Constitution

National Petroleum and Gas Council

- Members: relevant national ministers, representatives of oil-producing states, and other institutions as governed by law
- Role: policymaking and monitoring of policy implementation; approval of strategies and programs for the sector; approval of oil contracts; review of environmental and social effects of existing and future developments

Ministry in charge of petroleum and gas

- Negotiate oil contracts
- Initiate legislation, rules, and regulations for the sector
- Formulate strategies and programs for development of the sector
- Develop technical cadres
- Ensure all oil projects are subject to environmental and social impact assessment (in consultation with affected communities)
- Sign contracts with oil companies on behalf of the government and manage the relations of the government with oil and gas companies

National Petroleum and Gas Corporation

- Participate in the upstream, midstream, and downstream activities of the oil sector on behalf of the national government

policymaking that approves contracts with oil companies; a ministry responsible for policy implementation that represents the government in oil contracts; and a national petroleum and gas corporation to be a state company and shareholder in oil and gas contracts (see box 1). The draft transitional constitution includes commitments to a number of principles, including "using oil revenues to develop other sectors of the economy," "ensuring transparency and accountability," accountability for human rights violations and environmental degradation caused by petroleum operations, and "creating a secure and healthy investment environment." As outlined, the arrangements are consistent with effective governance of the oil industry, but to be effective in practice, much more is needed: The institutions must be built; the detailed implementing laws, regulations, and rules agreed; and key omissions addressed, notably whether and how revenues are to be shared with producing states and areas.[29]

More specific measures are included in the draft oil policy released in December 2010, but this draft has not yet developed into an agreed government policy.[30] Important components of the draft policy include references to using World Bank environmental and social standards "as a benchmark," a commitment to seeking membership in the Extractive Industry Transparency Initiative (EITI), the allocation of an undefined percentage of oil revenue to the producing states, and promotion of local content—that is, creating opportunities for local businesses to provide goods and services to the industry. The draft policy proposes that oil companies must have insurance to cover any environmental clean-up responsibilities and collaborate with the government to develop infrastructure to enhance the livelihoods of people in producing areas. State governments should "ensure that personnel, property and facilities of the oil companies are protected." The draft also suggests that South Sudan will continue existing production sharing agreements (PSAs) but review them in light of the petroleum policy and require addenda to address any areas of noncompliance. Overall, South Sudan's institutions of governance for the oil sector are embryonic: with a sense of direction, but without the capacity or the complete set of policies, laws, and regulations it will need.

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Oil Companies

The oil industry in South Sudan, as is the case for many countries, is based on the production-sharing model. PSAs are long-term legal contracts—that is, lasting from twenty to

thirty years—between a government and an oil company or consortium of oil companies. Under a PSA regime, companies are responsible for financing oil exploration and field development; if such exploration discovers commercially viable amounts of oil, then the company and the government share the profits of oil sales under a predetermined formula after all the company's exploration and development costs have been recovered over an agreed cost-recovery period. Parallel agreements define how company shares are divided among shareholders and government revenues are allocated subnationally.

Under PSAs, governments and companies share responsibility for overall planning of oil exploration and production through a series of annual work programs that the company proposes and the government evaluates. A key factor driving work plans is the extent of reserves in a field; estimates change as a field is operated and additional information becomes available. Reserves are a function of geology (oil in place), engineering (feasibility and costs of extraction), and economics (whether it makes commercial sense to spend on exploiting these resources). The structure of PSAs means that companies seek to optimize their returns, such as by maximizing recoverable costs and limiting additional investment to circumstances that bring them increased returns. The work plans companies propose are to reflect corporate priorities, which are not necessarily the same as those of the government. Company and government interests are not necessarily aligned, for example, over the timing of exploration work and production trade-offs between short-term production and longer-term management of the oil reservoir. A government party to a PSA always needs to have its own independent source of deep technical expertise on which to evaluate company work plans and cost claims as well as manage the relationship with companies to allow for effective negotiation, leading to joint decision making.

South Sudan has had limited exposure to managing the government side of PSAs and little contact with oil companies; foreign oil companies' primary relationships have been with Khartoum. Until late 2010, when the CNPC opened an office, only Total and Ascom had offices in Juba. Before and after the referendum, the government of South Sudan started establishing direct links with the oil companies and announced its intention to enter into agreements with all oil companies operating in the region before the country's independence.[31] This is an important first step in preparing to take over as the government party to PSAs. One agreement has been made with Petronas, but not yet with CNPC or OVL.

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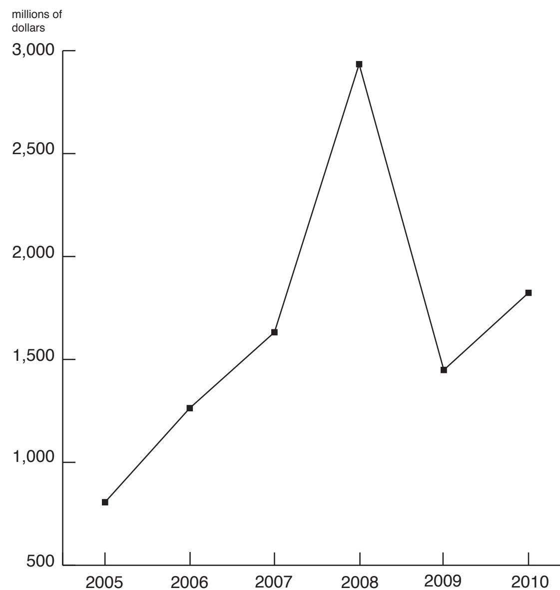
Oil Revenues and Government Spending

Under the CPA, the GoSS received 50 percent of revenues from oil produced in the south, which accounted for almost all the government's revenue excepting donor aid. Turbulent oil prices meant that GoSS revenues have fluctuated greatly (figure 1), most notably when they soared in 2008, then dropped back sharply in 2009.[32] In 2009, the GoSS had to operate on a budget reduced by one-third from the previous year.[33]

South Sudan is a postconflict country that requires construction rather than reconstruction. The GoSS faces huge demands to spend on building the social and economic infrastructure—schools, hospitals, roads—that the country lacks. Through the CPA period, South Sudan was also spending heavily on defence and security. In the three-year spending plan for 2008–11 that the Ministry of Finance and Economic Development presented to donors, the government argued that it planned to spend 31 percent of its budget on security and rule of law (mostly salaries for armed forces), followed by infrastructure at 23 percent (mostly roads), education at 9 percent, transfers to the states at 9 percent, and health at 8 percent. The GoSS expected oil revenues to cover 77 percent of its spending, and was looking to donors to fill the gap.[34] Over the CPA period, salaries took up a progressively larger share of government spending.

Figure 1. GoSS and Southern State Oil Revenues



Source: Government of South Sudan, Ministry of Finance and Economic Planning, Petroleum Unit, "Summary of GoSS + Southern States Including ORSA," http://www.petrolgoss.net/summary.html.

The spending priorities are reflected in the draft 2011 GoSS budget, which focuses on ensuring "a smooth transition to independence"—a main concentration of spending, along with stability and improving services. The headline numbers in the draft budget indicate that total domestic revenues of 5.7 billion Sudanese pounds (SDG) are expected, consisting of SDG 5.6 billion from oil transfers—98 percent of total revenue—and SDG 0.1 billion from nonoil sources. The latter includes SDG 40 million from the personal income tax, SDG 54 million from other GoSS revenues, and SDG 17 million from the GoSS share of national taxes. Total expenditures are projected to equal total revenues. Operating costs are SDG 2.1 billion, leaving capital expenditures of only SDG 1.2 billion. The Ministry of the Sudan People's Liberation Army (SPLA) and Veteran Affairs is allocated the largest share, at SDG 1.6 billion, or 28 percent of the budget. The Ministry of Roads and Transport follows with SDG 0.5 billion, and the Ministry of Internal Affairs with SDG 0.4 billion.[35]

Transparency

There has been little transparency in Sudan's oil sector. This has been the focus of repeated pressure from international NGOs—notably Global Witness[36]—and the international community. Commitments have been made, notably by the GoSS in its draft petroleum strategy, to be transparent about oil revenues and their management. The GoSS also has pledged to join the abovementioned EITI, the international standard for checking and disclosing the revenues that oil and mining companies pay to governments, and reconciling this with what governments receive, in order to promote transparency, accountability, and good governance. Membership can also improve a country's credit rating and access to debt relief.[37] The neighboring Central African Republic is already EITI compliant[38] and the Democratic Republic of the Congo has started on the path to membership.

The GoSS publishes limited data on its revenues under the Wealth Sharing Agreement.[39] No data are published on what income or other taxes the oil companies pay. The production sharing agreements under which the oil companies operate in Sudan are not in the public domain, nor is the memorandum of understanding that the GoSS signed with Petronas in March 2011. The budget of South Sudan that was agreed in March 2011 has not been published.

Priorities for Oil and State Building

Uniquely Difficult Challenges

South Sudan faces uniquely difficult challenges in relation to its oil sector. The government depends on oil revenues more than does any other country in the world. At the same time, it has an aging oil industry and little time to prepare for managing the oil sector because of the prolonged separation negotiations with Sudan, leading to uncertainty about what share of the existing industry's resources, infrastructure, and revenues South Sudan would hold. In the run-up to independence, there was violent conflict in some of the oil-producing areas. Looking ahead, South Sudan's oil earnings in relation to its population put the country only on the cusp of eligibility for preferential aid as one of the world's least developed countries, even though is highly undeveloped, with 83 percent of the population illiterate and 51 percent living below the poverty line.

The government depends on oil revenues more than does any other country in the world.

The country's challenges are a mix of the urgent and the structural. Urgent issues include enabling the oil industry to operate securely (in the run-up to independence, fighting with various southern-based militia groups led to halts in oil production[40]) and concluding negotiations with the NCP on dividing the industry and its infrastructure. Two months before independence, negotiations on how the oil industry was to be divided between north and south, whether oil produced in South Sudan could be exported using the existing pipelines and terminals, and what price would have to be paid to the oil companies and the government of Sudan remained unresolved. The structural issues are those of any new oil state, though in an exaggerated form because of the degree of South Sudan's dependency on and the maturity of its oil sector.

The top oil-related task for the GoSS will be to ensure security for oil workers and installations. Typically in oil states, oil companies provide first-line security at their facilities through employees or contractors, but the terms of production-sharing agreements mandate government forces to provide backup in case of incidents, such as community or labor demonstrations or attacks on pipelines. They are also responsible for security in the wider area. Without ensuring security at oil installations so that production can be maintained, the new country faces acute economic problems.

Even assuming South Sudan can create a secure environment for oil production and make certain which fields it owns and how it will export oil, it faces the political and economic challenges of natural resource dependency. As mentioned above, with 97 to 98 percent of its domestically generated income from oil, it is the most oil-dependent economy in the world.[41] Further, unlike neighboring Uganda—also a new oil state—South Sudan starts life with a mature[42] oil industry potentially on the verge of sharp decline. Unless the projected drop in output from 2015 is reversed, the new state will have a small number of years in which to use its oil wealth to lay the foundations for a nonoil economy. With little experience of running oil policy and regulating oil companies, the government needs to jump-start its regulatory capacity.

The challenges demand an integrated approach from the GoSS and its international partners—multilateral institutions, donors, and oil companies—to address two overlapping problems. The first is how to use the country's oil revenues to best achieve broad-based economic development. This task is primarily but not exclusively for the Ministry of Finance and Economic Development (or its successor), supported by the International Monetary Fund (IMF)[43] and multilateral and bilateral donors. The second critical problem is how to manage the oil sector to maximize government revenues from existing production fields, and to incentivize the investments in oil exploration that might extend the lifespan of South Sudan's oil industry. This is a task primarily for the Ministry of Energy and Mining, or its successor ministry, though the Ministry of Finance and security forces also have an essential role to play.

Box 2. Data Requirements to Enable a Comprehensive Geological, Engineering, and Economic Evaluation

Base data	Test data
Seismic data	Fluid analysis
Well data	Reservoir pressure data
Reports (internal and regulatory)	Reservoir temperature data
Current development plans	Production data: ASCII, OFM, or PEEP
Wellbore schematics interests	Economic data
Copies of production-sharing contracts and licenses	Geological and reservoir simulation models

The two problems should be dealt with in parallel. But before they can be addressed, in the first hundred days, the government should focus on acquiring and analyzing critical information about the industry it has acquired, using this to define its strategic options. After that, difficult but vital political decisions on revenue management and maximization can be made.

The First Hundred Days

In the first hundred days the critical task for the government is to find out exactly what its oil wealth consists of and what its real options are regarding future production, new exploration, export pipelines, and refineries. This requires a complex and multidisciplinary analysis, involving a mix of technical, engineering, economic, and legal considerations, and it is essential to developing a sound strategy for oil sector management into the future.

Robust information is needed on two key issues. First is to understand the size of the oil reserves in each of the fields in South Sudan, including any that are shared between South Sudan and Sudan, as well as the potential for expanding production (e.g., through enhanced oil recovery techniques) and the associated costs and timelines of doing so. Second is to understand what is needed to trigger serious investment in oil exploration in South Sudan. So far, Total—the only strong company with an exploration holding—is inactive; other exploration companies are also inactive or not credible, since they do not have a track record of successful exploration. The government needs to understand what is holding back exploration and look at how the barriers can be overcome. It needs to look, for example, at alternative contractual models with greater incentives for successful exploration and effective penalties if companies do not deliver on the agreed exploration program.

The government needs to understand what is holding back exploration and look at how the barriers can be overcome.

South Sudan needs to follow two routes to getting the information it needs and analyzing it to identify its long-term options. It should invite in the oil companies that have exploration and production contracts in South Sudan and require them to provide information (box 2). At a minimum, the companies should deliver all the information to which the government has a right as a signatory to the PSAs; as needed, efforts should be made to draw on goodwill and the companies' need to establish relations with the new government to get the required data. Then, within the first month, the government should commission a top-rank oil consultancy to provide it with an independent evaluation of proven, probable, and possible reserves, options for expanding and extending production, and advice on what changes, if any, are needed to the existing PSA regime to achieve this (see box 3 on estimating reserves). In parallel, and drawing on independent expert advice, the government needs to launch a frank consultation with the oil companies about how to catalyze exploration.

Box 3. Approaches to the Estimation of Oil Reserves

Types of Reserve

Proven (P1): those quantities that geological and engineering information indicates with reasonable certainty can be recovered in the future from known reservoirs under existing economic and operating conditions; probable (P2): those that are not (yet) proven, but which are likely to be exploitable; possible (P3): oil reserves that have a significant probability of being commercially exploitable, but which cannot be said to be probable.

Concept

The process whereby an economic analysis is made of a property to arrive at an estimate of a range of net present values of the estimated future net revenue resulting from the production of the reserves associated with the property. In practical terms, an evaluation includes the independent reserve evaluator's interpretation of all the relevant data that form the basis for the reserve estimates, including well tests, production performance, open hole log data, and an economic analysis of the property.

Absent new investment, how much oil can South Sudan's oil industry expect to produce, and over what period? Which new investments would increase the volume or timeline of production? Who has to do what to realize these changes? Government? Oil companies? Others? What are the options for government to stimulate investment in exploration? At the end of an evaluation, and within the first hundred days of independence, the GoSS should have the answers to these questions.

Managing South Sudan Revenues

The macroeconomic problems posed by dependence on oil revenues are well understood conceptually, though not easy to avoid in practice.[44] For a heavily dependent, undeveloped country with a small nonoil economy, the main challenge lies in effectively using revenues that are predictably volatile from year to year—as a function of changing oil prices and variation in oil output—but unpredictable in the degree of volatility. The risk for countries in this position is that government earnings are used primarily to pay the fixed costs of administration (e.g., salaries, rents), while investment in development infrastructure (e.g., schools, hospitals, roads, power) stops and starts inefficiently according to the funds available. In very undeveloped countries, development needs and politics make it difficult and, arguably, inadvisable to focus on managing resource revenue fluctuations principally through revenue stabilization funds, as is generally proposed for more developed countries.[45]

The government and its international partners recognize the need to diversify the economy and are emphasizing the development of its large, untapped agricultural potential.[46] The GoSS has been working on policies to create a good investment climate and maximize nonoil tax collection. However, the scale of South Sudan's revenue stabilization and infrastructure challenges suggest that extraordinary and innovative measures will also be needed. The GoSS and international community should consider implementing two key approaches relating to oil revenue management simultaneously. First, a coordinated donor commitment could provide budget support to South Sudan in a way that helps stabilize the government's income, given the certainty of fluctuations in its oil revenue. Under this approach, donor funds would be released to try to maintain spending on the South Sudan Development Plan (SSDP) that is currently being drafted, and counteract the unavoidable effect of oil price swings. Aid could be allocated to South Sudan on independence, with funds placed in an escrow account for release when oil revenues fall, so that development programs can be maintained as far as possible. The approach is a variant of the multidonor budget support approach that donors have employed in a number of countries in recent years (see box 4), and of the donor coordination through the Juba Compact and collaborative budget programming[47] in place during the CPA period. The key difference is that donor budget support would focus explicitly on offsetting the specific

A coordinated donor commitment could provide budget support to South Sudan in a way that helps stabilize the government's income, given the certainty of fluctuations in its oil revenue.

Box 4. The General Logic for Donor Budget Support

Budget support increasingly has become an important mode of development assistance, receiving growing attention from bilateral donors and international financial institutions in the context of a partnership-based approach to aid. Reflecting the recommendations of the Paris Declaration (2005) and the Accra Agenda for Action (2008), this shift has been motivated, inter alia, by a move away from traditional project support, reflecting the concerns of donors, with parallel systems outside the government's budget framework; greater emphasis on building country ownership, systems, and capacity; and a shift from short- to medium-term support for reform. Increasing the proportion of funds that are included in the national budget process makes donors less prone to micromanage individual programs and allows government to better plan and coordinate reform and development.

Source: World Bank and African Development Bank, "Providing Budget Aid in Situations of Fragility: A World Bank-African Development Bank Common Approach Paper," Tunis and Washington, DC, February 2011, 5.

and certain risk that oil revenue fluctuations present to economic and political resilience until alternative sources of revenue (e.g., mining, agriculture) can be developed, rather than on realizing predictable donor funding, which is the usual rationale for multidonor budget support programs.[48] The mechanisms that would allow this to happen in Sudan are already largely in place or could be built up through the Joint Donor Team process and Government/Donor Forum, which meets quarterly.

Second, South Sudan could potentially benefit from oil-backed loans for infrastructure development from China or other donors. China already gives infrastructure loans to many African countries. In some cases, these are backed by resources, such as oil or copper, so that once projects, such as road building, are completed, repayments are made in resources valued at current market prices. Although controversial—there are questions as to whether the loan terms are transparent or the infrastructure of good quality—such loans can speed up the conversion of oil revenues into development goods, helping ensure that a proportion of revenues are spent on infrastructure needed for economic growth.[49] Given the need for further investment in the oil sector to enhance recovery from existing fields and conduct new exploration, and the lack of interest from other major companies in investing in oil, an oil-backed loan could provide incentives to the Chinese oil companies to make further investments, such as in enhanced recovery and further exploration. The best chance for South Sudan to get oil-sector investment from reputable Western companies, which its leaders want to see come into the country, is to have existing investors demonstrate confidence in the country by spending exploration dollars there—and then, of course, finding new oil reserves.

Managing the Oil Sector and Revenue Maximization

In managing the oil sector itself, the immediate priorities for South Sudan's oil ministry are to maximize government receipts from the existing oil fields, create an environment in which companies can invest in exploration and enhanced production, and remedy past damage. Two short-term steps could enhance government revenue from the existing fields within whatever framework is agreed with the north. First is to ensure that South Sudan benefits as much as possible from the terms of existing oil production contracts. This step requires that the government be an active and expert partner in its PSAs. In particular, the government must bring expertise and negotiating strength to its regular meetings with companies on work plans and costs, to avoid being the victim of value erosion through failing to contain the costs that companies can recover before they split profits with the government or accepting production plans that are suboptimal from a government perspective. With the GoSS's current limited capacity, the best way to achieve this is by buying the skills of experienced and hard-headed oil negotiators to work with the government.

The second step is to try to raise the price received to export lower-grade Dar Blend oil by lifting the U.S. sanctions on South Sudan's oil so that it can be exported to refineries in

Box 5. Key Steps to Joining the EITI

Membership of EITI is a staged process. To start the EITI process, a government must

- issue an unequivocal public statement of its intention to implement the EITI;
- commit to work with civil society and companies implementing the EITI;
- appoint a senior individual to lead on EITI implementation; and
- establish a multistakeholder group to oversee EITI implementation.

The multistakeholder group, in consultation with key EITI stakeholders, should agree and publish a fully costed work plan, containing measurable targets and a timetable for implementation and incorporating an assessment of capacity constraints. The EITI secretariat and the World Bank administered EITI Trust Fund have resources available to help countries implement these steps.

EITI candidature and compliance follow

- candidature: implementation of the work plan to produce EITI reconciliation accounts and independent external validation of those accounts; and
- compliance: the country meets all of the requirements of membership.

See Extractive Industries Transparency Initiative, "ETIT Rules, 2011 Edition," EITI International Secretariat, Oslo, February 16, 2011, http://eiti.org/files/EITI_Rules_2011.pdf.

the United States. Widening the market should increase prices for the heavily discounted Dar Blend by increasing competition. Under the April 2011 rules, any transaction that might benefit the government of Sudan or involve transportation through Sudan requires a license from the U.S. Treasury's Office of Foreign Assets Control (OFAC). Legal commentators on the OFAC guidance on sanctions note that U.S. persons interested in conducting business in South Sudan will continue to confront significant compliance challenges.[50] Clearer signals about what might and might not be licensed would help.

Encouraging Exploration

South Sudan will need to work hard to stimulate the oil exploration it needs over the next few years. It has many disadvantages as an oil producer—notably its landlocked position and history of civil war—though it also has the benefit that the cost of producing (though not of transporting) oil from onshore wells is substantially lower than it is for the deep offshore wells, where much new investment globally is being directed.

The long-term future of South Sudan as an oil producer, and the commercial viability of the much-desired alternative export pipeline through Kenya, depends on new exploration success. As noted by Sudan People's Liberation Movement (SPLM) Secretary-General Pagan Amum in a speech in March 2011, "If there are more oil finds that will justify building new pipelines, then those will be built."[51] Getting new exploration started will not be easy. South Sudan acquired a poor reputation as an investment location when, in 2005, a part of the Total block was sold to another company over Total's head, and the company had to go to court in London to have its rights asserted.[52]

The long-term future of South Sudan as an oil producer, and the commercial viability of the much-desired alternative export pipeline through Kenya, depends on new exploration success.

Oil exploration companies prospect for oil in the lowest risk–highest return environments first. These are typically onshore sites in politically stable countries. South Sudan's government needs to find ways to demonstrate that it is rational for companies to spend valuable capital in exploration in South Sudan, and that they will not face international criticism or sanctions. To encourage companies to spend on exploration, the GoSS needs to offer investors attractive fiscal terms, assurances of contract security, physical security for oil industry people and property, and guaranteed access to existing pipelines—either as an interim measure in the case of large new finds or as a long-term route for smaller volumes. It also needs to crack down on the local corruption that adds costs and uncertainty to oil company operations.[53] To counteract its poor reputation, the GoSS should work with urgency to

deliver on its commitment to join EITI, perhaps by becoming an EITI candidate country by the first anniversary of its independence in July 2012. As soon as South Sudan's president announces a commitment to join EITI publicly, the EITI secretariat can help initiate the process to meet the other four specific requirements for candidacy (box 5).

Remedying Past Damage

The long-standing allegations of environmental damage and human rights abuses as communities were forced out of oilfield areas have not yet been properly evaluated, even though the CPA contained a commitment to do so. An environmental audit was undertaken on behalf of the GoSS through the Norwegian Oil for Development program, but the results have not been published. Community organizations and NGOs report deep community grievances and concerns about the damaging local effects of oil production, which create security risks for the industry. One key step to addressing the issue of past damage is to conduct a thorough environmental and social-impact audit of the oil industry. This should evaluate the industry against World Bank and International Finance Corporation (IFC) social and environmental standards,[54] the de facto international industry standards developed in the 2000s. Simply because much of South Sudan's oil industry was established in the 1990s, there will be a need for action to raise standards, and a case can be made that the companies alone should not have to bear the cost of upgrading to meet modern requirements. The audit should produce a remediation plan that lays out the actions needed to prevent future damage and to remedy or compensate for any damage that it finds. Government, oil companies, and donors would need to agree on a partnership basis and timetable on which to implement the recommended plan.

Conclusions: Oil Recommendations for the New State

The following list of recommendations—primarily for the South Sudan government but also donors, the oil companies, and the U.S. government—is intended to encompass steps that can be taken in the short to medium term to strengthen the southern oil sector and help it to benefit the people of South Sudan. Among other steps, the GoSS should consider the following:

- Providing security for oil workers and oil installations.
- Using the first 100 days to get an independent evaluation of South Sudan's oil reserves and the options for increasing and extending production.
- Renegotiating PSAs to incentivize investment in increased production and in exploration.
- In the meantime, using high-caliber oil industry specialists to support the government in negotiations with oil companies to maximize government revenues from the existing PSAs.
- Working with the oil companies to identify barriers to exploration and addressing those barriers.
- Demonstrating that South Sudan is a reputable oil state by making an immediate commitment to join the EITI and becoming an official candidate country within one year.
- Exploring the potential for oil-backed loans to finance the rapid development of the infrastructure needed to develop the agricultural sector.
- Collaborating with donors to use their funds to help smooth out the inevitable fluctuations in government revenue due to fluctuations in oil prices and production.
- Encouraging the United States to allow oil from South Sudan to be imported to U.S. refineries and remove barriers to U.S. companies investing in the oil sector.

Donors should consider the following:

- Exploring ways of using donor funds to help smooth out government finance available for development spending in the face of certain fluctuation in oil revenues.
- Exploring ways of frontloading spending of oil revenues on the priority infrastructure that help build the nonoil economy, such as through oil-backed loans.

The major oil companies active in South Sudan should consider the following:

- Actively cooperating with the GoSS by promptly sharing technical and economic information, working together to identify how to increase and extend production, and supporting EITI membership.

Notes

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14. In contrast, new finds have been announced in the north. See Maram Mazen, "Sudan Predicts 17 Percent Increase to Northern Oil Production From New Fields," *Bloomberg*, May 11, 2011, http://www.bloomberg.com/news/2011-05-11/sudan-predicts-17-increase-to-northern-oil-production-from-new-fields.html.
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53. See also ECOS, "Post-Referendum Arrangements for Sudan's Oil Industry: How to Separate Siamese Twins," Utrecht, December 2010, 6, http://www.ecosonline.org/reports/2010/%5Eindex.html/Post_Referendum_Arrangements_for_Sudans_Oil_Industry.pdf.html.

54. Specifically, the International Finance Corporation social and environmental performance standards and World Bank environmental health and safety guidelines for onshore oil and gas development.

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Of Related Interest

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