

GAO

Testimony

Before the Subcommittee on Asia, the Pacific, and the Global Environment, Committee on Foreign Affairs, House of Representatives

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For Release on Delivery  
Expected at 2 p.m. EDT  
Thursday, July 26, 2007

MILLENNIUM  
CHALLENGE  
CORPORATION

Projected Impact of  
Vanuatu Compact Is  
Overstated

Statement of David B. Gootnick, Director  
International Affairs and Trade





Highlights of [GAO-07-1122T](#), a testimony to the Subcommittee on Asia, the Pacific, and the Global Environment, House of Representatives

## Why GAO Did This Study

In January 2004, Congress established the Millennium Challenge Corporation (MCC) for foreign assistance. Congress has appropriated almost \$6 billion to MCC. As of March 2007, MCC had signed almost \$3 billion in compacts with 11 countries, including a 5-year, \$65.7 million compact with Vanuatu. MCC states that the Vanuatu compact will have a transformational effect on the country's economy, increasing per capita income and GDP and benefiting 65,000 poor, rural people. This testimony summarizes a July 2007 report ([GAO-07-909](#)) examining (1) MCC's methods of projecting economic benefits, (2) MCC's portrayal and analysis of the projected benefits, and (3) risks that may affect the compact's impact. To address these objectives, GAO reviewed MCC's analyses and met with officials and business owners in Vanuatu as well as with other donors.

In its July 2007 report, GAO recommended that the Chief Executive Officer of MCC revise the public reporting of the Vanuatu compact's projected impact; assess whether similar reporting in other compacts accurately reflects underlying analyses; and improve its economic analyses by more fully accounting for risks to project benefits. MCC did not directly address GAO's recommendations but commented that it had not intended to make misleading statements and that its portrayal of projected results was factual and consistent with underlying data.

[www.gao.gov/cgi-bin/getrpt?GAO-07-1122T](http://www.gao.gov/cgi-bin/getrpt?GAO-07-1122T).

To view the full product, including the scope and methodology, click on the link above. For more information, contact David Gootnick, (202) 512-3149, [gootnickd@gao.gov](mailto:gootnickd@gao.gov).

# MILLENNIUM CHALLENGE CORPORATION

## Projected Impact of Vanuatu Compact Is Overstated

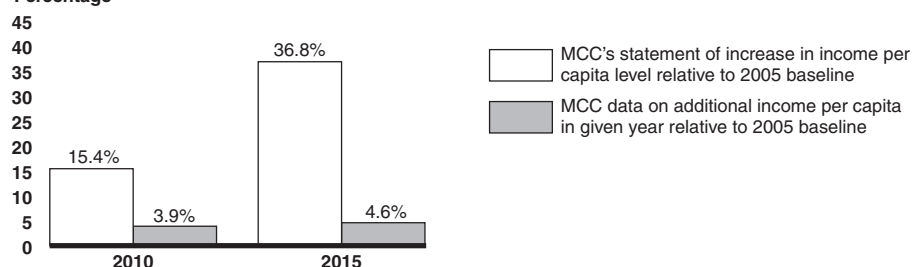
### What GAO Found

MCC projects that the Vanuatu compact's transportation infrastructure projects will provide direct benefits such as reduced transportation costs and induced benefits from growth in tourism and agriculture. MCC estimated the costs and benefits over 20 years, with benefits beginning in full in 2008 or 2009 and growing each year, and it counted poor, rural beneficiaries by defining the area where benefits were likely to accrue. Using projected benefits and costs, MCC calculated the compact's economic rate of return (ERR) and its effects on Vanuatu's gross domestic product (GDP) and per capita income.

MCC's portrayal of the projected impact does not reflect its underlying data. MCC states that per capita income will increase by approximately \$200, or 15 percent, by 2010 and by \$488, or 37 percent, by 2015. However, MCC's underlying data show that these figures represent the sum of individual years' gains in per capita income relative to 2005 and that actual gains will be \$51, or 3.9 percent, in 2010 and \$61, or 4.6 percent, in 2015. MCC also states that GDP will increase by an additional 3 percent a year, but its data show that after GDP growth of 6 percent in 2007, the economy's growth will continue at about 3 percent, as it would without the compact. MCC states that the compact will benefit approximately 65,000 poor, rural inhabitants, but this statement does not identify the financial benefits that accrue to the rural poor or reflect its own analysis that 57 percent of benefits go to others.

We identified five key risks that could affect the compact's projected impacts. (1) Cost estimate contingencies may not be sufficient to cover project overruns. (2) Compact benefits will likely accrue more slowly than MCC projected. (3) Benefit estimates assume continued maintenance, but MCC's ability to ensure maintenance will end in 2011, and Vanuatu's maintenance record is poor. (4) Induced benefits depend on businesses' and residents' response to new opportunities. (5) Efficiency gains, such as time saved in transit, may not increase per capita income. Our analysis of these areas of risk illustrates the extent that MCC's projections are dependent on assumptions of immediate realization of benefits, long-term maintenance, realization of induced benefits, and benefits from efficiency gains.

**Vanuatu Compact's Impact on Per Capita Income According to MCC Statement vs. MCC Data**  
Percentage



Source: GAO analysis of MCC data.

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Mr. Chairman and Members of the Subcommittee:

Thank you for the opportunity to discuss our recent work regarding the Millennium Challenge Corporation's (MCC) compact with Vanuatu.<sup>1</sup>

In January 2004, Congress established MCC to administer the Millennium Challenge Account for foreign assistance. MCC's mission is to reduce poverty by supporting sustainable, transformative economic growth in developing countries that have demonstrated a commitment to ruling justly and democratically, encouraging economic freedom, and investing in people. Congress appropriated almost \$6 billion to MCC for fiscal years 2004 through 2007, and the President has requested an additional \$3 billion in MCC funding for fiscal year 2008. As of March 2007, MCC had signed 11 compacts totaling approximately \$3 billion.<sup>2</sup> MCC's 5-year, \$65.7 million compact with Vanuatu focuses on increasing economic activity and incomes in rural areas through investments in transportation infrastructure. Although MCC's Vanuatu compact is its smallest compact monetarily, it provides by far the largest amount relative to the country's population and gross domestic product (GDP).<sup>3</sup>

Publicly available documents show that MCC expects its compacts to significantly benefit the countries' economies. In its Vanuatu compact and its March 2006 congressional notification, MCC states that it expects the compact to have a "transformational" impact—that is, as MCC defines it, "a dramatic and long-lasting impact on poverty reduction through sustainable economic growth."<sup>4</sup> Using its projected benefit and cost data,

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<sup>1</sup>GAO, *Millennium Challenge Corporation: Vanuatu Compact Overstates Projected Program Impact*, [GAO-07-909](#) (Washington, D.C.: July 2007).

<sup>2</sup>An MCC compact is an agreement between the U.S. government, acting through MCC, and the government of a country eligible for MCA assistance. In June 2007, the MCC board approved a \$362.6 million compact with Lesotho and a \$506.9 million compact with Mozambique.

<sup>3</sup>MCC's \$65.7 million compact with Vanuatu provides \$317 per capita; in contrast, MCC's \$547 million compact with Ghana—its largest compact—provides \$25 per capita. The amounts provided per capita by the 11 compacts signed to date range from \$6 for Madagascar to \$317 for Vanuatu.

<sup>4</sup>Millennium Challenge Account, *Best Practices in Compact Development* (Washington, D.C.: 2006).

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MCC calculated of the compact's expected economic rate of return (ERR)<sup>5</sup> and impact on poverty reduction and economic growth. MCC states that its compacts will provide or contribute to a transformational impact in 5 of its 11 compacts.<sup>6</sup>

In my testimony today, I will address (1) MCC's methods of projecting and calculating the Vanuatu compact's impact on poverty reduction and economic growth, (2) MCC's portrayal and analysis of the Vanuatu compact's projected impact, and (3) risks that could affect the Vanuatu compact's actual impact. This statement summarizes the findings in our report released today.

In our report, we addressed our first and second objectives by evaluating MCC's economic analysis of the Vanuatu compact proposal and MCC's public statements about the compact's impacts. We could not validate most of MCC's underlying data and assumptions, because the data were not available or could not be checked within the time frames of our engagement. To address our third objective, we identified risks to MCC's compact results, based on our review of MCC's internal documentation, donor reporting, and academic literature. To illustrate the impact of these risks on MCC's economic analyses of ERR, GDP, and per capita income, we modeled the risks using the data from MCC's economic analyses; however, we did not validate these data. We focused our analysis and field work on MCC's three transportation infrastructure projects on Vanuatu's two most populous islands, Santo and Efate, which represent 56 percent of compact cost. We interviewed Vanuatu and MCC officials and interested parties such as tourism and agriculture business owners and contacted MCC's contractor. We conducted this work from August 2006 through May 2007 in accordance with generally accepted government auditing standards.

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<sup>5</sup>Project cash flows are determined by comparing program spending against future expected increases in value added or income. The internal rate of return is calculated for these cash flows to summarize the economic impact. MCC refers to this internal rate of return as the economic rate of return.

<sup>6</sup>For example, in Nicaragua, MCC expects that the compact will transform project areas into an engine of economic growth; in El Salvador, MCC states that the compact provides an historic opportunity to transform the country's economic development; and in Armenia, MCC is undertaking road and irrigation projects to transform the economic performance of Armenia's agricultural sector.

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## Summary

MCC projected the Vanuatu compact's impact by estimating the program's benefits, costs, and beneficiaries and calculating the compact's effect on per capita income, GDP, and poverty reduction. According to MCC, transportation infrastructure improvements will provide direct benefits, such as construction spending in the local economy, reduced transportation costs, and improved services, as well as induced benefits from growth in Vanuatu's tourism and agriculture sectors. MCC estimated the value of these benefits over a 20-year period, beginning in full in 2008 or 2009 and growing each year. MCC developed its project cost estimates based on existing cost estimates prepared for the government of Vanuatu and for another donor. To determine the number of poor, rural beneficiaries, MCC defined a catchment area—the geographic area in which benefits may be expected to accrue—using maps of Vanuatu and data from the most recent Vanuatu census. Using its projected benefit and cost data, MCC calculated the compact's ERR by comparing projected benefits with projected costs; calculated the compact's impact on per capita income by determining the total benefits and dividing the total value by Vanuatu's baseline population; and calculated the compact's impact on Vanuatu's GDP by computing the total benefits added to the economy.

In the compact and the congressional notification, MCC portrays projected impacts on per capita income and GDP that do not reflect the underlying data and analysis, which are not publicly available. Also, MCC does not establish the proportion of monetary benefits that will accrue to the rural poor.

- *Per capita income.* MCC states that as a result of the compact, per capita income will increase by approximately \$200, or 15 percent, by 2010 and \$488, or 37 percent, by 2015. This statement suggests that per capita income in 2010 and 2015 will be, respectively, 15 percent and 37 percent higher than without the compact. However, MCC's data show that these percentages represent sums of per capita income gains for individual years. The actual gains in per capita income, relative to income in 2005, would be \$51, or 3.9 percent, in 2010 and \$61, or 4.6 percent, in 2015.
- *GDP.* MCC states that Vanuatu's GDP will increase by "an additional 3 percent a year." However, MCC's underlying data and calculations show that although the level of Vanuatu's GDP will grow by 6 percent in 2007, the economy's growth rate in subsequent years will continue at approximately 3 percent, the growth rate that MCC assumes would occur without the compact.

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- *Poverty reduction.* MCC states that the compact is expected to benefit approximately 65,000 poor, rural inhabitants “living nearby and using the roads to access markets and social services.” According to MCC’s underlying documentation, 57 percent of the compact’s monetary benefits will accrue to tourism services providers, transport providers, government workers, and local businesses and 43 percent of the benefits will go to the local population—that is, local producers, local consumers, and inhabitants of remote communities. However, MCC does not establish the proportion of local-population benefits that will go to the rural poor.

Our analysis shows five key areas of risk that may affect the Vanuatu compact’s actual impact on poverty reduction and economic growth.

- *Construction costs.* The contingencies included in MCC’s calculations of construction costs may not be sufficient to cover potential cost overruns. The risk of excessive cost overruns is especially significant in a small country such as Vanuatu. Any construction cost overrun could cause MCC to reduce the compact’s scope and therefore its benefits.
- *Timing of benefits.* Although MCC projects that the compact’s benefits will begin shortly after completion of the projects, some benefits are likely to accrue more slowly. For example, according to agricultural and timber producers, their businesses will likely respond gradually to any increased market opportunities.
- *Project maintenance.* MCC’s benefit projections assume continued maintenance of completed projects; however, its ability to ensure such maintenance will end in 2011. Moreover, previous donors to Vanuatu have found the country’s maintenance of donor projects to be poor. Reduced maintenance would lead to reduced benefits from the project.
- *Induced benefits.* MCC projects that induced benefits from Vanuatu’s tourism and agriculture—for example, increased tourist traffic and agricultural trade—will lead to expansion of these economic sectors. However, realization of such benefits depends on businesses’ and rural inhabitants’ responses to opportunities created by the compact’s infrastructure improvements.
- *Efficiency gains.* MCC’s projections count efficiency gains from the infrastructure improvements, such as time saved in transit, as direct benefits. However, such gains may not be put to economic use or result in increased per capita income as MCC projects.

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Accounting for these risks could reduce overall compact ERR from 24.2 percent, as projected by MCC, to between 5.5 percent and 16.5 percent.<sup>7</sup>

To help MCC better express and determine the impact of its compacts, our report recommends that MCC's Chief Executive Officer (CEO) (1) revise the public reporting of the projected impact of the Vanuatu compact, (2) assess whether similar statements in other compacts accurately reflect underlying data, and (3) improve MCC's economic analysis by phasing costs and benefits and more fully accounting for risks to project benefits. In comments on a draft of our report, MCC responded that it had not intended to make misleading statements and that its portrayal of projected results was factual and consistent with underlying data.

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## Background

Vanuatu consists of 83 islands spread over hundreds of miles of ocean in the South Pacific, 1,300 miles northeast of Sydney, Australia. About 39 percent of the population is concentrated on the islands of Santo and Efate. Vanuatu's capital, Port Vila, is on Efate, and Vanuatu's only other urban center, Luganville, is on Santo.

In the past decade, Vanuatu's real GDP growth averaged 2 percent, although more rapid population growth led to a decline in per capita GDP over the same period. Average growth of real GDP per capita was negative from 1993 to 2005. An estimated 40 percent of Vanuatu's population of about 207,000 has an income below the international poverty line of \$1 per day. Agriculture and tourism are the principal productive sectors of Vanuatu's economy, contributing approximately 15 percent and 19 percent to GDP, respectively. Although agriculture represents a relatively small share of Vanuatu's overall economy, approximately 80 percent of Vanuatu's residents live in rural areas and depend on subsistence agriculture for food and shelter. The tourism sector is dominated by expatriates of foreign countries living in Vanuatu, who also predominate in other formal sectors of the economy such as plantation agriculture and retail trade.

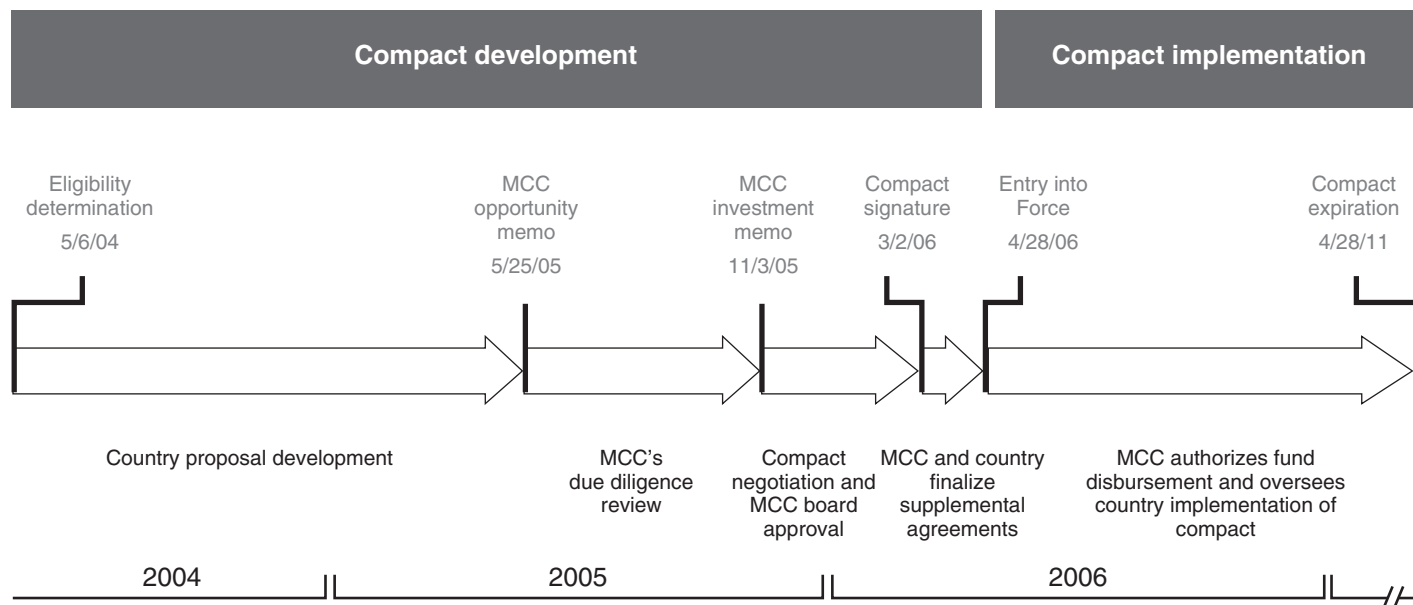
On May 6, 2004, MCC determined that Vanuatu was eligible to submit a compact proposal for Millennium Challenge Account funding.<sup>8</sup> Vanuatu's

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<sup>7</sup>MCC expresses the compact's ERR—the ratio of its benefits and costs—as a percentage.

proposal identified transportation infrastructure as a key constraint to private-sector development. The timeline in figure 1 shows the development and implementation of the Vanuatu proposal and compact.

**Figure 1: Development and Implementation of Vanuatu Compact**



Source: GAO analysis of MCC data contained in Investment Memo.

The \$65.7 million Vanuatu compact includes \$54.5 million for the rehabilitation or construction of 11 transportation infrastructure assets on 8 of Vanuatu's 83 islands, including roads, wharves, an airstrip, and warehouses (see fig. 2). The compact also includes \$6.2 million for an institutional strengthening program to increase the capacity of the Vanuatu Public Works Department (PWD) to maintain transportation

<sup>8</sup>The Millennium Challenge Act of 2003 requires MCC to determine whether countries are eligible for MCA assistance each fiscal year. Countries with per capita income at or below a set threshold may be selected as eligible for assistance if they meet MCC indicator criteria and are not statutorily barred from receiving U.S. assistance. MCC uses 16 indicators divided into three categories: Ruling Justly, Encouraging Economic Freedom, and Investing in People. To be eligible for MCA assistance, countries must score above the median relative to their peers on at least half of the indicators in each category and above the median on the indicator for combating corruption. GAO, *Millennium Challenge Corporation: Compact Implementation Structures Are Being Established; Framework for Measuring Results Needs Improvement*, GAO-06-805 (Washington, D.C.: July 28, 2006).



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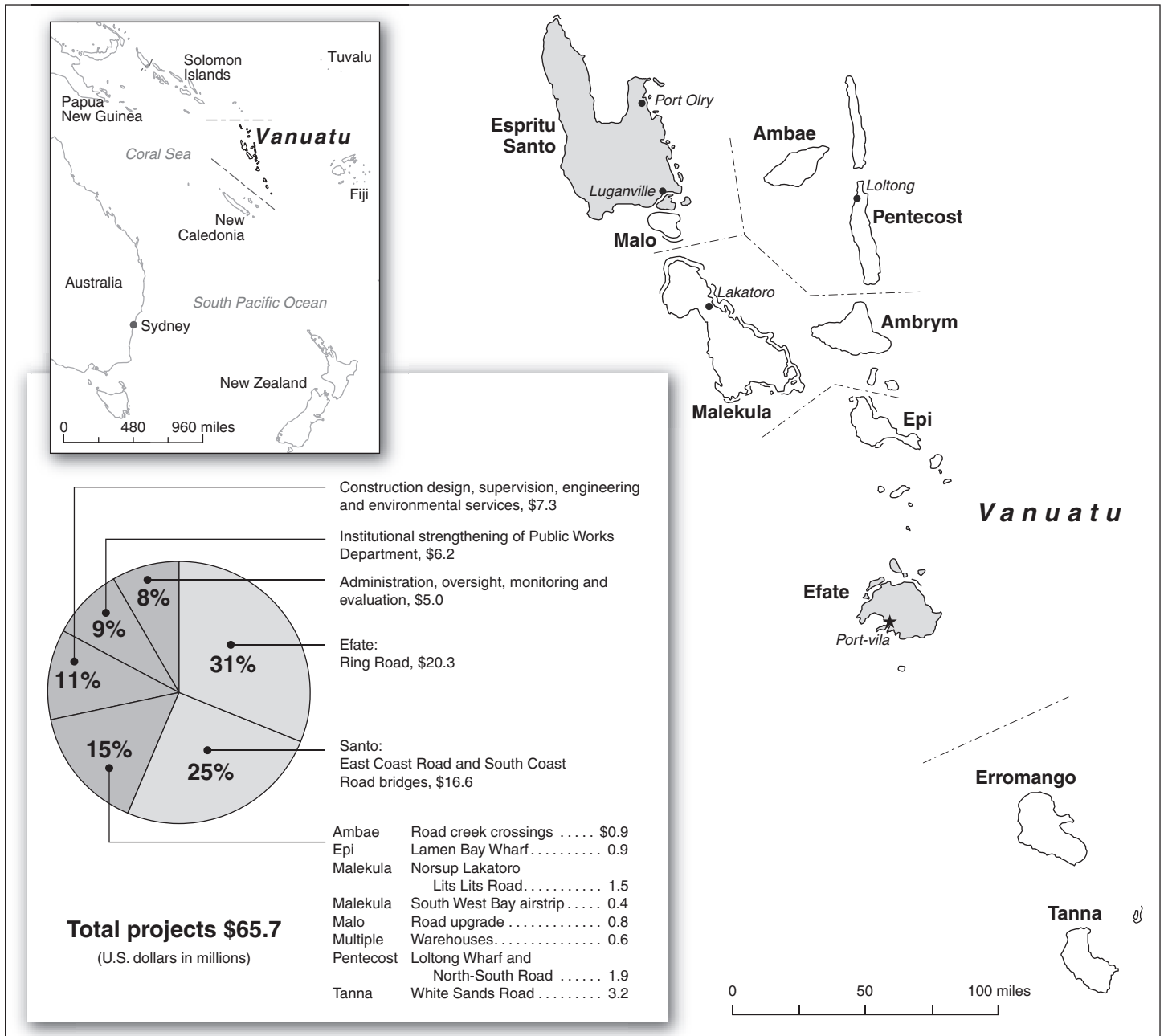
infrastructure.<sup>9</sup> The remaining \$5 million is for program management and monitoring and evaluation. More than half of the compact, \$37 million, is budgeted for three road projects on Santo and Efate islands. The compact provides for upgrading existing roads on both islands; the compact also includes five new bridges for an existing road on Santo.<sup>10</sup>

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<sup>9</sup>The institutional strengthening program includes \$5.74 million for equipment purchases; of this amount, \$1.4 million is provided directly to PWD and the remainder will purchase equipment for the use of the MCC construction contractor, to be turned over to the PWD in specified condition 4 years later.

<sup>10</sup>As of March 2007, MCC had disbursed \$1.72 million in compact funds, or about 16 percent of planned disbursements by that date.

**Figure 2: MCC Vanuatu Projects by Size and Location**



Sources: GAO based on MCC data; Map Resources (map).

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MCC's compact with Vanuatu and congressional notification state that the compact will have a transformational impact on Vanuatu's economic development, increasing average per capita income by approximately \$200—15 percent—by 2010 and increasing total GDP by “an additional 3 percent a year.” MCC's investment memo further quantifies the per capita income increase as \$488—37 percent—by 2015.<sup>11</sup> The compact and the congressional notification also state that the compact will provide benefits to approximately 65,000 poor, rural inhabitants (see fig. 3).

**Figure 3: MCC Statement of Impacts in March 2006 Congressional Notification**

“The Transport Infrastructure Project is expected to have a transformational impact on Vanuatu's economic development, increasing average income per capita (in real terms) by approximately \$200, or 15 percent of current income per capita, by 2010. GDP is expected to increase by an additional 3 percent a year, as a result of the program.

Based on the areas covered by the transport assets, the program can be expected to benefit approximately 65,000 poor, rural inhabitants living nearby and using the roads to access markets and social services.”

Source: MCC Congressional Notification, March 2006.

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## MCC Projected Compact's Impact Using Estimates of Benefits, Costs, and Catchment Area

In projecting the impact of the Vanuatu compact, MCC estimated the benefits and costs of the proposed infrastructure improvements. MCC also estimated the number of beneficiaries within a defined catchment area—that is, the geographic area in which benefits may be expected to accrue. MCC used the estimated benefits and costs to calculate the compact's ERR and impact on Vanuatu's GDP and per capita income.

MCC's analysis determined that the compact will reduce transportation costs and improve the reliability of access to transportation services for poor, rural agricultural producers and providers of tourism-related goods and services and that these benefits will, in turn, lead to increases in per capita income and GDP and reduction in poverty. MCC projects several direct and induced benefits from the compact's infrastructure

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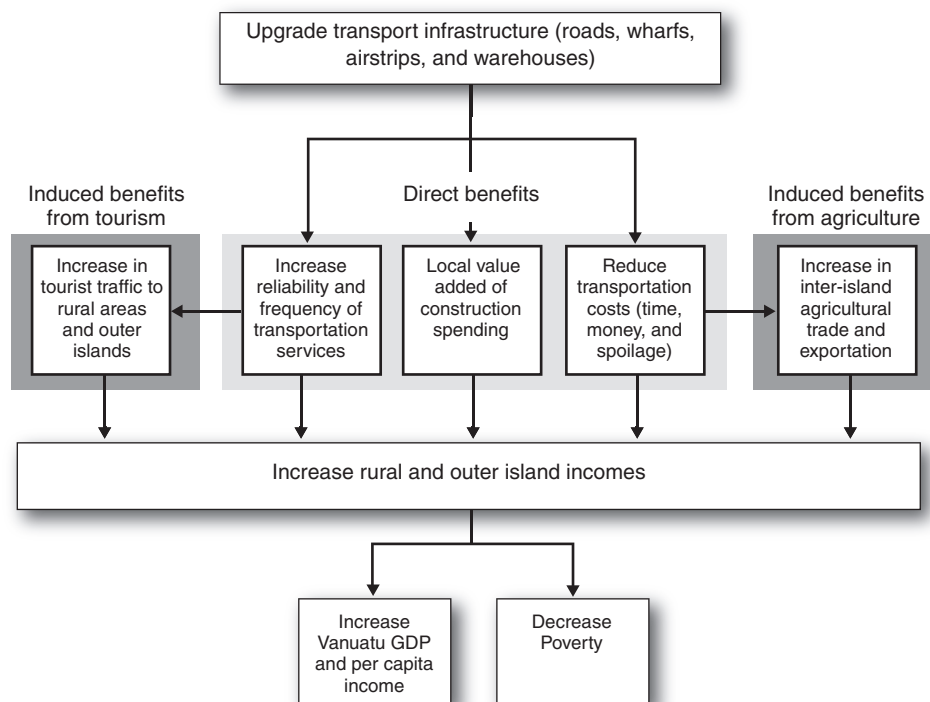
<sup>11</sup>The “investment memo” is an MCC internal document prepared by MCC's compact assessment team and submitted to MCC's investment committee—consisting of MCC's Chief Executive Officer (CEO), vice presidents, and other senior officials. The committee reviews the memo and decides whether to recommend proceeding to compact negotiations.

improvement projects over a 20-year period, beginning in full in 2008 or 2009 and increasing by at least 3 percent every year.

- *Direct benefits.* MCC projects that direct benefits will include, for example, construction spending, reduced transportation costs, and time saved in transit on the improved roads.
- *Induced benefits.* MCC projects that induced benefits from tourism and agriculture will include, for example, increased growth in Vanuatu tourism, tourist spending, and hotel occupancy and increased crop, livestock, and fisheries production.

Figure 4 illustrates MCC’s logic in projecting the compact’s impact.

**Figure 4: MCC’s Logic Model for the Vanuatu Compact**



Source: MCC, with GAO analysis.

MCC expects compact benefits to flow from different sources, depending on the project and its location. In Efate, the Ring Road is expected to provide direct benefits from decreased road user costs and induced benefits through tourism and foreign resident spending. In Santo, MCC

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anticipates similar benefits as well as the induced benefit of increased agricultural production. On other islands, where tourism is not as developed, MCC expects benefits to derive primarily from user cost savings and increased agriculture.<sup>12</sup>

To calculate construction and maintenance costs<sup>13</sup> for the transportation infrastructure projects, MCC used existing cost estimates prepared for the government of Vanuatu<sup>14</sup> and for another donor as well as data from the Vanuatu PWD.

To estimate the number of poor, rural beneficiaries, MCC used Vanuatu maps to identify villages in the catchment area and used the 1999 Vanuatu National Population and Housing Census to determine the number of persons living in those villages. In all, MCC calculated that approximately 65,000 poor, rural people on the eight islands would benefit from MCC projects.

On the basis of the costs and benefits projected over a 20-year period, MCC calculated three summaries of the compact's impact: its ERR, effect on per capita income, and effect on GDP. MCC projected an overall compact ERR of 24.7 percent over 20 years.<sup>15</sup> In projecting the compact's impact on Vanuatu's per capita income, MCC used a baseline per capita income of \$1,326 for 2005.

MCC also prepared a sensitivity analysis to assess how a range of possible outcomes would affect compact results. MCC's tests included a 1-year delay of the start date for accrued benefits; a 20 percent increase of all

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<sup>12</sup>Benefits other than those included in its economic analysis may accrue to Vanuatu as a result of the compact. For example, increased economic activity in tourism may benefit other sectors of the economy and that the welfare of Vanuatu's citizens may improve with increased access to health care and educational opportunities.

<sup>13</sup>MCC's economic model assumes that construction costs are incurred in the first year after compact signing and counts 16 percent of total construction spending as a benefit to the local economy for that year.

<sup>14</sup>MCC's cost estimate for construction and maintenance of the projects on Santo and Efate was based on an estimate prepared for the Vanuatu government by a contractor in 2004. We asked MCC for a copy of the 2004 estimate; however, according to MCC officials, MCC did not have a copy and the government was not willing to provide the estimate for our review.

<sup>15</sup>In its final April 2006 economic analysis, MCC adjusted this calculation downward slightly to 24.2 percent.

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costs; a 20 percent decrease of all benefits; and a “stress test,” with a 20 percent increase of all costs and a 20 percent decrease of all benefits. MCC calculated a best-case compact ERR of 30.2 percent and a worst-case compact ERR of 13.9 percent.

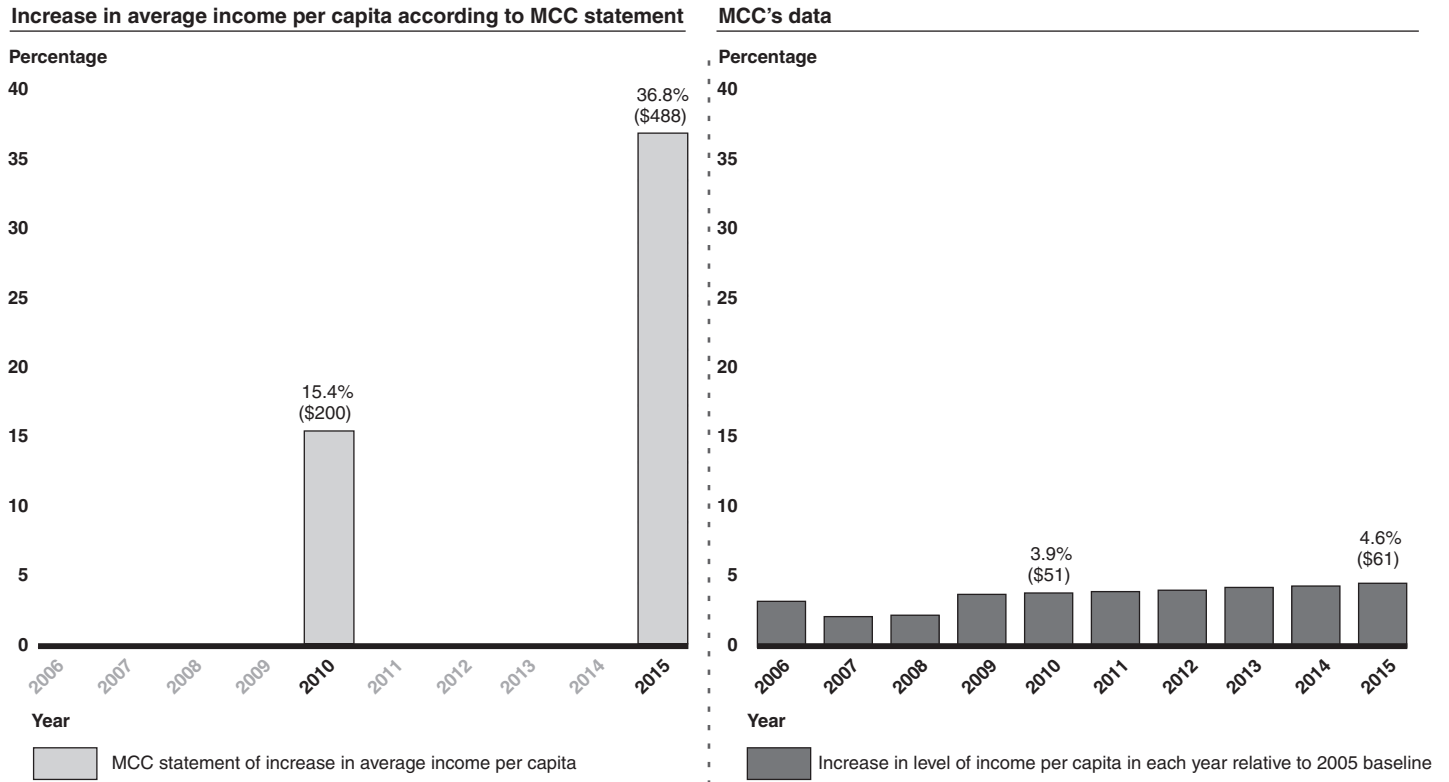
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## MCC’s Data Do Not Support Its Portrayal of Compact Benefits

MCC’s public portrayal of the Vanuatu compact’s projected effects on per capita income and on GDP suggest greater impact than its analysis supports. In addition, MCC’s portrayal of the compact’s projected impact on poverty does not identify the proportion of benefits that will accrue to the rural poor.

- *Impact on per capita income.* In the compact and the congressional notification, MCC states that the transportation infrastructure project is expected to increase “average income per capita (in real terms) by approximately \$200, or 15 percent of current income per capita, by 2010.” MCC’s investment memo states that the compact will cause per capita income to increase by \$488, or 37 percent, by 2015. These statements suggest that as a result of the program, average incomes in Vanuatu will be 15 percent higher in 2010 and 37 percent higher in 2015 than they would be without the compact. However, MCC’s underlying data show that these percentages represent the sum of increases from per capita income in 2005 that MCC projects for each year. For example, according to MCC’s data, Vanuatu’s per capita income in a given year between 2006 and 2010 will range from about 2 percent to almost 4 percent higher than in 2005; in its statements, MCC sums these percentages as 15 percent without stating that this percentage is a cumulative increase from 2005. Our analysis of MCC’s data shows that actual gains in per capita income, relative to income in 2005, would be \$51, or 3.9 percent, in 2010 and \$61, or 4.6 percent, in 2015 (see fig. 5).

**Figure 5: Vanuatu Compact’s Projected Impact on Real Per Capita Income According to MCC Statement and MCC Data Relative to 2005 Per Capita Income**

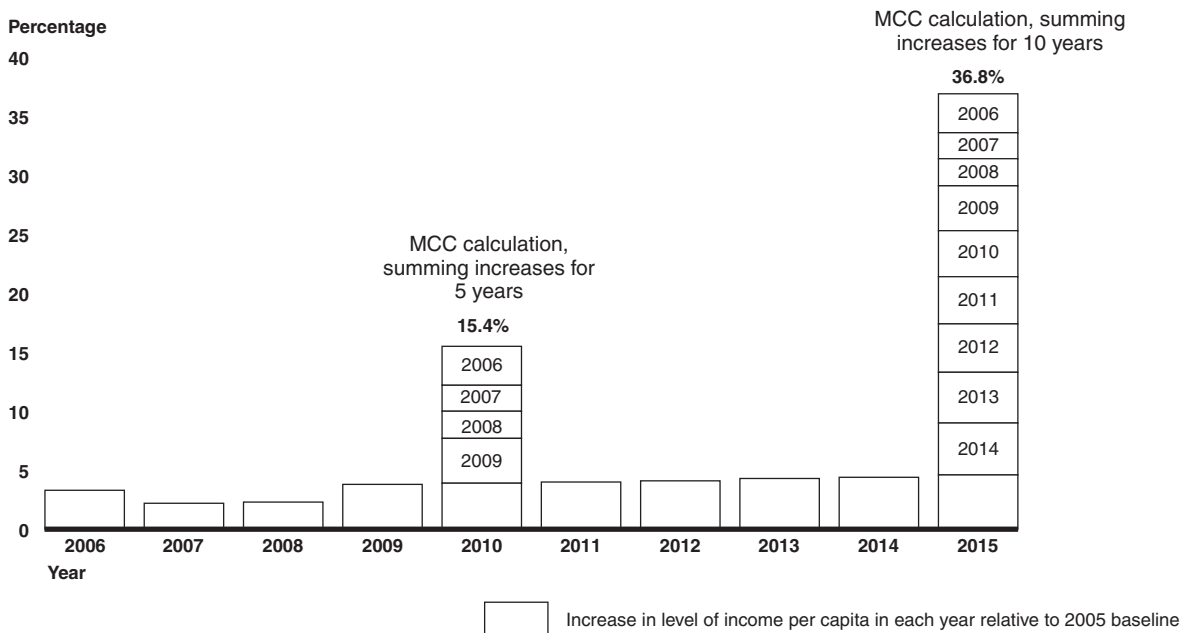


Source: GAO analysis of MCC data contained in Investment Memo.

Note: MCC’s statement: “Increasing average income per capita (in real terms) by approximately \$200 or 15 percent of current income per capita by 2010” and by \$488—37 percent—by 2015.

Figure 6 further illustrates MCC’s methodology in projecting the compact’s impact on per capita income levels for 2010 and 2015.

**Figure 6: MCC Methodology for Projecting Vanuatu Compact’s Impact on Real Per Capita Income**

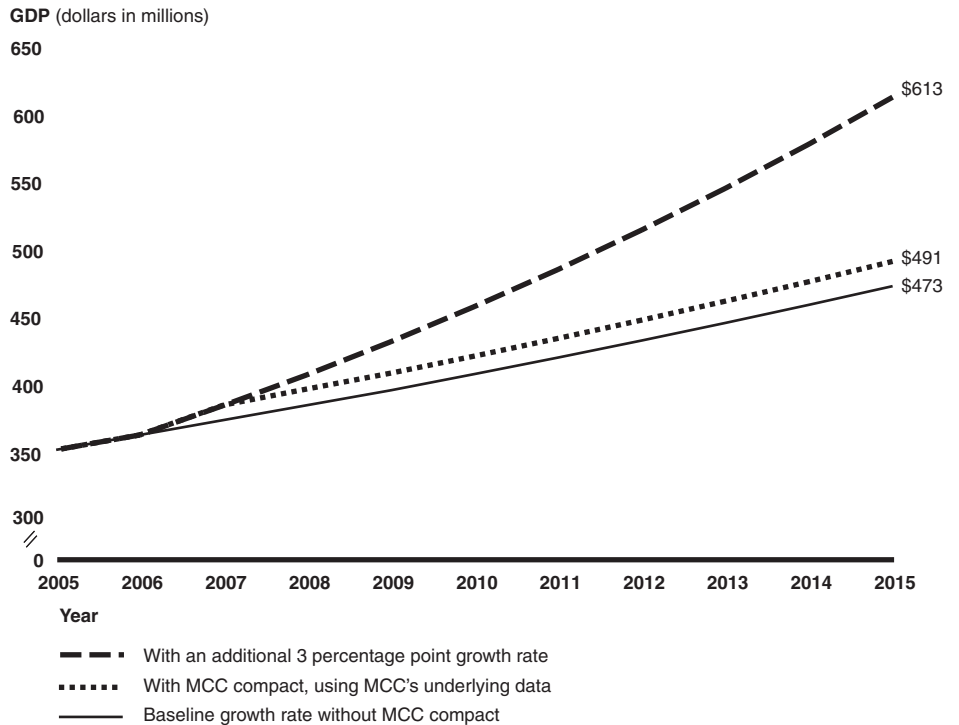


Source: GAO analysis data contained in Investment Memo.

- Impact on GDP.** Like its portrayal of the projected impact on per capita income, MCC’s portrayal of the projected impact on GDP is not supported by the underlying data. In the compact and the 2006 congressional notification, MCC states that the compact will have a transformational effect on Vanuatu’s economy, causing GDP to “increase by an additional 3 percent a year.” Given the GDP growth rate of about 3 percent that MCC expects in Vanuatu without the compact, MCC’s statement of a transformational effect suggests that the GDP growth rate will rise to about 6 percent. However, MCC’s underlying data show that although Vanuatu’s GDP growth rate will rise to about 6 percent in 2007, in subsequent years the GDP growth rate will revert to roughly the rate MCC assumes would occur without the compact, approximately 3 percent (see fig. 7). Although MCC’s data show that the compact will result in a higher level (i.e., dollar value) of GDP, the data do not show a transformational increase to the GDP growth rate.



**Figure 7: Vanuatu GDP Growth with and without MCC Compact**



Source: GAO analysis of MCC data.

Notes:

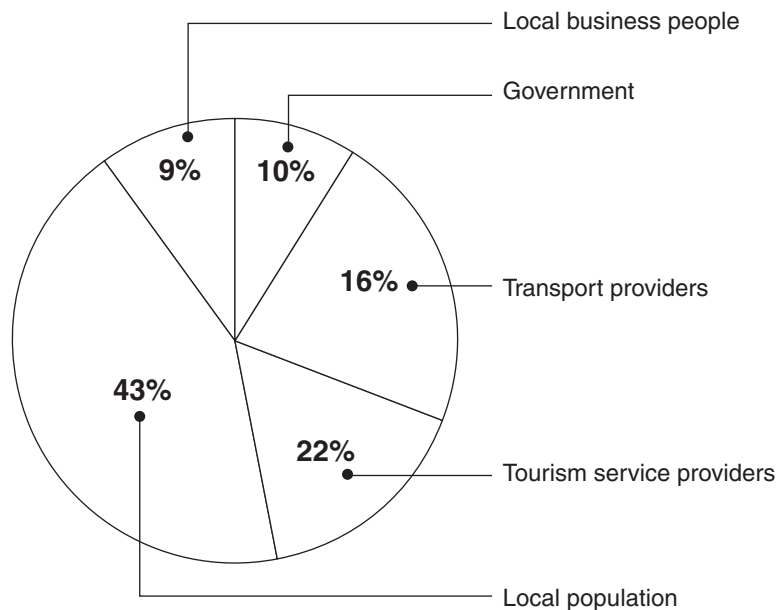
According to MCC, “GDP is expected to increase by an additional 3 percent a year as a result of the MCA program.”

According to MCC data, the compact will have a small impact on GDP growth rate in later years. In 2010 to 2015, the GDP growth rate resulting from the compact will be 3.1 percent, compared with 3 percent without the compact.

- Impact on poverty.* MCC’s portrayal of the compact’s projected impact on poverty does not identify the proportion of the financial benefits that will accrue to the rural poor. In the compact and the congressional notification, MCC states that the program is expected to benefit “approximately 65,000 poor, rural inhabitants living nearby and using the roads to access markets and social services.” In its underlying documentation, MCC expects 57 percent of the monetary benefits to accrue to other beneficiaries, including expatriate tourism services providers, transport providers, government, and local businesses; 43 percent is expected to go to the local population, which MCC defines as “local producers, local consumers and inhabitants of remote communities”

(see fig. 8). However, MCC does not establish the proportion of local-population benefits that will go to the 65,000 poor, rural beneficiaries.<sup>16</sup>

**Figure 8: MCC Analysis of Distribution of Vanuatu Compact Benefits**



Source: MCC analysis.

Note: MCC defines “local population” as comprising local producers, local consumers, and inhabitants of rural communities.

## Several Risks May Lead to Reduced Project Benefits

Our analysis shows that risks related to construction costs, timing of benefits, project maintenance, induced benefits, and efficiency gains may lessen the Vanuatu compact’s projected impact on poverty reduction and economic growth. Accounting for these risks could reduce the overall compact ERR.

<sup>16</sup>Our review of MCC’s analyses also identified some calculation errors in MCC’s determination of the compact’s impact on per capita income and estimation of the number of compact beneficiaries. In addition, we identified questionable assumptions regarding the beneficiary population. For example, MCC counted all residents of the catchment area as poor and assumed that residents of off-shore islets and villages near paved portions of the Efate Ring Road not improved by MCC would benefit from the compact. Correcting these errors and fully discounting these assumptions would reduce the beneficiary count on Efate and Santo by 32 percent—from 26,553, as stated by MCC, to 18,070—indicating that MCC may have overestimated the compact’s beneficiaries.

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- *Construction costs.* Although MCC considered the risk of construction cost increases, the contingencies used in its calculations may not be sufficient to cover actual construction costs. Cost estimate documentation for 5 of MCC's 11 construction projects shows that these estimates include design contingencies of 20 percent. However, cost overruns of more than 20 percent occur in many transportation projects,<sup>17</sup> and as MCC's analysis notes, the risk of excessive cost overruns is significant in a small country such as Vanuatu.<sup>18</sup> Any construction cost overrun must be made up within the Vanuatu compact budget by reducing the scope, and therefore the benefits, of the compact projects;<sup>19</sup> reduced project benefits would in turn reduce the compact's ERR and effects on per capita income and GDP.
  - *Timing of benefits.* Although MCC's analysis assumes compact benefits from 2008 or 2009—shortly after the end of project construction—we found that benefits are likely to accrue more slowly. Our document review and discussions with tourism services providers and agricultural and timber producers suggest that these businesses will likely react gradually to any increased market opportunities resulting from MCC's projects, in part because of constraints to expanding economic activity.<sup>20</sup> In addition, MCC assumes that all construction spending will occur in the first year,

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<sup>17</sup>A study of more than 250 transportation projects in Europe, North America, and elsewhere found that costs for all projects were 28 percent higher, on average, than forecasted at the time of decision to build, while road projects averaged escalations of 20.4 percent. See Bent Flyvbjerg, Mette Skamris Holm, and Soren Buhl, "Underestimating Costs in Public Works Projects: Error or Lie?," *Journal of the American Planning Association*, Vol. 68, No. 3 (2002), cited in GAO, *Highway and Transit Investments: Options for Improving Information on Projects' Benefits and Costs and Increasing Accountability for Results*, GAO-05-172 (Washington, D.C.: January 24, 2005).

<sup>18</sup>MCC cites the "design-construct" contract proposed for the MCA program, which will include design and construction of all the projects as one package, as key to mitigating this risk. However, MCC's analysis also recognized that nonconstruction-related issues (such as access to parts of the project site) have the potential to delay the contractor and increase costs and that such issues can be significant for major road upgrade projects where the competing interests of the contractor, adjacent villages, and the general public must be balanced. MCC's analysis states that, to help manage the risk of project-related disputes and delays, MCC plans to have experienced consultants work with local PWD staff who have an understanding of the social and cultural issues.

<sup>19</sup>According to the compact, the government of Vanuatu must pay any environmental mitigation and remediation costs in excess of the budget.

<sup>20</sup>Benefits from construction activities may also be reduced by a delayed procurement. MCA-Vanuatu officials initially told us they anticipated issuing an invitation for bid to contractors by the end of February 2007. As of May 2007, the invitation had not yet been issued. MCC currently expects construction to begin in 2008, further reducing the likelihood of benefits starting in 2007 as MCC anticipated in its analyses.

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instead of phasing the benefits from this spending over the multiyear construction schedule.

- *Project maintenance.* Uncertainty about the maintenance of completed transportation infrastructure projects after 2011 may affect the compact's projected benefits. Vanuatu's record of road maintenance is poor. According to World Bank and Asian Development Bank officials, continuing donor involvement is needed to ensure the maintenance and sustainability of completed projects. However, although MCC has budgeted \$6.2 million for institutional strengthening of the Vanuatu PWD, MCC has no means of ensuring the maintenance of completed projects after the compact expires in 2011; the Millennium Challenge Act limits compacts to 5 years. Poor maintenance performance will reduce the benefits projected in the MCC compact.
- *Induced benefits.* The compact's induced benefits depend on the response of Vanuatu tourism providers and agricultural producers. However, constraints affecting these economic sectors may prevent the sector from expanding as MCC projects. Limited response to the compact by tourism providers and agricultural producers would have a significant impact on compact benefits.
- *Efficiency gains.* MCC counts efficiency gains—such as time saved because of better roads—as compact benefits. However, although efficiency gains could improve social welfare, they may not lead to changes in per capita income or GDP or be directly measurable as net additions to the economy.

Accounting for these risks could reduce the overall compact ERR from 24.2 percent, as projected by MCC, to between 5.5 percent and 16.5 percent (see table 1).

**Table 1: Summary of Compact ERR under Alternative Scenarios of Accounting for Risks to Benefits**

	<b>Compact ERR</b>
<b>MCC’s anticipated effect</b>	24.2 percent
<b>GAO analysis<sup>a</sup></b>	
(1) Costs are phased over 3 years and benefits are phased over 5 years	16.5 percent
<b>Costs are phased over 3 years and benefits are phased over 5 years, and</b>	
(2) induced benefits are not realized <sup>b</sup>	5.5 percent
(3) efficiency gains are not monetized <sup>c</sup>	11.8 percent
(4) large-scale maintenance is not undertaken <sup>d</sup>	13.8 percent

Source: GAO analysis of MCC data.

<sup>a</sup>In our analysis, benefits start in 2010 and are phased in equal increments over 5 years, from 2010 to 2014, with phasing completed by year 5. Costs are phased over 3 years to reflect projected timing of construction.

<sup>b</sup>In addition to phasing benefits and costs, we eliminated induced effects of the project on agriculture, tourism, fisheries, and the development of subdivided beachfront land.

<sup>c</sup>In addition to phasing benefits and costs, we eliminated road user cost savings and savings from reduction of wasted surface trips, lost trips, longer diversions, and enforced longer trips from road closures.

<sup>d</sup>In addition to phasing benefits and costs, we assumed that total benefits will increase, peak, and decrease such that their value in 2027 will equal their original value in 2012. The large capital outlays for road rehabilitation in 2017 and 2026 in Santo and Efate have been eliminated.

## Conclusions

MCC’s public portrayal of the Vanuatu compact’s projected benefits—particularly the effect on per capita income—suggests a greater impact than MCC’s underlying data and analysis support and can be understood only by reviewing source documents and spreadsheets that are not publicly available. As a result, MCC’s statements may foster unrealistic expectations of the compact’s impact in Vanuatu. For example, by suggesting that per capita incomes will increase so quickly, MCC suggests that its compact will produce sustainable growth that other donors to Vanuatu have not been able to achieve. The gaps between MCC’s statements about, and underlying analysis of, the Vanuatu compact also raise questions about other MCC compacts’ projections of a transformational impact on country economies or economic sectors. Without accurate portrayals of its compacts’ projected benefits, the extent to which MCC’s compacts are likely to further its goals of poverty reduction and economic growth cannot be accurately evaluated. In addition, the economic analysis underlying MCC’s statements does not

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reflect the time required to improve Vanuatu's transportation infrastructure and for the economy to respond and does not fully account for other risks that could substantially reduce compact benefits.

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## Recommendations

In our report, we recommend that the CEO of MCC take the following actions:

- revise the public reporting of the Vanuatu compact's projected impact to clearly represent the underlying data and analysis;
- assess whether similar statements in other compacts accurately reflect the underlying data and analysis; and
- improve its economic analysis by phasing the costs and benefits in compact ERR calculations and by more fully accounting for risks such as those related to continuing maintenance, induced benefits, and monetized efficiency gains as part of sensitivity analysis.

In comments on a draft of our report, MCC did not directly acknowledge our recommendations. MCC acknowledged that its use of projected cumulative compact impact on income and growth was misleading but asserted that it had no intention to mislead and that its portrayal of projected compact benefits was factually correct. MCC questioned our finding that its underlying data and analysis do not support its portrayal of compact benefits and our characterization of the program's risks. (See app. VI of our report for MCC comments and our response.<sup>21</sup>)

Mr. Chairman, this completes my prepared statement. I would be happy to respond to any questions you or other Members of the Subcommittee may have at this time.

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## GAO Contact and Staff Acknowledgments

For further information about this testimony, please contact me at (202) 512-3149 or [gootnickd@gao.gov](mailto:gootnickd@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. In addition to the person named above, Emil Friberg, Jr. (Assistant Director), Gergana Danailova-Trainor, Reid Lowe, Angie Nichols-Friedman, Michael Simon, and Seyda Wentworth made key

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<sup>21</sup>[GAO-07-909](#).

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contributions to this statement. Also, David Dornisch, Etana Finkler, Ernie Jackson, and Tom McCool provided technical assistance.

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