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Sustainable Development in Practice: Georgia's Engagement with MCC's Millennium Challenge

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Abstract: ***This article offers a detailed assessment of Georgia's engagement with the Millennium Challenge Corporation's (MCC) Millennium Challenge Account (MCA) Initiative, focusing on its contributions to sustainable development. Through an extensive analysis of program objectives, implementation strategies, and outcomes, this study evaluates the effectiveness of the MCA Initiative in advancing sustainable development goals in Georgia. The research provides in - depth insights into the achievements, challenges, and lessons learned from Georgia's partnership with the MCC's MCA Initiative.***

Keywords: Millennium Challenge Corporation, Georgia, Economic development, Sustainable development, Education

1. Introduction

The Millennium Challenge Corporation (MCC) is a United States government agency dedicated to promoting global economic growth and poverty reduction through the implementation of innovative and sustainable development programs. Established in 2004, the MCC operates on the principle of delivering foreign assistance by focusing on developing countries that demonstrate a commitment to good governance, economic freedom, and investments in their citizens. With a mission to reduce poverty through economic growth, the MCC partners with low and middle - income countries to design and implement time - limited grants for projects that address key constraints to economic development, such as inadequate infrastructure, limited access to education and healthcare, and barriers to trade and investment (MCC, 2024).

MCC's involvement in Georgia began shortly after the country's Rose Revolution in 2003, which signified a shift towards democratic governance and economic reforms. Recognizing this progress, since 2005, MCC entered into a compact with Georgia to tackle the critical barriers to economic growth and investment. Georgia's participation in the MCA Initiative reflects its commitment to advancing economic growth, strengthening governance, and reducing poverty. Georgia has been a beneficiary of MCC's support through various projects aimed at enhancing infrastructure, strengthening governance, and fostering private sector development. This article evaluates Georgia's experience with the MCA Initiative, by examining the program's objectives, implementation strategies, providing insights into its achievements, challenges, and outcomes with a specific focus on its contribution to sustainable development goals.

2. Overview of the Millennium Challenge Corporation's MCA Initiatives in Georgia

The Government of Georgia (GoG) and the Millennium Challenge Corporation (MCC) signed a five - year, $295.3 million compact in September 2005, which entered into force on April 7, 2006. Later, following the Russia - Georgia war, in November 2008, as part of a broader assistance effort from the U. S. government to Georgia, the MCC expanded the funds and allocated to the Georgia Compact to $395.3 million. In order to manage the implementation of compact projects, the Georgian government established accountable entities called Millennium Challenge Accounts (MCA), and as a part of compact development, the GoG established the Millennium Challenge Account Georgia (MCA - Georgia). The compact's objective was to improve key barriers to economic advancement: the sluggish progress of businesses, especially in the agribusiness sector and also a lack of dependable infrastructure. The financial effort was mostly addressed to enhance the economic integration of impoverished communities in regions by facilitating improved access to employment opportunities and markets, ensuring more dependable provision of essential services, and providing capital for the development of enterprises. The compact comprised two projects: The Regional Infrastructure Rehabilitation and the Enterprise Development Project.

The primary focus of the Regional Infrastructure Rehabilitation Project was the rehabilitation of essential regional infrastructure, by improving transportation for regional trade, bolster the reliability of energy supply, and advancing municipal services in the respective regions. This project consists of the following activities: 1. Samtskhe - Javakheti Road Rehabilitation (SJRR) - involved rehabilitating and constructing over 220 kilometers of main road in southwest Georgia, aimed at improving market access to support economic growth. The Compact amendment enabled the full rehabilitation and construction of the road as initially planned, fully connecting this region to Armenia, Turkey, and central Georgia.2. Energy Rehabilitation - focused on repairing the north - south gas pipeline. In Georgia, natural gas was crucial for electricity generation and directly supplies households and businesses. Following the compact amendment, the Government of Georgia initiated studies necessary for preparing the construction of an underground gas storage facility to enhance energy security.3. Regional Infrastructure Development - activity aimed at rehabilitating municipal infrastructure for water supply and waste - water management in five Georgian cities, with additional funding allocated for projects in Borjomi, Kutaisi, and Kobuleti to expand water services.

The Enterprise Development Project aimed to enhance agribusinesses and promote successful investments in small and medium - sized enterprises (SMEs). It consisted of the following activities: Investment Fund Activity, which involved the establishment of the Georgia Regional Development Fund, a professionally and independently managed investment fund. It provided long - term risk capital and technical assistance to SMEs in the agribusiness and tourism sectors, primarily in regions outside of Tbilisi. Another activity was Agribusiness Development Activity which provided technical assistance and grants to farmers and agribusinesses operating in vital value chains that supplied agricultural products to the domestic market.

The compact II (total amount $140 million) with Georgia was approved by MCC's Board of Directors in June of 2013 and subsequently signed in July of 2013. The agreement came into force on July 1, 2014, and concluded on July 1, 2019. The primary objective of the compact II was to enhance the earning potential of Georgians through comprehensive improvements of the quality of general education, with a particular emphasis on STEM education (Science, Technology, Engineering and Mathematics), technical and vocational education and training (TVET), and higher education. This initiative represented MCC compact solely dedicated to education, aimed to address the identified constraint of an insufficiently trained workforce to meet labor demands.

MCC and Georgia collaborated on a compact that focused on enhancing various aspects: providing training for educators and school directors, and supporting education assessments; improving the quality of general education by rehabilitating deteriorating schools, implementing technical and vocational training programs to meet the skills demand of businesses in the country; establishing a partnership in higher education to modernize science, technology, engineering, and math education in three of the nation's top universities. The Compact II was mainly carried out by MCA - Georgia, but the GoG delegated certain implementation tasks, such as education assessments and teacher training, and utility connections to other governmental agencies to help ensure long - term sustainability. The Georgian government contributed $32.96 million of its own funds towards the compact and demonstrated its commitment as a strong partner throughout the implementation of both compacts. It fulfilled key conditions necessary to release compact funds and enacted legislation to uphold the sustainability of compact benefits.

The Compact II included three projects: The first project was the Improving General Education Quality Project - aimed to enhance Georgia's general education quality by enhancing physical learning environments, training educators, supporting national and international assessments, rehabilitating facilities, upgrading utilities such as heating, electrical, water supply, and sanitation systems, and outfitting 91 Georgian public schools with essential science laboratories and equipment. Moreover, the project, encompassed activities aimed at offering training sessions to all public secondary school STEM and English teachers, along with all public - school principals and school - based professional development facilitators.

The goal of the Industry- Led Skills and Workforce Development Project was to enhance the connection between market - demanded skills and the supply of Georgians equipped with relevant technical skills needed for the local economy. The project offered an initial investment in competitive grants to vocational and technical education and training (TVET) programs. These programs aimed to develop, test, and share innovative and effective approaches to skills geared towards employment, in collaboration with both public and private sector employers. It also allocated resources to small - scale competitive grants programs, tasked with identifying, documenting, and disseminating best practices adopted by TVET providers. Additionally, the project promoted international exchanges of best practices between industry and government officials.

The aim of the STEM Higher Education Project was to facilitate the provision of high - quality STEM degree programs in Georgia. This initiative aimed to modernize higher education in science, technology, engineering, and mathematics (STEM) fields through a collaborative effort. This partnership introduced high - quality, U. S. - accredited STEM bachelor's degree programs in Georgia. After the GoG conducted a competitive selection process, San Diego State University and three Georgian public partner universities secured contracts to oversee bachelor's degree programs. These programs were designed to enhance employment prospects for Georgian students. Additionally, the project financed the renovation and construction of contemporary laboratory and classroom facilities, essential upgrades to equipment, curriculum development, and institutional support to achieve the attainment of international accreditation.

The compact II adopted a comprehensive approach to education, encompassing general education, technical training, and tertiary education. The MCC, in collaboration with the GoG, private sector, U. S. Embassy, and other donors, aimed to increase women's participation in the workforce, especially in STEM fields. Gender and social inclusion best practices were employed to effectively support Georgia's most vulnerable citizens, particularly the poor and ethnic minority students attending overlooked schools outside of Tbilisi, as well as high school graduates pursuing Technical and Vocational Education and Training (TVET) as a pathway to prosperity. These targeted investments were designed to not only harness the economic growth benefits of the compact but also to contribute to poverty reduction. In 2019, following the closure of the compact, the Georgian government announced plans to continue the MCC compact's work by investing in education and partnering with donors like the World Bank. The GoG contributed an additional $10.5 million to support the STEM Higher Education Project and established the Millennium Foundation to sustain the program.

3. Key Accomplishments of the First Compact

Regional Infrastructure Rehabilitation Project: During the period of compact development, the Samtskhe - Javakheti region was one of the poorer areas of Georgia, experiencing a per capita income significantly lower than the national average and relying heavily on subsistence agriculture. Roads in southern Georgia had deteriorated, isolating the Samtskhe

- Javakheti region from the rest of the country. Due to the high transportation costs for exporting produce from the region, local farmers struggled to compete with those in other areas. Additionally, the poor road infrastructure posed significant challenges for importing agricultural inputs and other goods. The business sector was underdeveloped and employment opportunities limited. in 2008, this area bore a heavy blow from the Russia - Georgia War, resulting in a stark 9.35 percent plunge in its GDP from 2008 to 2009 (Georgia GDP: GVA: Samtskhe-Javakheti, 2016). It was expected that the restoration of roads in the Samtskhe - Javakheti region would stimulate economic growth in the area.

Consequently, under the MCC Samtskhe - Javakehti Road Rehabilitation Activity (SJRR) a total of 220 kilometers (136 miles) of rural roads had been restored, effectively linking this isolated region of Georgia with the capital city and facilitating access to international trade with Armenia and Turkey (initially budgeted at $102.2 million, later revised to $162.2 million, and a final disbursed $212.8 million). The rehabilitation of roads under the SJ Roads Activity involved various tasks such as paving, constructing bridges, and installing drainage systems. The construction and rehabilitation of the roads were undertaken by several international and local construction firms. The project adopted newly integrated European design standards for road rehabilitation, replacing the former Soviet Union standards, which had not been updated since 1984 in Georgia.

Construction started in the spring of 2008 and was mostly finished by December 2010, with some additional minor work on certain road segments extending into the following months. According to MCC final report, presented by the NORC at the University of Chicago, project roads were successfully improved travel conditions. There was an average rise in traffic volume of 44.2 vehicles per day (4.2 %) relative to comparison roads, while the average speed along these roads rose by 24.4 % (13.6 km/h), driving times reduced both to Tbilisi 39.6 minutes and to the local markets by 43.6 minutes, where farmers sell their products. At the community level, the data showed that the improvement of roads led to a rise in the number of industrial facilities (factories, canneries, and agricultural processing facilities) in the settlement. After the project, there were an increase of 0.46 facilities per community. Given that the mean at baseline was 1.69 facilities, this corresponds to a 26.9% increase. An additional channel of observation was the market prices of goods that were transported along those roads. The evaluation revealed a complex relationship between prices and transport costs; there were different tendencies for different products, mostly depending on whether the product in question was locally produced or not. Notably, the most significant effects were observed for honey and beef. Improvements to the roads tended to increased honey prices in honey - producing areas and decreased them in distant markets. Conversely, improving roads led to a decrease in beef prices in beef - producing areas and a rise in beef prices elsewhere. However, on the household level outcomes in the Samtskhe - Javakehti region, the evaluation did not find any evidence that the project affected household income, consumption habits, ownership of assets, employment opportunities, or access to health and education services (Moore, 2013). This suggests that while infrastructure development was crucial for economic growth and connectivity, complementary interventions must be needed to ensure that the benefits reach all segments of the population and contribute to broader socioeconomic development.

Energy Rehabilitation Activity

According to a 2003 report conducted by Georgian Gas International Corporation, the Georgia's gas supply system was in danger of collapsing in the next two to three years. Based on this study, the Millennium Challenge Corporation helped the Georgian government implement an energy sector strategy and provide the Energy Rehabilitation Activity in order to increase energy reliability and security, and reduce energy losses throughout Georgia by rehabilitating sections of the North - South gas pipeline system. During that period, the pipeline served as Georgia's main natural gas pipeline running from Russia in the north to Armenia, in the southern regions of the country. Following the dissolution of the Soviet Union and the downturn of the Georgian economy, the pipeline was neglected and required extensive renovation. The MCG appointed the Georgian Oil and Gas Corporation (GOGC), as implementing partner for project, tasked with following: preparing project designs, environmental assessments, and specifying technical requirements for equipment procurement. Additional, obtaining necessary environmental and construction permits, overseeing land acquisitions, supervising construction and monitoring the progress of the project.

The rehabilitation program included the III phase, which began in 2007 and was completed in 2009. During this period, 22 cites were restored, the following pipelines at various locations: Meneso, Zotikiantkari, Arkala, Naniani, Gldanula, Gardabani, Rustavi, Dushetiskhevi, Aragvi, Tskhvedieti, Zhinvali, Tetri Aragvi, River Belaia, Kabarjino, River Baidara, River Snostskali. The main challenging issues with these pipelines were that they were very unstable due to erosion and washout, some of them were heavily corroded, and they were a source of gas leaks, an additional problem was an active landslide, in some cases, pipelines were exposed to river flows or was a subject to possible damage from mudflows, flash floods and falling rocks.

During the four - year rehabilitation period, from 2006 to 2009, around $35.2 million was allocated. The costs of projects were distributed into several categories: Half of this sum, around $17.2 million, was allocated to contractor payments for their services, the second - largest expenditure category was steel pipe, amounting to about $14.0 million, and GOGC received compensation of approximately $3.9 million for their project management services (Cronshaw & CO, 2010)

Under the three phase rehabilitation projects, repair works included the following, for instance in the Zotikiantkari the exposed pipe sections were coated, and stone - lined channels were constructed to divert water flow and prevent soil erosion. In the Rustavi, pipeline was replaced with new 720 mm diameter pipe with 3 - layer polyethylene coating and a cathodic protection system, which enabled gas from SCP pipeline and Azerbaijan to feed the Georgian system without impact on supply of Russian gas to Armenia. Near the Aragvi, protection from the river flows was achieved through the

installation of groyne spurs, rip rap, and extension of an existing concrete wall. The Zhinvali valve replacement involved removing the redundant valve and bypass valves and Replace with a pipe pup. Through the River Snostskali crossing project, the protective dam was repaired, and measures were taken to bury the pipelines below the river scouring depth. At the Naniani Landslide site, an active landslide was identified. To address this, the pipe was rerouted using new pipe and laid beneath the Arkala river. It was buried to a depth of at least 2 meters below the anticipated river scouring depth and was additionally covered with concrete for protection. Measures for erosion control and runoff management were also implemented. Additionally, the pipelines were covered with an armored concrete coating for added protection. At the Tskhvedieti stream crossing, the pipeline cover was increased. This involved installing a new concrete wall in front of the existing wall and adding new rip rap for further protection (Cronshaw & CO, 2010). Overall, the completion of the Energy Rehabilitation Activity signified an important milestone in enhancing Georgia's energy sector resilience and contributed to the country's economic development and energy security. Moving forward, continued maintenance and monitoring were essential to sustain the improvements achieved and ensure the long - term viability of the gas supply system.

The Regional Infrastructure Development Activity (RID Activity) aimed to reduce costs and burdens of unreliable public utilities, which were achieved by the enhancing the capabilities of governmental jurisdictions to plan, develop, finance, construct, and manage regional and municipal projects (original budget: $60 million; revised to $86.0 million; with a final total disbursed of $51.1 million). The activity offered grants to eligible government entities, including local self - government, municipal enterprises, and central government, to support infrastructure projects. These projects encompassed various aspects, including investment in machinery and equipment, development efforts such as feasibility and environmental studies, and the preparation of designs. Additionally, technical assistance projects were implemented to provide training and enhance the knowledge of eligible municipal entities through staff support and training programs.

The main RID Activity included municipal water supply and waste - water collection initiatives in Poti, Kutaisi, Kobuleti, Borjomi, and Bakuriani. Additionally, several studies and designs were conducted for potential projects that could be supported by other donors. Under the project activities, water and sanitation projects addressed critical infrastructure needs in all project cities and generally improved each city’s water supply and waste - water management. The RID projects contributed to reducing electrical consumption in their respective cities through enhancements in well pumping and pump station systems. Moreover, the RID Activity successfully achieved 24 - hour water supply in three out of the five cities, namely Kobuleti, Borjomi, and Bakuriani, which were major tourist destinations in Georgia. According to the implementers, the RID projects in these cities enhanced conditions for the growth of tourism and small and medium - sized businesses. They anticipated that this development would result in income generation, cost reduction, and improved living standards.

The RID Activity faced challenges in implementing municipal water projects that had been long neglected. Sub - standard designs required multiple revisions in Poti and Kutaisi. Due to budget constraints and rehabilitation work, achieving 24 - hour water supply in these cities was impossible. In Poti, the project did not substantially increase water supply and only brought about improvements in distribution to a limited number of streets. Through pumping system replacement, in Kutaisi improved water supply and delivery, but 24 - hour supply was only achieved in the most impoverished areas. It is remarkable that following the end of the compact, the Government of Georgia (GoG) continued its investment in Kutaisi's water supply systems with assistance from the Asian Development Bank. The Georgia Government (GoG) established the United Water Supply Company of Georgia LLC in 2009 - 2010, aiming to optimize investments for long - term city needs under a $500 million Asian Development Bank commitment (Corporation, 2023). The Regional Infrastructure Development Activity successfully addressed critical infrastructure needs in various cities in Georgia, particularly in municipal water supply and waste - water management. Despite challenges faced during implementation, such as sub - standard designs and budget constraints, the projects significantly improved living standards and supported economic growth, particularly in tourist destinations. The continuation of investment by the Government of Georgia in water supply systems post - compact underscores the long - term impact and sustainability of the initiative.

Enterprise Development Project

In order to support small and medium enterprises in agribusiness and other sectors in the regions of Georgia, the Enterprise Development Project activity was split into two components: the Georgia Regional Development Fund Activity (GRDF) and the Agribusiness Development Activity (ADA). The GRDF was established to address high unemployment and a credit - constrained financial sector in Georgia, focusing on regional agribusinesses and SMEs, despite the fact that economic development had improved prior to the GRDF, Georgia's economy was still as dependent on Tbilisi - based businesses and SMEs. The region's uneven growth and persistent unemployment were attributed to the lack of infrastructure, poor access to finance, and limited capacity of Small and Medium Enterprises (SMEs). Thus, GRDF was established to support regional SMEs, concentrate on agribusinesses and tourism, with the hope of catalyzing development and aiming to stimulate growth outside Tbilisi. GRDF was an independently operated private equity fund with initially capitalized $30 million in grant and $2 million for technical assistance from the MCC. The fund was designed a 10 - year term, divided into a 5 - year investment period and 5 - year wind - down period with proceeds from investments to be transferred into a trust to benefit the Government of Georgia.

Investments ranging between $500, 000 and $3 million were allocated to businesses that generally had less than 250 employees and less than $5 million in revenue. These investments facilitated a range of growth - focused initiatives, including the adoption of new technologies, accessing export markets, and expanding production capabilities. GRDF was

required to allocate a minimum of 51% of its capital to investments in agribusiness and tourism, with agribusiness investments constituting at least 33% of the overall portfolio. The plan anticipated funding around 20 portfolio companies, with each company receiving funding based on its specific requirements, and capped at USD 3 million per company. The consideration of portfolio companies was based on both projected investments returns and development returns.

Notable that the financial performance of the GRDF portfolio companies was largely poor and an estimate of the total internal rate of return was - 14.22 percent. Among the 14 GRDF investees, four successfully contributed to economic growth and employment in regions outside Tbilisi, the remaining companies showed mix performance. GRDF investments, despite the many failed investments, played a significant role in establishing 3 - 4 transformational companies in Georgia, which had positive externalities. This confirms that private equity is well suited to provide patient capital and can be a market - friendly way of providing grants to countries. For instance, Piunik Georgia LLC (agribusiness in the Kaspi region) achieved a reduction in Georgia's dependency on imports for hatching eggs. Investment from GRDF, helped the company transform into a major local foundation for the production of hatching eggs, as well as laying and broiler chicken varieties, to distribute to local farmers a cost - effective alternative to imports. This investment improved the company's capacity to recruit and train new staff, leading to a rise in employment opportunities and wages. Delta Comm was a truly transformative business, connecting rural and urban areas alike, playing a leading role in the development of the country's fiber optic infrastructure, and providing ancillary services. Investment from fund was spent in order to purchase equipment and vehicles to increase the speed of construction of the fiber optic network. Prime Concrete LLC was a concrete production, transportation, and pumping services provider based in Poti and became a leading Georgian - owned concrete producer, capable of competing successfully with international players. GRDF funding was requested for the construction and equipping of the concrete factory in Poti, as well as for the acquisition of transportation and pumping equipment, and initial working capital. Prime Concrete LLC has achieved successes and has won three major tenders issued by APM Terminal, the owner of the Poti Port. Despite facing numerous challenges, Foodmart (previous Loli Gastronomy - Retail) was able to attracted over $30 million international capital and partners, and positioning itself with significant potential to become the premier grocery chain in the country. Another company, from the GRDF portfolio, A - Net (Internet service provider (ISP) in the Adjara region) received $2.2 million financial support in 2011, which was used to build a fiber optic network and increase the number of residents with Internet access. The company was created by one of the owners of Delta Comm. Investment was eventually exited through a buy - out by Delta Comm. Both companies were subsequently acquired by a major telecommunications firm (Consulting, 2017).

Companies Ritseula Hesi Ltd (hydroelectric power plant in the Racha region) and Piunik were able to refinance their GRDF debt from local banks, with Piunik benefiting from a subsidized government funding program. Although the GRDF investments in Foodmart, Prime Concrete, and Madai fell short of expectations, these companies were expected to continue improving operations and attracting additional capital. Despite the failure of the Ecopex LTD (agrobusiness in Mtskheta), Doki LLC (wholesaler and retailer of furnishings and construction materials in Tbilisi) and Dogan LLC (Agribusiness - an animal feed manufacturer in Marneuli), with the lowest return in portfolio, their remaining assets, including factories and an orchard, were still salvageable and likely to be utilized by future companies.

As of April 2017, GRDF's investments had contributed to over GEL 66 million (approximately $33 million) in wages, GEL 44 million (about $22 million) in taxes, and supported just over 2, 400 jobs. By the end of March 2019, the fund manager had reported reflows exceeding $25 million, of which over $13 million was distributed to investees, $2 million was reinvested, and the remainder was allocated towards management and operating expenses. Despite encountering several unsuccessful investments, had positively impacted on economic growth through wages and taxes paid, as well as proceeds realized from debt and equity investments (Corporation, 2023). Overall, the GRDF investments made strides in promoting economic development and fostering entrepreneurship in Georgia's regions.

In 2006, when the Agricultural Development Activity (ADA) began, the consequences of years of agricultural stagnation and decline were evident in rural areas. The sector was primarily comprised of small subsistence - oriented farms, covering 99.8% of agricultural land. These subsistence farmers had minimal savings, and market growth was hindered by limited access to credit and a lack of property or commercial risk insurance. Consequently, there was minimal investment in agricultural development, and farmers relied on outdated farming technologies. The ADA with an initial budget of $15 million and a total disbursement of $20 million, aimed to enhance the financial performance of agribusinesses, by expediting the shift from subsistence to commercial agriculture, through providing technical support, offering targeted grants to farmers and agribusinesses operating in key value chains, and expanding access to market information. The program primarily concentrated on providing grants to farmers and agribusinesses in critical value chains that were responsible for supplying agricultural products to local markets.

Under the ADA program, grants were provided to four categories of beneficiaries: 1. Primary Producers - targeted farmers and farming operations producing fruits and vegetables with improved farming practices. Additionally, it worked with livestock and cattle farmers to develop specialized dairy products; 2. Value - Adding Enterprises - expected to increase production volume and quality, introduce new and improved technologies, and expand market access for the beneficiaries; 3. Farm Service Centers were profit - oriented, privately - owned legal enterprises established to address the needs of Georgian farmers. These centers provided various services including supplying inputs, offering machinery, providing veterinary and breeding services, extending agricultural support, marketing farmers' products, offering market and technical information, and facilitating connections with credit providers; 4. Value Chain

Initiative grants - focused on significant enterprises in "nationally important" value chains. These encompassed input suppliers, service providers, processors, distributors, and other off - farm businesses that were to build the foundation for a stronger agricultural sector. The initiative aimed to bolster the rural economy, offering enhanced prospects for job creation and income generation.

The ADA allocated a total of 283 grants, ranging from $5, 000 to $300, 000, to groups of farmers and enterprises motivated to implementing innovative business solutions and technology. There were awarded various agricultural directions such as feed production, nuts and meat processing, fruit and vegetable production, processing, "environmentally friendly" production, beekeeping, and fishery, among others. According to the final report, the following key results were observed: Grantees utilized their grants to enhance their investments in agricultural equipment and machinery; Substantial increase in access to credit after the grant application opened; Four years after applying for the grant, many beneficiaries reported an increase in their number of employees and tended to paying higher wages; Grantees reported an increase in production levels, net revenue, also indicated that their customer bases had expanded and that access to markets had improved, some of them increasing exports. It is notable that most beneficiaries underlined both technological improvements and quality or scale of production as the primary drivers of their growth (Enterprise Development Project, 2023). It is obvious, that the program had a significant impact on the agricultural sector in rural areas. By providing grants to farmers and agribusinesses, it facilitated investments in modern equipment and technology, leading to increased production levels and higher revenues. The program also helped expand access to credit, allowing beneficiaries to further invest in their operations. As a result, many farmers reported growth in their businesses, improvements in market access and expansion of their customer bases, indicating a positive trajectory for the agricultural sector.

4. Main achievements of the Second Compact

Despite the progress made by the First Compact, the Government conducted an analysis of constraints to economic growth in 2011 and highlighted the inadequate quality of human capital as a notable impediment to economic growth, especially in STEM fields. As a result, the Compact II aimed to reduce this constraint through the three main project: 1. The Enhancement of General Education Quality Project; 2. the Industry - driven Skills and Workforce Development Project; and 3. The STEM Higher Education Project.

International standards acknowledge that educational excellence is attained through the inclusion of certain elements within an educational framework. These include competent and motivated teachers, effective school management, a comprehensive curriculum with quality teaching resources, student assessment procedures, and a secure and conducive learning environment. In case of Georgia, at the time of compact signing, the public education system was underperformed in each of these aspects. Teachers were insufficiently prepared in terms of both their subject expertise and teaching methods, while school administrators lacked sufficient professional development. Furthermore, schools struggled with shortages of teaching materials essential for hands - on and student - centered learning approaches. School facilities were in a state of serious disrepair, lacking proper heating and protection from the elements. Quality issues were especially noticeable in two specific areas: schools located in rural regions and those with larger proportions of ethnic minority populations.

The Improving General Education Quality Project (ICEQ) allocated - $73 million, and included three key activities: The Improved Learning Environment Infrastructure Activity, the Training Educators for Excellence Activity, and the Education Assessment Support Activity. The IGEQ Project focused on enhancing education infrastructure and building science laboratories in selected schools. Additionally, it offered a year - long series of training sessions to STEM educators and school administrators nationwide. The main achievement under this project was the significant improvement of education infrastructure in around 91 schools across the country (Account-Georgia, 2018). This included enhancement of various aspects such as heating, lighting, sanitation, building quality, and access to science laboratories and recreational facilities. Both students and teachers concurred that these enhancements helped overcome obstacles to utilizing classroom time efficiently for instruction. Overall, the program successfully provided training to all secondary - level school directors in Georgia, approximately 2, 000 individuals, as well as to all upper - grade teachers, about 18 000, in key subjects such as science, mathematics, English, and geography. The teacher training aspect was effectively implemented nationwide, with school directors achieving a completion rate of 93% and teachers achieving a rate of 82%. Following the completion of the one - year training sequence, teachers reported confidence in teaching higher - order thinking skills, fostering cooperation through group work, and implementing lesson plans that incorporate formative assessments and differentiated instruction for students with different abilities. While school directors noted enhanced provision of instructional leadership through curriculum guidance, classroom observation, and supporting teacher's professional development. Nevertheless, there was limited evidence of immediate changes in teachers' classroom instructional practices. During focus groups, some teachers expressed concerns regarding the time and effort required to consistently implement these practices.

Through the ICEQ project, funding and technical assistance were also extended to the National Assessment and Examination Center (NAEC) to facilitate the implementation of national and international assessments. The compact allocated funding to facilitate national assessments of secondary school students' proficiency in subjects such as math, biology, chemistry, physics, and Georgian as a second language. Additionally, the compact supported further training for key NAEC staff, as well as tools for school evaluations. The compact also supported Georgia's engagement in two rounds of international assessments, which included participation in the Teaching and Learning International Survey, the Trends in International Mathematics and Science Study, and the Program for International Student Assessment (National Assessment and Examinations Center, 2019) Data generated from national and international

assessments allowed policymakers to track trends in student achievement, both domestically and in comparison, to other nations. Based on the results of the assessment, the Ministry of Education and Science could more effectively strategize, adapt, and implement policies aimed at enhancing teaching quality (Nichols-Barrer & Padilla, 2023). The ICEQ project left a lasting impact on Georgia's education system by fostering a conducive learning environment, empowering educators, comprehensive training sessions for school directors and teachers resulted in improved instructional leadership and teaching skills, ultimately benefiting student learning outcomes and driving continuous improvement in educational quality.

The Industry- Led Skills and Workforce Development (ISWD) Project

Following its independence, Georgia inherited very poor technical and Vocational Education and Training (TVET) system, which characterized by centralized and top - down bureaucratic policies. Most of TVET institutions were disrepair, staff lacked adequate skills development, and many graduates struggled to find employment in a rapidly evolving labor market. Additional challenging issue was gender disparities in particularly in STEM fields. Female TVET graduates earned considerably lower wages compared to their male counterparts. It is notable that between 2010 and 2012, only about 14% of female students enrolled in engineering and agriculture TVET tracks. The Industry - Led Skills and Workforce Development (ISWD) Project (funded $16 million) aimed to bridge the gap between the demand for skilled labor in the job market. The project facilitated the development of training and education programs aligned with industry needs and bolstered the capabilities of educational institutions to deliver these programs effectively and in accordance with international standards. The project prioritized the enhancement of skills in STEM fields alongside agriculture and tourism, which were identified as key sectors of growth but had substantial labor market gaps.

The project was structured around the following activities: Competitive Program Improvement Grants Activity, Strengthening Sector Policy and Provider Practice Activity. Through a comprehensive approach to TVET sector reform, including public relations campaigns to enhance the image of technical and vocational education, curriculum enhancements, technical support for government reform initiatives, greater private sector engagement, and pedagogical improvements, the project helped boost the perceptions of and increased interest in TVET across Georgia. The ISWD Project, through the Program Improvement Competitive Grants (PICG) Activity, successfully implemented 38 newly developed or improved TVET courses and 13 new certificate courses in areas such as information technology, agriculture and veterinary services, aquaculture, maritime operations, tourism, railways, and aviation across Georgia. Enrollment in PICG courses during the compact period exceeded the initial target of 1, 500. Over three - quarters of individuals who participated in PICG - supported courses secured employment within a year of completing the program. However, only about one - third of them obtained full - time jobs, a significant majority, about 75% of the participants had were employed at some point during the year following the completion of their course. additionally, at the follow - up conducted about one year after the course ended, 64 % of participants remained employed, with 29 % in full - time positions relevant to their training. Only 15% of all participants in PICG courses were female, this trend likely reflects cultural gender norms associated with many of the occupations targeted by PICG - supported courses. Male and female trainees in the same courses had similar employment rates yet employed male trainees earned approximately 32 percent more than employed female trainees. Overall, stakeholders viewed the PICG courses positively, emphasizing the quality of course content, the modern facilities and equipment and effective training for teachers. Trainees and employers expressed optimism regarding the employment prospects of trainees in the labor market.

In an effort to showcase the accomplishments in this area and advance vocational education further, the Millennium Challenge Account periodically organized a national awards ceremony to recognize its winners. For instance, Khatia Nadareishvili was recognized with the Best Student Award, while Archil Tsintsadze received the Teacher of the Year award, Innovation’s Technology Academy was honored with the 2019 Vocational School Award, and Energo - Pro on winning the Partner of the Year Award (US Embassy Tbilisi, Georgia, 2020).

The Strengthening Sector Policy and Provider Practice Activity, offered competitive small grants, aimed to discover, record, and share innovative best practices within the TVET sector. These practices included utilizing television and social media for outreach purposes. Practices that align closely with the policy reform initiatives of the Ministry of Education and Science (MES) have the greatest potential for replication. In total 27 grants were awarded to TVET providers, including educational establishments, public or private companies, and professional and nongovernmental organizations. The Sector Policy component mostly focused on providing technical assistance in TVET. Efforts under this component was consolidated into three main areas: promoting increased business engagement in TVET, improving and promoting the quality and attractiveness of TVET, and supporting the enhancement of learning and qualifications opportunities for adults. The component exhibited flexibility and responsiveness to the Ministry of Education and Science's (MES) needs with a focus on policy relevance. However, as these reforms were long - term endeavors, additional efforts were required to ensure the widespread adoption of these policies after the compact period.

Another activity under the ISWD project was the Annual TVET Conference aimed to establish a platform for dialogue and knowledge exchange among TVET stakeholders, as well as to disseminate best practices. It consisted of three conferences held in the Georgian capital, Tbilisi, in July 2016, October 2017, and November 2018. To the conferences, various public relations and outreach initiatives were organized to advance the project's goals and raise awareness about Georgian TVET across the country. These included award ceremonies for project grants and the implementation of a multimedia communications strategy to promote the project. In general, stakeholders expressed the belief that the conferences held some potential to enhance perceptions of TVET in Georgia.

In order to enhance the project's impact and sustainability, the compact aimed to foster partnerships between education providers and employers, encouraging private investment in Georgian technical and vocational education. Throughout implementation, both MCC and the GoG prioritized the development of partnerships. Private sector collaborators provided substantial co - funding and in - kind contributions to each TVET institution that received MCC assistance. These collaborations played a crucial role in enhancing the quality of TVET education in Georgia by aligning labor supply with industry demand (E. Borkum, 2023).

The STEM Higher Education Project, funded by MCC's Georgia II Compact with a budget of $30 million aimed to improve science, technology, engineering, and mathematics (STEM) university education. The goal was to equip graduates with improved skills, resulting in enhanced employment prospects and higher incomes, ultimately contributing to economic growth. MCC and the GoG collaborated on a wage survey involving more than 50 businesses in Georgia. The survey revealed that employers were willing to pay 44 % higher wages to a U. S. - educated engineers compared to the "best" engineers educated in Georgia. Despite the widespread availability of higher education in Georgia, institutions offering STEM programs lacked the necessary quality to provide graduates with the skills required by the industry. Two primary factors hindered the development of quality STEM programs in Georgia: Firstly, the faculty educated under the Soviet system lacked updated knowledge and teaching methods, and secondly, inadequate laboratory facilities and equipment due to the high cost required to modernize STEM programs, posed a challenge. Based on these constraints on the proposed project aimed to facilitate partnerships between U. S. universities and Georgian public universities to offer U. S. STEM bachelor's degree programs, and in addition it offered support to enhance the capacity of Georgian universities to meet international standards and obtain program accreditation.

The San Diego State University (SDSU) was chosen to provide U. S. accredited bachelor's degree programs in Tbilisi. Starting from the fall semester of 2015, SDSU commenced offering STEM bachelor's degrees in collaboration with three public universities in Georgia: Tbilisi State University, Georgian Technical University, and Ilia State University. In 2014, the Government of Georgia and SDSU entered into a twenty - year memorandum of understanding. During the compact term, SDSU provided six U. S bachelor of science programs, encompassing computer science, electrical engineering, chemistry/biochemistry, computer engineering, and construction engineering in Georgia. Over the course of the compact, more than 600 students enrolled in these programs, and the first 55 graduates received their degrees in 2019. Upon graduation, students were awarded both an SDSU degree and a degree from the partner university.

The project allocated funds towards enhancing facilities at the public partner universities, which included: Approximately 5, 000 square meters of science and engineering laboratories and classrooms underwent rehabilitation. These facilities very similar to those found at SDSU's main campus in San Diego; A new four - story building was constructed on the campus of Ilia State University to accommodate additional engineering laboratories and act as a central hub for the three partner universities; and installation of an equipment, at all three partner universities to ensure they had access to world - class resources. The project also made substantial investments in faculty development in Georgian partner universities, aligning with the goal of attaining international accreditation or certification for the programs.

A total of eighty - six Georgian faculty underwent training in the United States with a focus on effectively utilizing SDSU's curricula and leveraging state - of - the - art laboratory equipment provided by the project. The STEM Higher Education Project achieved success in enrolling female and socially vulnerable students into the SDSU - G STEM majors. SDSU in Georgia took steps to empower female students by establishing a Women's Empowerment Club. This club offers peer mentoring and support to female STEM students through mentorship provided by female faculty members. During the compact, SDSU in Georgia established a career development center aimed at facilitating the professional growth of students. Additionally, internship and career fairs were organized to connect students with potential employers in STEM fields, providing valuable networking opportunities and industry insights (Charles A. Goldman, 2019).

With assistance from SDSU, the partner universities have been working towards obtaining international accreditation for their STEM programs. In October 2020, Tbilisi State University achieved ABET accreditation for two of its programs, Computer Science and Electrical Engineering. internationally accredited programs, enable the partner universities to continue to produce a stream of highly skilled engineers and scientists, this was envisioned to contribute to the long - term growth of the Georgian economy beyond the conclusion of the compact. To ensure the sustainability of the project's infrastructure and equipment investments, SDSU established partnership agreements with each of the three partner universities, outlining arrangements for facilities sharing, operations, and maintenance until 2023. Each investment made by the project, whether in constructing cutting - edge infrastructure, training faculty members, or implementing ongoing enhancements in program delivery, contributes to achieving this sustainability goal.

5. Conclusion

Georgia's experience with the MCC's MCA Initiative exemplifies the transformative power of sustainable development in action. Through strategic investments, inclusive policies, infrastructure, and enterprise development, and strong partnerships, Georgia has demonstrated its commitment to building a brighter and more prosperous future for all its citizens.

Institutional strengthening and capacity building have been integral to the success and sustainability of these development projects. By providing technical assistance, training, and support to government agencies, educational institutions, and private enterprises, these initiatives have built local capacities to manage and maintain infrastructure, implement effective policies, and drive forward socio - economic development independently in the long run.

Infrastructure development has been one of the critical aspects of poverty reduction and economic growth. Projects such as the Energy Rehabilitation Activity, Regional Infrastructure Development Activity (RID), and STEM Higher Education Project have invested in upgrading energy systems, enhancing transportation networks, and modernizing educational facilities. These infrastructure improvements not only facilitate economic activities but also improve access to essential services, thereby fostering social inclusion and reducing inequalities.

The agribusiness projects implemented under the MCC's MCA Initiative have shown impressive results, with notable achievements in areas such as increased agricultural productivity, improved market access for smallholder farmers, and enhanced value chain development. By modernizing agricultural practices, promoting entrepreneurship, and strengthening linkages between farmers and markets, Georgia has unlocked the potential of its agribusiness sector to drive rural development and reduce poverty.

Through extensive investments in infrastructure, faculty development, and student support services, the ISWD project has bolstered the quality and relevance of STEM education in Georgia, paving the way for long - term economic growth and sustainability. Furthermore, by promoting gender equality and inclusivity, these initiatives have empowered marginalized groups and fostered social cohesion and resilience. Additionally, the establishment of international accreditation for STEM programs further ensures the continued production of highly skilled professionals, positioning Georgia as a competitive player in the global economy.

However, ensuring the sustainability of these gains will require continued investment, collaboration, and commitment from all stakeholders, both within Georgia and internationally. With a focus on building resilient institutions, fostering entrepreneurship, and addressing emerging challenges, Georgia can harness its potential for inclusive and sustainable growth in the years to come.

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