

**INTER-AMERICAN DEVELOPMENT BANK
TECHNICAL COOPERATION PROGRAM – TRUST FUNDS
TC FUNDS BRIEF
(TC-03-01-00-2-GY)**

I. GENERAL INFORMATION

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| 1. Name of the T.C. Project | Support to the Guyana Basic Nutrition Program |
| 2. Name of the Trust Fund: | Canadian Technical Assistance Fund (CANTAP 3) |
| 3. Beneficiaries: | Pre-school age children and pregnant and lactating women in low-income rural areas |
| 4. Beneficiary agency: | Ministry of Health |
| 5. Estimated Total Amount to be financed: | Can\$160,000 (approx. US\$100,000) |
| • Financed by trust fund: | Can\$160,000 US\$100,000 |
| 6. Execution and Disbursement Deadlines: | The execution period will be 30 months and the disbursement period will be 36 months. |

II. OBJECTIVES

- 2.1 The general objective is to support the Guyana Basic Nutrition Program (GY-0068). The specific objectives are to: (i) support the impact evaluation of the component seeking to reduce anemia among pregnant and lactating women through the appropriate design and impact evaluation of sprinkles, an alternative to traditional micronutrient supplementation initiatives, and (ii) support the institutional strengthening component of the loan by reforming the maternal and child health and nutrition information system.

III. DESCRIPTION

A. Description

- 3.1 This technical cooperation will provide the resources necessary to design sprinkles and to carry out an evaluation of its impact on pregnant and lactating women. The specific areas of activity include: (a) the appropriate design of sprinkles in order to address the specific needs for iron and vitamin A supplementation for children and pregnant women in low-income rural areas in Guyana; (b) the design of an associated impact evaluation, including research design, instrument design, data collection and analysis; (c) technical assistance to strengthen the nutrition surveillance system of the maternal and child health (MCH) system; and (d) support to the Project Execution Unit of the Basic Nutrition Program.

B. Background

- 3.2 Worldwide, malnutrition, even in its milder forms, can increase the likelihood of morbidity and mortality from a number of different diseases and is associated with up to 56% of all childhood mortality. In addition, malnutrition can have an important negative impact on early growth and cognitive development among children, and lower immunity levels and work capacity among adults, among other effects. The adverse effects of malnutrition are most severe for children and pregnant women.
- 3.3 **Data on nutritional status.** There are many deficiencies in the Maternal and Child Health (MCH) information system, which make it difficult to assess the level and trends in child growth and nutritional status from clinic-based data in Guyana. First, not all clinics have the necessary equipment to measure and report child weight. Second, only child weight (not height) is collected. Third, the little data that is collected comes from urban and coastal clinics, and is summarized at the clinic level before being passed to the center, making cross-tabulations and other basic data analysis virtually impossible. Finally, coverage is concentrated among children under 12 months of age as clinic attendance rates decline significantly after that time. For these reasons, the MCH information system is severely limited as a tool for nutrition surveillance, and for planning and monitoring purposes. Fortunately, during the 1990s three nutritional surveys were carried out on nationally representative samples of children under 5 years of age in Guyana. Taken together, the results from these surveys permit an adequate analysis of the nutritional status and associated risk factors of children in the country.
- 3.4 **Anthropometry.** Table 1 summarizes the results of the three surveys referred to above. While overall (weight-for-age) and chronic (height-for-age or stunting) malnutrition is moderate among children under 5 when compared to countries at similar levels of GDP, reports of acute malnutrition (weight-for-height or wasting) are extremely high and similar to those reported in countries that suffer famine and food shortages. Overall malnutrition declined between 1993 and 2000, but there has been no discernable improvement in nutritional status of children between the last two surveys. Furthermore, the levels of overall, chronic and acute malnutrition are similar. The prevalence of malnutrition in Guyana presents a clearly atypical distribution, divergent from that observed in other Caribbean nations, in other Latin American nations and in Africa, where overall and chronic malnutrition rates are generally five times greater than acute malnutrition. There are several possible explanations for this anomalous pattern;¹ nevertheless, the different survey results are consistent, so that it is difficult to dismiss the findings related to acute malnutrition.

¹ First, genetic or environmental factors may generate an excessively high prevalence of emaciation or acute malnutrition. Second, the results of the surveys may be a product of errors of measurement owing either to the technique employed or to the quality of the instruments. Third, another factor that may contribute to inaccurate results are errors in digitization, analysis or interpretation of data. These hypotheses are discussed in Atalah (2000).

Table 3.1 Prevalence of malnutrition in children under 5 years of age in Guyana			
Survey	Overall Malnutrition (Weight-for-age)	Chronic Malnutrition (Height-for-age)	Acute Malnutrition (Weight-for-height)
HIES, 1993	18.3	12.4	7.7
MRS, 1997	11.8	10.1	11.5
MICS, 2000	13.6	10.8	10.6
Rates shown are percentage below 2 standard deviations of the age and sex specific reference median. HIES: Household Income and Expenditure Survey; MRS: Micronutrient Survey; MICS: Multiple Indicators Cluster Survey.			

- 3.5 **Anemia.** In both pregnant women and children under five in Guyana, iron deficiency anemia stands at 50%, a moderate to severe population-level deficiency by international standards, and has remained nearly unchanged since 1971. Almost half of anemia cases are categorized as severe. Anemia is one of the primary causes of maternal death and is also a major cause of childhood mortality. Other consequences of iron deficiency are impaired physical growth; potentially permanent effects on neurological functions involving cognition, emotional behavior, reaction to and reception of stimuli, attention span, learning capacity, and neuro-motor development and function; decreased capacity for physical work; lowered immunity, resulting in increased susceptibility to infections; and alterations in the reproductive process (Institute of Medicine 1997).
- 3.6 **Low birth weight.** Low birth weight is another indicator of maternal and child nutrition status. According to available data, 11% of newborns weigh under 2,500 grams, a relatively high figure, suggesting the possibility of high rates of maternal malnutrition or low weight gain during pregnancy. The 1997 MRS survey showed that 20% of women between the ages of 20 and 30 have a body mass index below 18.5, and hence are at three to four times the risk of bearing a child weighing less than 2,500 grams or underweight (2,500 to 2,999 grams) at birth. In addition, 12% of births in Guyana take place among women younger than 20 years old and birth spacing is short, both factors that are highly related to low birth weight.
- 3.7 **Iron supplementation.** Oral iron supplementation is provided for pregnant women attending clinics in government-run health centers. However, a recent assessment of this program showed that while the availability of supplements was generally good, poor compliance with their consumption was a major constraint; only 20% of pregnant women reported taking supplementation in 2000.
- C. **Activities**
- 3.8 **Design and impact evaluation of sprinkles.** One component of the Basic Nutrition Program is to improve the rate of compliance of micronutrient supplementation through the use of sprinkles. Sprinkles is a powder containing encapsulated micronutrients (primarily iron, vitamin A, and zinc), which is distributed in sachets and is sprinkled on

porridge or similar foods prior to consumption. By not altering the taste, smell, or color of the food, sprinkles is potentially easier to ingest and can improve compliance. Positive impacts on compliance have been found with sprinkles in Ghana and Eastern Africa for pre-school children, and sprinkles is currently being used in China and Central Asia. This TC will finance the following activities related to the sprinkles formula and the evaluation of its impact on pregnant and lactating women:

- i. Design of an appropriate formula and dosage for sprinkles for pre-school children taking into account the country's specific nutritional problems;
- ii. Design of an appropriate formula and dosage for sprinkles for pregnant and lactating women taking into account the country's specific nutritional problems as well as possible behavioral issues regarding compliance.
- iii. Design of appropriate packaging of sprinkles for Guyana.
- iv. Design of an appropriate evaluation methodology for sprinkles for women, including sample design, sample size, instrument design, and timing.

3.9 **Strengthening of Nutrition Surveillance System.** As part of the overall institutional strengthening of the Ministry of Health, this component will reform the current system of collection of maternal and child health and nutrition information that is routinely collected by the Health Statistics Unit. Specific activities to be financed through the TC are the following:

- i. Design of an appropriate survey questionnaire based on the informational needs of program managers within the ministry as well as the needs of other actors working in the field of nutrition and mother and child health in Guyana;
- ii. Design a data capture module to allow for the rapid and accurate input of data for timely analysis;
- iii. Advise on the frequency and structure of reports to be generated from the data, as well as dissemination strategies.

D. Characteristics of consultancy and sole sourcing

3.10 Sprinkles was 'invented' by researchers at the University of Toronto in response to requests from UNICEF and UNDP to design a product that improved compliance of iron supplementation regimes among young children at risk of micronutrient deficiencies. Sprinkles is currently manufactured and distributed at cost by Heinz Canada in an exclusive agreement with the University of Toronto.

3.11 **As an exception to the Bank's competitive bidding policy, sole sourcing is requested for the contracting of University of Toronto for the design of the Guyana appropriate formula for sprinkles, and to advise on the research design and analysis of the impact evaluation of sprinkles on women.** Researchers at the University of Toronto's Department of Pediatrics and Nutritional Sciences and Center for International Health are currently the only ones familiar with the design and use of sprinkles, and they have carried out several impact evaluations of sprinkles globally, demonstrating expertise

in assembling a team of individual specialists from around the world to carry out the precise activities envisioned under this operation. University of Toronto is deemed to have a technical comparative advantage as required by the Bank's regulations regarding requests for sole-sourcing (GS-403). Note that the University has not been hired by the IDB to perform similar work in the past, hence no Bank performance evaluation is available.

- 3.12 The institutional strengthening activities related to the reform of the nutrition surveillance system will require either an individual, or more likely, a firm or group with previous experience in the design and implementation of basic maternal and child health information systems in developing countries. In addition, the consultant or firm will be required to work closely with the CIDA financed firm that is designing the overall health information systems.

IV. JUSTIFICATION

- 4.1 The Bank's strategy in Guyana, expressed in the Country Paper (GN-2014-1) and reiterated in the recent programming Memorandum (CP-1148-2), includes among its primary objectives strengthening the implementation capacity of the public sector and the reduction of poverty. The proposed program is consistent with Bank strategy, as it will strengthen the government's capacity to respond to the malnutrition problem among poor women and pre-school children, as well as support the reduction of malnutrition-related morbidity and mortality, thus contributing to the reduction of poverty.
- 4.2 As mentioned earlier, sprinkles was 'invented' by researchers at the University of Toronto in response to requests from UNICEF and UNDP. Sprinkles is currently manufactured and distributed at cost by Heinz Canada in an agreement with the University of Toronto. The proposed TC will allow Guyana to benefit from the considerable technical expertise of researchers in the Department of Pediatrics and Nutritional Sciences at the University of Toronto in the design, application, and impact evaluation of this new intervention to reduce anemia in the developing world. Results of this evaluation will be used to assess whether sprinkles can be the primary form of micronutrient supplementation among both children and women in Guyana.
- 4.3 The Canadian International Development Agency (CIDA) is currently preparing a C\$4 million technical assistance package to strengthen the health information system of the Ministry of Health. The CANTAP TC will finance specific aspects related to nutrition and anthropometry within the overall information system being designed through the CIDA financed initiative, since the main focus of the CIDA initiative is HIV/AIDS, tuberculosis, and malaria, rather than nutrition.

V. BUDGET

Table 5.1
ESTIMATED BUDGET
(in Can\$ and US\$ equivalent*)

Detail		CANTAP	
		Can\$	US\$
Design of Sprinkles		12,800	8,000
Design of sprinkles for children	10 days x US\$400 a day = US\$4,000	6,400	4,000
Design of sprinkles for women	10 days x US\$400 a day = US\$4,000	6,400	4,000
Design of impact evaluation		76,800	48,000
Research design	10 days x US\$400 a day = US\$4,000	6,400	4,000
Instruments design	15 days x US\$400 a day = US\$6,000	9,600	6,000
Data collection	100 days x US\$200 = US\$20,000	32,000	20,000
Data analysis	35 days x US\$400 = US\$14,000	22,400	14,000
Reports & presentation	10 days x US\$400 = US\$4,000	6,400	4,000
Strengthening of Nutrition Surveillance System		26,240	16,400
Design of questionnaire	13 days x US\$400 = US\$5,200	8,320	5,200
Design of data capture module	28 days x US\$400 = US\$11,200	17,920	11,200
Others		40,480	25,300
Travel expenses	7 trips Toronto-Georgetown-Toronto = US\$1,700 x 7 = US\$11,900	19,040	11,900
	Per diem US\$200 x 6 days x 7 trips = US\$7,200	13,440	8,400
Logistics	US\$5,000	8,000	5,000
Subtotal		156,320	97,700
Contingencies		3,680	2,300
Total		160,000	100,000

- 5.1 The total cost of the TC is US\$100,000 (CAN\$160,000); a detailed budget is presented in Table summarized budget is presented in Table 5.1. The execution period will be 30 months and the disbursement period will be 36 months.

VI. RESPONSIBILITY IN THE BANK

A. Technical responsibility

- 6.1 Ms. Amanda Glassman, Health Specialist (Tel. (202) 623-3666, fax (202) 623-3173, E-mail amandag@iadb.org) will have the technical responsibility for the project.

B. Responsibility for disbursements

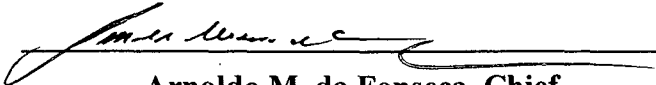
- 6.2 RE3 will have overall responsibility (UBR, Disbursement) for the operation.

VII. RECOMMENDATION

- 7.1 Juan M. Fariña, Chief of the Social Programs Division in RE3 recommends that the use of Can\$160,000 from the Canadian Technical Assistance Fund (CANTAP 3), be authorized to finance the operation described in this TC Funds Brief.

VIII. CERTIFICATION


- 8.1 I certify that this operation was approved by Mr. John Caldicott, Senior Counselor for Canada on behalf of the Canadian International Development Agency, CIDA, donors of the CANTAP 3 Trust Fund, via email of December 20, 2002. I further certify that resources from the Canadian Technical Assistance Fund (CANTAP 3) are available for up to Can\$160,000 in order to finance the activities described and budgeted in this TC Funds Brief. The commitment and disbursement of these resources shall be made only by the Bank in Can\$. The same currency shall be used to stipulate the remuneration and payments to consultants, except that local consultants working in their own borrowing member country shall have their remuneration defined and paid in the currency of that country. No resources of the fund shall be made available to cover amounts greater than the amount certified herein above for the implementation of this TC Funds Brief. Amounts greater than the certified amount may arise from commitments on contracts denominated in a currency other than the Fund currency, resulting in currency exchange rate differences, for which the fund is not at risk.


Arnaldo M. da Fonseca, Chief
RE2/TEC

March 19, 2003
Date

IX. APPROVAL:

Approved:


Juan M. Fariña, Chief
RE3/SO3

MAR 20 2003

Date