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9B17M093

sunrise power limited: charting growth in unexplored REGIONS

Sanjeev Kumar Prasad wrote this case solely to provide material for class discussion. The author does not intend to illustrate either effective or ineffective handling of a managerial situation. The author may have disguised certain names and other identifying information to protect confidentiality.

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Ravi Chandra was with his travel agent on January 17, 2015, looking at Jet Airways’ flight availability to Johannesburg, South Africa, from Mumbai, India, and wondering how circumstances had changed so rapidly over the last few weeks. At the onset of the week, he had received a message from Ajay Agrawal, managing director of Sunrise Power Industries, which had made him slightly worried.

Chandra had met Agrawal in May 2013 when he was completing his internship with Sunrise Power. Sunrise Power was a first-generation, family-owned business with major interests in the power and mining industries. It was executing 2,000 megawatt (MW) projects in various states of India with its own captive coal mines and was very aggressive in terms of its growth plans. Back in 2013, Chandra received a pre-placement offer from Agrawal in the strategic planning department, in which he would report directly to Agrawal regarding managing growth initiatives. This was like a dream come true because Chandra was from the Damodar Valley region, also called the Ruhr of India, and he had long looked forward to joining a company working in the coal industry, in spite of the dearth of opportunities available in this sector at the entry level. Furthermore, he had become fascinated with the decision-making processes of entrepreneurs and wanted to work with one, preferably a first-generation entrepreneur. However, this was not easy, because most entrepreneurs did not prefer MBA graduates from top-tier institutes such as the Indian Institutes of Management and the Xavier School of Management because of their generally high salaries, but Agrawal was a man of a different mindset who was always ready to invest in human resources. Agrawal often said that young professionals brought fresh energy and ideas that were needed if Sunrise wanted to grow at a fast pace.

For the last few weeks, Agrawal had been asking Chandra to look into business opportunities outside India, but unfortunately, Chandra had not been able to perform any substantial groundwork in this area. Chandra was also unsure about the seriousness of Agrawal’s statements because one of the group’s flagship plants was facing significant challenges due to increased extremist activities in the region. The text message had been a real eye-opener for Chandra. It said, “Chandra, I would like you to meet Mr. Patel to discuss opportunities in the SADC in Africa. Please, join us for lunch at 12:30 p.m. at the Hyatt. Ajay.”

Chandra knew he had about three hours and that he should do some googling to determine whether the Southern African Development Community (SADC) was a good choice. He was able to find some information about the organization.

**Southern African Development Community[[1]](#footnote-1)**

In 1980, the SADC was formed as a loose alliance of nine majority-ruled states in Southern Africa known as the Southern African Development Coordination Conference (SADCC), with the main aim of coordinating development projects in order to lessen economic dependence on the then apartheid South Africa. The founding member states were Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Zambia, and Zimbabwe. There were a number of other countries such as the Democratic Republic of the Congo (DRC), Madagascar, Mauritius, Namibia, Seychelles, and South Africa that became members of the SADC later on.

The SADCC was formed in Lusaka, Zambia, on April 1, 1980, following the adoption of the Lusaka Declaration. The transformation of the organization from a Coordinating Conference into a Development Community (SADC) took place on August 17, 1992, in Windhoek, Namibia, when the declaration and treaty were signed at the Summit of Heads of State and Government, thereby giving the organization a legal character.

The SADC vision was one of a common future, within a regional community that would ensure economic well-being, improvement of the standards of living and quality of life, freedom and social justice, peace, and security for the people of Southern Africa (see Exhibit 1).

**Economic Overview of SADC Countries[[2]](#footnote-2)**

The SADC countries were very rich in natural resources but lagged in many economic indicators. The SADC had realized that one of its primary objectives was to achieve development and economic growth, alleviate poverty, enhance the standard and quality of life of the people of Southern Africa, and support the socially disadvantaged through regional integration. Therefore, economic growth was a key parameter for achieving this objective.

Challenges of post-war disarmament and reconstruction (in Angola and the DRC) and continuing internal strife (in Zimbabwe) had adversely affected economic performance in these countries. The Zimbabwean economy had experienced sharp deterioration over the past five years with hyperinflation (see Exhibit 2).

**Discussing Opportunities in Southern Africa**

Chandra was exactly on time to meet Patel at the Hyatt. After an exchange of pleasantries, Patel introduced the Rainbow Fund, which he managed. It had received investments from a number of high-net-worth individuals from India and South Africa. They expected decent returns on these investments because they were primarily passive investors. Chandra asked why Sunrise Power could not use these investments for its opportunities in India, but Patel told him that the mandate of shareholders was very clear: the investments must be used in emerging and underdeveloped markets other than the BRIC countries (Brazil, Russia, India, and China). The Rainbow Fund had also been able to bring in SADC representatives, and therefore, it could be assured of regulatory support, if it was able to bring in investors in coal-based power projects in the founding countries of the SADC and South Africa.

Patel expressed his belief in Agrawal’s capabilities to execute power projects because Agrawal was successfully doing this in difficult Indian states such as Assam, Bihar, and Jharkhand. Patel also provided some details about the SADC to Chandra for him to study(see Exhibits 3 to 7). He told Chandra that Kgalefa Modishe, a government official of Botswana, was coming to India the next Tuesday and that he would arrange a meeting between Chandra and Modishe.

Agrawal told Patel, “I depend on Chandra’s analytical capabilities to determine the right destination, and Chandra will talk with you very soon.” After the meeting was over, Agrawal told Chandra,

You know, Chandra, we want to grow at an exponential rate, and this is a golden opportunity for us because financial and regulatory support will be available, which is so critical in our business. However, we are also a business and should not venture into the SADC if the risks are too high; I am only hearing this name, the SADC, for the first time. Patel reported that the SADC is comprised of many countries. The next important question would be which country is best for setting up a power plant.

Agrawal also reported that he expected to have at least a 30 per cent return on investment for his funds in Africa and that he would keep an investment range of US$40 million,[[3]](#footnote-3) plus or minus 10 per cent, as an equity component.

Chandra looked at the data provided by Patel and decided to discuss it, albeit reluctantly, with Radhe Gupta, who was looking after the operations of Sunrise Power in India with regards to a roadmap for expansion into the SADC. Gupta, an electrical engineer graduate from the Indian Institute of Technology, the premier engineering institute in India, had had a flourishing career for about 25 years with leading power companies in India, such as NTPC and Jindal. He had vast experience in power projects, as well as their operations, and he was very aggressive—sometimes to the point of being arrogant—in interpersonal relationships. Chandra thought that he should not put forward his own views and, instead, should behave as a humble trainee, absorbing the wisdom of others. Gupta told him,

First, you should study the critical success factors of the power industry and do not forget coal—its availability and quality. A power industry without captive coal mines will not work for us. You should look at all the countries in the SADC and narrow them down to two to three countries. You should study their attractiveness in detail. In fact, the real value of this operation is in the coal mining, and we will ask the concerned government to allow for the export of coal, provided it is not required by our own power plant[see Exhibit 8].

Gupta also informed Chandra that in India, the basic requirements of such an operation, in addition to funds and coal, were land acquisition, water needs, and environmental clearances.

Chandra was clear about his objective—he needed to determine whether Sunrise Power should go into the SADC or not and, if so, which country it should enter and with what support requirements. Chandra looked at the figures and thought about how to move forward. South Africa definitely had the largest economy and a good growth rate, so it seemed to be a good choice. Chandra was also excited about South Africa because there were major tourist attractions—even the Miss Universe beauty pageants were organized there.

Chandra visited his alumni website to for ideas on who could help him with this project. He was able to locate Shyam Ahuja, who was one year his senior and working with Amari Resources in South Africa. Ahuja knew him very well because both had been members of the photography club. Chandra obtained his contact number from the alumni website and called him. Ahuja explained,

Before committing to any investment, you should review the country-specific regulatory environment in South Africa; there is a concept of 26 per cent BEE [black economic empowerment], meaning that you must give a 26 per cent equity stake to historically disadvantaged sections of people—that is, the Black, Coloured, and Indian communities.[[4]](#footnote-4) There are not many investors from this section, and therefore, at least 50 per cent of the said equity must be given free as sweat equity. Eskom is the largest player in the power segment in Southern Africa, and it supplies electricity to all the SADC countries. There is a great deal of political pressure on Eskom to restrict exports, and this is expected to significantly increase the price of electricity in other SADC countries as well. This is one of the reasons you might have better government support if you set up a power plant in any SADC country other than South Africa, because many of them now want to be energy-independent.

Agrawal had asked Chandra to attend a meeting on Tuesday with an Indian metal and mining company for discussions on the power purchase agreement for their upcoming plant in Odisha, India. Agrawal told Narayan Ramaswamy, chief financial officer of the company, that Sunrise Power was looking for global expansion into the SADC and that Chandra was leading the initiative to finalize the country for its African growth plans. Ramaswamy immediately responded that there was nothing to finalize, because Zambia was the best country and the company had already been operating a copper complex there for the last 15 years. There were a few other Indian companies looking for supplies of manganese and copper ore from Zambia, and there were some very good Indian restaurants in Lusaka, the capital of Zambia. Ramaswamy assured Chandra that any help required would be arranged by him and his colleagues in Zambia. Chandra believed that things would be easy and that Sunrise Power might not need to explore other smaller countries any longer.

Chandra called Gupta and told him that Zambia might be a good choice because it was home to a number of other Indian companies. Gupta was furious and told Chandra that management graduates did not want to do their homework and they believed that, just by studying at a top institution, they knew everything. Gupta almost shouted,

Do we know how far the nearest coal deposit that can meet the power plant’s raw material requirements is? Even then, it has only one rail line, necessitating at least nine months of inventory holding, which is against the usual practice of three months of inventory. Transportation costs from South African coal deposits will be around $90 per ton. Do we understand that Monnet, another Indian company, closed its operations due to mafia problems in the mines? Why are we not looking at Mozambique in terms of setting up a power plant? It also has port connectivity, which will help us to export coal if necessary.

Chandra knew that Gupta had worked in Mozambique, and therefore, he requested that he share his knowledge of the country. Gupta told him,

Mozambique, a multi-party democratic country, became independent in 1975 and was the scene of an intense civil war lasting from 1977 to 1992. The resettlement of civil-war refugees and successful economic reforms had led to a high growth rate: the country enjoyed a remarkable recovery, achieving an average annual rate of economic growth of 8 per cent between 1996 and 2006. The World Bank in 2007 talked of Mozambique’s “blistering pace of economic growth.” The IMF [International Monetary Fund] in early 2007 said, “Mozambique is a success story in Sub-Saharan Africa.” The government projects the economy to continue to expand between 7 and 10 per cent a year for the next five years, although rapid expansion in the future hinges on several major foreign investment projects, continued economic reform, and the revival of the agriculture, transportation, and tourism sectors. More than 1,200 state-owned enterprises (mostly small) have been privatized. Preparations for privatization and/or sector liberalization are underway for the remaining government-controlled enterprises, including energy, ports, and railways.[[5]](#footnote-5)

Chandra again called Ahuja and told him about the dilemma. Ahuja said, “Because you are looking at a new country, you should look for political stability and government support. In Africa, today, the maximum resources are in Zimbabwe, and Robert Mugabe has been the leader there for many years. We are also working with a joint venture partner to start prospecting in Zimbabwe.”

Chandra asked about two other countries that were almost within Southern Africa—Lesotho and Swaziland. Ahuja said,

Lesotho and Swaziland are protectorates of South Africa, and therefore, if you want to invest, it is better to invest in South Africa than these countries because they are totally dependent on South Africa for all their policy guidelines and infrastructure requirements. In any event, you will have to depend on South Africa for the sale of electricity.

Chandra was meeting Modishe the next morning. Therefore, he did some googling about Botswana and found that Botswana was a landlocked country with up to 70 per cent of it covered by the Kalahari Desert. Botswana was one of the world’s great development success stories. In the four decades following independence, Botswana had transformed itself, moving into the ranks of middle-income status to become one of the fastest-growing economies in the world with its average annual growth rate of about 9 per cent.

Botswana had an impressive track record of good governance and economic growth supported by prudent macroeconomic and fiscal management. It was a representative democratic republic with a multi-party system. Botswana was the only country in mainland Africa to have continuously held free and fair elections since its independence. According to Transparency International, Botswana was the least corrupt country in Africa and ranked close to Portugal and South Korea. Botswana had a high level of economic freedom compared to other African countries, had the highest sovereign credit rating in Africa, and had stockpiled significant foreign exchange reserves.[[6]](#footnote-6)

During the meeting, Modishe said,

I am encouraged by industrial houses such as Sunrise Power planning to invest in Botswana. Botswana has significant coal deposits, and the government will be pleased to allot them to Sunrise Power if there is a coal-based thermal power plant, but we also realize that we have a major constraint because our domestic demand is very small and our state utility, Botswana Power Corporation, is already expanding with a new 100 megawatt unit. Sunrise Power must think about where it will be selling the power produced in Botswana. The government would also like to know the proposed tariff because this is definitely one of the key factors to consider in deciding on a power producer.

Modishe assured Chandra that the government was ready to extend all necessary support and invited Sunrise to install a 50 MW power plant. Modishe also stated, “Eco-tourism is an important component of the Botswana economy and, therefore, the government expects that at least 1 per cent of revenue be spent on improved environment management or that the corporation provide some other mechanism to contribute to environmental management and sustainable development.”

Chandra was speechless. He knew that he had to do some basic number-crunching. He immediately realized that he needed to contact Hari Ram Ganatra, the chief financial officer of Sunrise Power, because Ganatra had previously worked with a number of African countries. Ganatra was a very reputable name in the banking industry and also a visiting faculty member at the Indian Institute of Management in Raipur. Chandra especially liked interacting with him because he made a great effort to explain issues and engage in meaningful two-way discussion. Ganatra met Chandra and said,

I have performed some studies on SADC countries, as instructed by Agrawal, and I was also expecting you to discuss these opportunities because any decision must be made from a financial perspective. I once reviewed a power project in Botswana, and this review can be used as a benchmark for all other countries in the SADC.

For the 4 × 150 MW power plant, the estimated cost was $900 million, with an average unit cost of $1,500 per kilowatt. The cost estimates included capital and all soft costs such as project management costs, financial costs, and interest during construction. The nature of the coal was sub-bituminous, with an average calorific value of 23 megajoules per kilogram and specific consumption rate of 10.7 megajoules per kilowatt-hour. The cost of coal at the mine head was generally about $50 per ton. The operating costs were primarily the fuel cost and other operations and maintenance expenses, with these other operations and maintenance expenses being within the range of 12–15 per cent of fuel costs. The plant load factor was 85 per cent.[[7]](#footnote-7)

However, the cost of financing and taxes/royalty is also important in determining the profitability of a power plant. You should consider the country risk because cost of capital will increase significantly with country risk, and I would like to caution you that you should not choose a country like Zimbabwe, where assets can be nationalized at any point in time; secondly, Zimbabwe is experiencing hyperinflation [see Exhibit 9].

Chandra was also surprised to learn that his credit cards would not work in Zimbabwe due to hyperinflation.

Ganatra stated,

Angola and Tanzania are both facing extreme internal strife, and there is almost a state of civil war in these countries. Angola, after independence, faced more than 25 years of civil war among three militant groups. Tanzania is also experiencing a significant refugee influx due to the Burundi Civil War. Therefore, if Sunrise was in oil and natural gas, we would have invested in these countries, but it is not wise to invest in a coal-based power plant there. Similarly, Malawi is highly populated and an underdeveloped country. Land acquisition and setting up a plant will be extremely difficult in a country like this, especially given that Malawi’s economy is 90 per cent driven by agriculture and whatever infrastructure is there is being developed solely by Chinese money and Chinese people.

Chandra realized that in his enthusiasm to search for a country, he had forgotten to ask Patel about the expectations of the Rainbow Fund and other debtholders; these would be major cost drivers. He immediately set up a video conference with Patel, who was then in Gaborone, Botswana, to attend a conference on the SADC’s economic agenda.

Chandra asked Patel what type of financing structure he was considering for the project. Patel replied that he expected a debt-to-equity ratio in the range of 65:35 to 70:30. The Rainbow Fund had already talked with the SADC Development Fund (SDF) and African Development Bank (AfDB), and they had agreed to be lenders for the power project. The Rainbow Fund expected a soft loan at a base rate of 6 per cent from the SDF, whereas the AfDB would charge about a base rate of 10 per cent for a country with Botswana’s risk rating. However, with every additional notch of increased country risk, the interest rate would be increased by 50 basis points. The SDF, the AfDB, and the Rainbow Fund would provide the loan, and their contributions were expected to be in a 2:2:1 ratio. As far as equity was concerned, as per Patel’s discussions with Agrawal, the majority share would remain with Sunrise Power and, therefore, the Rainbow Fund would arrange for 30 per cent of equity. The Rainbow Fund would expect to see returns of the AfDB interest rate plus 2 per cent for the loans it provided, whereas 6 per cent additional return compared to the loan for its equity component.

Chandra asked Patel about the taxes and royalties that would be applicable in various countries, and Patel informed Chandra that they did not need to worry, because the project was expected to receive a tax holiday for at least the first 15 years. In addition, SADC representatives had already agreed to a uniform royalty, so there was no country-specific advantage from a taxes and royalties perspective.

Chandra went to Agrawal and stated that Ganatra had provided estimates of capital and operating costs and that Patel had provided capital cost estimates. Therefore, Chandra was in a position to compare the various countries of the SADC and finalize the right country choice for Sunrise Power. Agrawal told Chandra,

The long-term strategy is not only created on the basis of cost; the entire country should be evaluated. The group will not mind a plus or minus 10 per cent variation in net profit, but it will only invest in a country that is sustainable in the long run and has the potential for growth. Secondly, you should only look for projects that involve more than a 150 MW plant because, otherwise, the capital costs will prove non-economical, as indicated by the preliminary calculations of the commercial team.

Agrawal asked Chandra, based on the preliminary data, which country was the best investment destination. Chandra informed Agrawal that considering gross domestic product and the size of the coal resources, South Africa was definitely the largest economy. There were issues such as BEE compliance and law and order, but South Africa also had first-world infrastructure in major cities such as Johannesburg, Cape Town, and Durban. Agrawal advised Chandra that sometimes, one should see beyond numbers. He said,

We know that South Africa is an important and large country. Almost all the large mining companies, such as BHP, Anglo, and Rio, are present in South Africa, and India is also well-represented by groups such as Tata, Jindal, and Monnet. We know that we are very small compared to these players and that, therefore, whatever Patel boasts about regulatory support in SADC countries, it is very likely that Sunrise Power will not receive total support, because other players will immediately raise issues related to preferential treatment. Furthermore, South Africa does not encourage foreign investment in the mining sector, and therefore, its support will always be doubtful. It may not create obstacles, but the government will probably have very limited flexibility in terms of supporting us in accelerating regulatory approvals and single-window clearance. Small countries may provide faster regulatory clearances and single-window approval and formulate policies that help us.

Chandra had never thought about this perspective, but he said, “I was thinking about this, but another big problem with smaller countries is that they have very low domestic demand and, therefore, the plant itself may not be commercially viable.” Agrawal said, “There is a seminar about electricity regulators in Hyderabad, and Kgosi Mote is there from Namibia, an SADC country. I will arrange a meeting with him for you. You should ask Steffi Lewis, administrative assistant, to arrange for an airline ticket and other support if required.”

Chandra rushed to Hyderabad and asked Lewis to arrange for a ticket immediately. There were no economy-class tickets available, so she arranged for a business-class ticket to Hyderabad because the meeting was scheduled for the next morning. Mote explained the Regional Electricity Regulators Association (RERA) of Southern Africa to Chandra:

The RERA was established by the SADC as a formal association of electricity regulators at a meeting held in Maseru, Lesotho, on July 12, 2002. The RERA has its own constitution stipulating the objectives, functions, and other operational requirements of the association. Its mission is to facilitate the harmonization of regulatory policies, legislation, standards, and practices and to be a platform for effective cooperation among energy regulators within the SADC region. Therefore, any SADC country can ask the RERA to export surplus electricity being produced, and the RERA will be more than happy to facilitate the same because this is one of its objectives. This will also ensure an efficient electricity trade among SADC countries.[[8]](#footnote-8)

Mote, while reviewing the Southern African Power Pool (SAPP) website, stated that,

The SAPP was created with the primary aim of providing a reliable and economical electricity supply to consumers in all SAPP member nations that is consistent with the reasonable utilization of natural resources and its effect on the environment. SAPP aims to facilitate the development of a competitive electricity market in the Southern African region by providing a forum for the development of a world-class, robust, safe, efficient, reliable, and stable interconnected electrical system in the Southern African region.[[9]](#footnote-9)

During the meeting, Chandra received a call from Sushil Jain, chief of human resources, and therefore, as soon as the meeting was over, he called Jain back. Jain informed Chandra that,

Agrawal discussed the possible organizational structure for the project in SADC countries. Gupta wants the project head to report to him. This person should be a technocrat because project execution capability is vital to successful projects. However, Krish Maddela, head of corporate affairs, believes that during the project stage, many liaison efforts will be required. Therefore, there should be a country head who brings administrative and liaison skills to the table, and the project head should report to him.

Chandra told Jain, “We need all the skills on board to make the project a success. Gupta brings excellent project management skills, whereas Maddela is really wonderful as far as networking skills are concerned.” Jain agreed with him and said, “You know, Agrawal respects Gupta a great deal, but he trusts Maddela much more. Therefore, the issue remains structuring the project in a way that is best for the organizational goals, as well as nobody’s ego being hurt.” Chandra thought that Jain was not effective as chief of human resources, at least from an organizational structure and design perspective, and that he was talented regarding only two aspects of the work—recruitment and reading promoters’ minds. However, now, an appropriate organizational structure for the venture into Africa had to be recommended by him alone.

Agrawal called Chandra and said,

I have just talked with Patel. Patel will be in Gaborone again next week, where there will be a conference on the “Integrated Development of Coal Resources.” Patel informed me that all the premiers and concerned ministers and secretaries will be there. Therefore, this is the right time for you to fly to Gaborone and interact with those countries’ representatives. By this time, I believe you have already done enough research about the SADC and you must have realized that you cannot get everything you want in one country. Therefore, you should zero in on one or two countries where we can install the plant and ask Patel to arrange a meeting at the highest level. Request whatever support and assistance you require, and attempt to sign a memorandum of understanding with them.

Agrawal also said that Chandra would be happy to know that a leading Indian financial institution, Infrastructure Development Finance Company, had agreed to be an equity partner in the SADC project and that it was ready to invest up to 50 per cent of the funds that Sunrise Power would bring to the table, with assured expected returns similar to those of other private equity investors. Chandra asked Agrawal whether Sunrise Power should obtain some assured returns comparable to the other equity investors because Sunrise Power was taking on much more risk and also bringing its management capabilities to the table. Again, all other equity investors insisted that Sunrise Power must bring the upfront equity and only then would the other players invest. Agrawal reported that he had discussed this issue with other equity investors and that they had agreed to allow Sunrise Power to charge a management fee for the power project to compensate for the above-mentioned risks. However, the management fee should never be more than 1 per cent of total sales revenue. Ganatra also informed Chandra that Sunrise Power could not propose a tariff significantly higher than the existing tariff.

Agrawal also asked Chandra whether he had had any discussions with Jain. He continued to inform Chandra that he wanted a structure that was responsive and nimble, but with significant controls from the corporate office regarding project monitoring and supported with a proper performance measurement system. Otherwise, the entire project might become a burden.

Chandra informed Patel that he was coming to Gaborone and was thinking about two specific countries. He would talk to officials at the highest level about the type of support required from the government. Simultaneously, an organizational structure for the SADC project had to be considered.

Exhibit 1: SADC Population (2013 Estimates)

|  |  |  |
| --- | --- | --- |
| **Country** | **Population** | The AIDS prevalence rate among Botswana (23.4%), Lesotho (23.3%), and Swaziland (26%) are the highest among SADC countries and this may lead to excess mortality due to AIDS, lower life expectancy, higher death rates, and lower population growth rates than what would otherwise be expected. |
| Angola | 21,471,618 |
| Botswana | 2,021,144 |
| Democratic Republic of Congo | 67,513,677 |
| Lesotho | 2,074, 465 |
| Madagascar | 22,924,851 |
| Malawi | 16,362,567 |
| Mauritius | 1,296,303 |
| Mozambique | 25,833,752 |
| Namibia | 2,303,315 |
| Seychelles | 89,173 |
| South Africa | 52,981,991 |
| Swaziland | 1,249,514 |
| United Republic of Tanzania | 49,253,126 |
| Zambia | 14,538,640 |
| Zimbabwe | 14,149,648 |
| **Total** | **294,063,784** |

Source: “Population, Total,” The World Bank, accessed October 15, 2014, http://data.worldbank.org/indicator/SP.POP.TOTL; “Country Comparison: HIV/AIDS—Adult Prevalence Rate,” Central Intelligence Agency, accessed October 15, 2014, https://www.cia.gov/library/publications/the-world-factbook/rankorder/2155rank.html.

Exhibit 2: Gross Domestic Product Details of SADC

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **SADC** | **GDP (PPP)** | **Real Growth Rate** | | | **Per Capita (PPP) US$** | | |
| **Countries** | **2013 Billion US$** | **2011** | **2012** | **2013** | **2011** | **2012** | **2013** |
| Angola | 161.86 | 3.92 | 5.19 | 4.06 | 5,159 | 5,539 | 5,668 |
| Botswana | 31.68 | 6.18 | 4.26 | 5.90 | 7,697 | 7,255 | 7,317 |
| DRC | 50.42 | 6.86 | 7.16 | 8.48 | 373 | 418 | 454 |
| Lesotho | 5.36 | 2.84 | 6.51 | 5.90 | 1,226 | 1,135 | 1,075 |
| Madagascar | 31.97 | 1.03 | 2.36 | 2.10 | 455 | 443 | 471 |
| Malawi | 12.76 | 4.35 | 1.89 | 4.97 | 364 | 267 | 226 |
| Mauritius | 22.30 | 3.85 | 3.23 | 3.20 | 8,750 | 8,862 | 9,210 |
| Mozambique | 27.01 | 7.32 | 7.24 | 7.15 | 510 | 570 | 593 |
| Namibia | 22.31 | 6.01 | 6.69 | 4.41 | 5,615 | 5,931 | 5,462 |
| Seychelles | 2.16 | 5.01 | 2.90 | 3.50 | 12,118 | 11,689 | 14,220 |
| South Africa | 662.47 | 3.60 | 2.47 | 1.89 | 7,831 | 7,314 | 6,618 |
| Swaziland | 8.35 | −0.66 | 1.92 | 2.79 | 3,420 | 3,290 | 3,034 |
| Tanzania | 84.87 | 6.45 | 6.93 | 6.96 | 530 | 609 | 695 |
| Zambia | 46.24 | 6.84 | 7.27 | 6.35 | 1,408 | 1,463 | 1,540 |
| Zimbabwe\* | 24.05 | 11.91 | 5.32 | 1.81 | 820 | 909 | 905 |

Note: SADC = Southern African Development Community; GDP = gross domestic product; PPP = purchasing power parity; DRC = Democratic Republic of Congo; \* In 2009, the Zimbabwean dollar was taken out of circulation, making Zimbabwe’s GDP at the official exchange rate a highly inaccurate statistic.

Source: “GDP, PP (Current International $),” The World Bank, accessed October 15, 2014, http://data.worldbank.org/indicator/NY.GDP.MKTP.PP.CD; “GDP per Capita (Current US$), The World Bank, accessed October 15, 2014, http://data.worldbank.org/indicator/NY.GDP.PCAP.CD/countries; “GDP Growth (Annual %),” The World Bank, accessed October 15, 2014, http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG.

Exhibit 3: SADC Average Electricity Tariff (US cENTS per kILOWATT-hOUR)

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Source: Southern African Power Pool, Annual Report 2014, 41, accessed December 9, 2014, www.sapp.co.zw/docs/Annual%20report-2014.pdf.

Exhibit 4: SADC Electrification Access (%)

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Note: DRC = Democratic Republic of Congo; SADC = Southern African Development Community

Source: Southern African Power Pool, Annual Report 2014, 16, accessed December 9, 2014, www.sapp.co.zw/docs/Annual%20report-2014.pdf.

Exhibit 5: SAPP Electricity Generation and Consumption

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Total Electricity Generation**  **(Billion Kilowatt-Hours)** | | | | | **Total Electricity Consumption**  **(Billion Kilowatt-Hours)** | | | | | |
| **2008** | **2009** | **2010** | **2011** | **2012** | | **2008** | **2009** | **2010** | **2011** | **2012** |
| **Angola** | 3.51 | 3.51 | 3.72 | 3.72 | 3.94 | | 3.08 | 3.08 | 3.17 | 3.17 | 3.37 |
| **Botswana** | 0.98 | 0.98 | 1.05 | 1.05 | 0.59 | | 2.57 | 2.57 | 2.65 | 2.65 | 2.85 |
| **DRC** | 7.24 | 7.24 | 8.22 | 8.22 | 7.45 | | 5.16 | 5.16 | 6.00 | 6.00 | 6.04 |
| **Lesotho** | 0.20 | 0.20 | 0.50 | 0.50 | 0.20 | | 0.23 | 0.23 | 0.52 | 0.52 | 0.24 |
| **Madagascar** | 1.05 | 1.05 | 1.05 | 1.05 | 1.11 | | 0.91 | 0.91 | 0.97 | 0.97 | 1.03 |
| **Malawi** | 1.13 | 1.13 | 1.69 | 1.69 | 1.68 | | 1.05 | 1.05 | 1.57 | 1.57 | 1.56 |
| **Mauritius** | 2.32 | 2.32 | 2.32 | 2.32 | 2.40 | | 2.06 | 2.06 | 2.16 | 2.16 | 2.23 |
| **Mozambique** | 14.62 | 14.62 | 15.91 | 15.91 | 14.98 | | 9.56 | 9.56 | 10.16 | 10.16 | 10.18 |
| **Namibia** | 1.61 | 1.61 | 1.49 | 1.49 | 2.20 | | 3.19 | 3.19 | 2.85 | 2.85 | 3.93 |
| **Seychelles** | 0.21 | 0.21 | 0.25 | 0.25 | 0.26 | | 0.19 | 0.19 | 0.23 | 0.23 | 0.24 |
| **South Africa** | 264.00 | 264.00 | 240.30 | 240.30 | 238.30 | | 241.40 | 241.40 | 215.10 | 215.10 | 212.20 |
| **Swaziland** | 0.46 | 0.46 | 0.44 | 0.44 | 0.47 | | 1.20 | 1.20 | 1.27 | 1.27 | 1.21 |
| **Tanzania** | 2.68 | 2.68 | 3.79 | 3.79 | 4.28 | | 2.23 | 2.23 | 3.18 | 3.18 | 3.43 |
| **Zambia** | 9.29 | 9.29 | 9.75 | 9.75 | 9.60 | | 8.63 | 8.63 | 8.84 | 8.84 | 7.61 |
| **Zimbabwe** | 9.47 | 9.47 | 8.89 | 8.89 | 7.72 | | 11.59 | 11.59 | 10.89 | 10.89 | 12.47 |
| **Total** | **318.77** | **318.77** | **299.37** | **299.37** | **295.18** | | **293.05** | **293.05** | **269.56** | **269.56** | **268.59** |

Note: DRC = Democratic Republic of Congo

Source: “Historical Data Graphs,” IndexMundi, accessed October 16, 2014, www.indexmundi.com/g.

Exhibit 6: SAPP Installed versus Available Capacity versus Peak Demand Growth Rate

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Installed versus Available Capacity (Megawatts)**  **(February 2014)** | | | | |  | **Peak Electricity Demand** | | |
| **No.** | **Country** | **Utility** | **Installed Capacity** | **Available Capacity** |  | **2012 (MW)** | **2011 (MW)** | **Growth (%)** |
| 1 | Angola | ENE | 2,028 | 1,805 |  | 1,072 | 870 | 23.2 |
| 2 | Botswana | BPC | 892 | 460 |  | 578 | 542 | 6.6 |
| 3 | DRC | SNEL | 2,442 | 1,268 |  | 1,040 | 1,050 | -1.0 |
| 4 | Lesotho | LEC | 72 | 72 |  | 129 | 125 | 3.2 |
| 5 | Malawi | ESCOM | 351 | 351 |  | 278 | 277 | 0.4 |
| 6 | Mozambique | EDM/HCB | 2,308 | 2,279 |  | 706 | 616 | 14.6 |
| 7 | Namibia | NamPower | 501 | 392 |  | 611 | 611 | 0.0 |
| 8 | South Africa | Eskom | 44,170 | 41,074 |  | 35,896 | 36,543 | -1.8 |
| 9 | Swaziland | SEC | 70 | 70 |  | 204 | 200 | 2.0 |
| 10 | Tanzania | TANESCO | 1,380 | 1,143 |  | 900 | 890 | 1.1 |
| 11 | Zambia | ZESCO/CEC/LHPC | 2,128 | 2,029 |  | 1,681 | 1,562 | 7.6 |
| 12 | Zimbabwe | ZESA | 2,045 | 1,600 |  | 2,029 | 1,836 | 10.5 |
| **TOTAL** | | | **58,387** | **52,543** |  | **45,124** | **45,122** | **0.0** |

Note: DRC = Democratic Republic of Congo

Source: Southern African Power Pool, Annual Report 2014, 39, accessed December 9, 2014, www.sapp.co.zw/docs/Annual%20report-2014.pdf; Southern African Power Pool, Annual Report 2013, 36, accessed December 9, 2014, www.sapp.co.zw/docs/22867%20Annual%20Report%20New.pdf.

Exhibit 7: SAPP Peak Demand Forecast (MegaWatts)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** |
| Angola | 1,762 | 1,872 | 1,987 | 2,109 | 2,226 | 2,347 | 2,472 | 2,601 | 2,734 | 2,871 |
| Botswana | 951 | 1,034 | 1,089 | 1,164 | 1,183 | 1,202 | 1,221 | 1,238 | 1,255 | 1,272 |
| DRC | 1,935 | 2,016 | 2,100 | 2,187 | 2,229 | 2,313 | 2,409 | 2,509 | 2,614 | 2,723 |
| Lesotho | 169 | 174 | 178 | 183 | 188 | 193 | 198 | 204 | 209 | 214 |
| Malawi | 467 | 485 | 503 | 522 | 541 | 560 | 577 | 594 | 611 | 629 |
| Mozambique | 821 | 857 | 894 | 933 | 974 | 1,017 | 1,061 | 1,108 | 1,157 | 1,208 |
| Namibia | 675 | 703 | 730 | 754 | 779 | 815 | 845 | 875 | 900 | 933 |
| South Africa | 46,878 | 47,713 | 48,593 | 49,398 | 50,316 | 51,166 | 51,797 | 52,425 | 53,336 | 53,878 |
| Swaziland | 278 | 287 | 293 | 300 | 304 | 308 | 311 | 315 | 319 | 323 |
| Tanzania | 1,081 | 1,126 | 1,174 | 1,223 | 1,275 | 1,328 | 1,384 | 1,442 | 1,503 | 1,566 |
| Zambia | 2,015 | 2,061 | 2,102 | 2,143 | 2,171 | 2,228 | 2,272 | 2,302 | 2,361 | 2,407 |
| Zimbabwe | 2,731 | 2,822 | 2,917 | 3,014 | 3,115 | 3,220 | 3,327 | 3,439 | 3,554 | 3,674 |
| **Total** | **59,762** | **61,150** | **62,560** | **63,930** | **65,301** | **66,698** | **67,873** | **69,052** | **70,553** | **71,698** |

Note: DRC = Democratic Republic of Congo

Source: Southern African Power Pool, Annual Report 2013, 38, accessed December 9, 2014, www.sapp.co.zw/docs/22867%20Annual%20Report%20New.pdf.

Exhibit 8: SADC Coal Production, Total Recoverable Coal, and Average Gross Heat Value of Coal Production

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Total Primary Coal Production (Thousand Tons)** | | | | | **Total Recoverable Coal (Million Tons)** | **Average Gross Heat Value (Kcal/Kg)** |
| **2008** | **2009** | **2010** | **2011** | **2012** |
| **Angola** | 0 | 0 | 0 | 0 | 0 | -- | -- |
| **Botswana** | 1,003 | 814 | 1,089 | 869 | 816 | 44.1 | 5,860 |
| **DRC** | 144 | 149 | 153 | 158 | 146 | 97.0 | 5,740 |
| **Lesotho** | 0 | 0 | 0 | 0 | 0 | -- | -- |
| **Madagascar** | 0 | 0 | 0 | 0 | 0 | -- | -- |
| **Malawi** | 58 | 60 | 60 | 60 | 60 | 2.2 | 5,860 |
| **Mauritius** | 0 | 0 | 0 | 0 | 0 | -- | -- |
| **Mozambique** | 42 | 42 | 42 | 714 | 4,154 | 233.7 | 5,690 |
| **Namibia** | 0 | 0 | 0 | 0 | 0 | -- | -- |
| **Seychelles** | 0 | 0 | 0 | 0 | 0 | -- | -- |
| **South Africa** | 278,017 | 275,015 | 280,562 | 278,617 | 285,832 | 33,241.3 | 5,330 |
| **Swaziland** | 524 | 531 | 539 | 539 | 539 | 158.7 | 5,860 |
| **Tanzania** | 101 | 108 | 116 | 115 | 106 | 220.5 | 5,860 |
| **Zambia** | 1 | 1 | 0 | 0 | 0 | 11.0 | 5,620 |
| **Zimbabwe** | 2,776 | 2,942 | 3,225 | 3,526 | 3,303 | 553.4 | 6,140 |
| **TOTAL** | 282,666 | 279,662 | 285,786 | 284,598 | 294,956 |  |  |

Note: Kcal/Kg = kilocalories per kilogram; DRC = Democratic Republic of Congo

Source: “Tanzania, United Republic of Crude Oil Production and Consumption by Year,” IndexMundi, accessed December 13, 2014, www.indexmundi.com/energy.aspx?country=tz&production=coal &graph=production+consumption (for Tanzania coal production); “Primary Coal Production 2014,” U.S. Energy Information Administration, accessed December 13, 2014, www.eia.gov/cfapps/ipdbproject/iedindex3.cfm?tid=1&pid=7&aid=1&cid=regions&syid=2002&eyid=2012&unit=TST (except coal production for Tanzania); “Reserves & Capacity,” U.S. Energy Information Administration, accessed December 10, 2014, www.eia.gov/cfapps/ipdbproject/ (for total recoverable coal and average gross heat value of coal production).

Exhibit 9: Country Risk Ratings

|  |  |  |
| --- | --- | --- |
| **Country** | **Country Risk** | **Business Climate** |
| Angola | C | D |
| Botswana | A4 | A3 |
| Democratic Republic of Congo | D | D |
| Lesotho |  |  |
| Madagascar | C | D |
| Malawi | D | D |
| Mauritius | A3 | A3 |
| Mozambique | C | C |
| Namibia | A3 | A4 |
| Seychelles |  |  |
| South Africa | A4 | A4 |
| Swaziland |  |  |
| Tanzania | B | C |
| Zambia | C | C |
| Zimbabwe | D | D |

Source: “Country Risk Assessment,” COFACE, accessed October 16, 2014, www.coface.com/Economic-Studies-and-Country-Risks.

1. “SADC Overview,” Southern African Development Community, accessed October 15, 2014, www.sadc.int/about-sadc/overview; “SADC—Southern Africa Development Community,” United Nations Economic Commission for Africa, accessed October 15, 2014, www1.uneca.org/Portals/acpc/documents/Regional-frameworks/SADC.pdf. [↑](#footnote-ref-1)
2. “Southern African Development Community Country Analysis Brief,” European Parliament, accessed October 15, 2014, www.europarl.europa.eu/meetdocs/2004\_2009; “World Bank Open Data,” The World Bank, accessed October 15, 2014, http://data.worldbank.org. [↑](#footnote-ref-2)
3. All currency amounts are in US$ unless otherwise specified. [↑](#footnote-ref-3)
4. South Africa Government Gazette 580, no. 36928 (October 11, 2013): 1–112. [↑](#footnote-ref-4)
5. “Countries: Mozambique,” The World Bank, accessed October 16, 2014, www.worldbank.org/en/country/mozambique/overview. [↑](#footnote-ref-5)
6. “Countries: Botswana,” The World Bank, accessed October 16, 2014, www.worldbank.org/en/country/botswana/overview. [↑](#footnote-ref-6)
7. “Project Appraisal Document for Morupule B Generation and Transmission Project,” The World Bank, accessed October 16, 2014, http://documents.worldbank.org/curated/en/546151468016822759/Botswana-Morupule-B-Generation-and-Transmission-Project; African Development Bank; “Morupule B Power Project: Project Appraisal Report,” African Development Bank, accessed October 16, 2014, https://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Botswana\_-\_The\_Morupule\_B\_Power\_Project\_-\_Appraisal\_Report.pdf. [↑](#footnote-ref-7)
8. “Regional Electricity Regulators Association,” World Forum on Energy Regulation, accessed October 16, 2014, www.energy-regulators.eu/portal/page/portal/ICER\_HOME/IERN\_ARCHIV/Regional\_Associations/RERA. [↑](#footnote-ref-8)
9. “Vision and Objectives,” Southern African Power Pool, accessed October 16, 2015, www.sapp.co.zw. [↑](#footnote-ref-9)