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Project: Citizen Security & Justice Program (Bahamas)

Title: CONSULTANT TO CONDUCT EXPOST ECONOMIC ANALYSIS OF THE BAHAHMAS CITIZEN SECURITY & JUSTICE PROGRAMME

Borrower/Bid No:

BH-L1033: CITIZEN SECURITY AND JUSTICE PROGRAMME (CSJP)

TERMS OF REFERENCE

CONSULTANT:

CONSULTANT TO CONDUCT EXPOST ECONOMIC ANALYSIS OF THE BAHAHMAS CITIZEN SECURITY & JUSTICE PROGRAMME

1. Background:

The Ministry of Finance of Commonwealth of The Bahamas has received financing from the InterAmerican Development Bank (IADB) (Loan BH-L1033), to implement a Citizen Security and Justice Programme (CSJP). The overall objectives of this programme are to: (i) improve behaviours for non-violent conflict resolution in New Providence; (ii) increase employability and employment of the at-risk youth population in New Providence; (iii) strengthen institutional capabilities of justice services; and (iv) reduce the recidivism rate among persons within the correctional institutions. The project has had five years of implementation so far with an additional year of execution being approved by the IDB. It (CSJP) will conclude on August 4th, 2022. A formal assessment of the CSJP was completed in the first quarter of 2021, indicating a satisfactory rating. However, a final evaluation will be undertaken to determine what impact if any that the final project outputs, outcomes, have been made. Part of this end of term evaluation involves an ex-post economic

evaluation of the cost-benefit analysis of the CSJP Programme in Bahamas. This consultancy seeks to secure a consultant to conduct this service.

General Objectives: The general objective of this consultancy is to conduct an ex-post economic evaluation of the CSJP, applying the methodology outlined in Annex 1. The ex-post economic evaluation will analyze the costs, benefits and effectiveness of selected project interventions in order to quantify the impact that the program has generated.

Scope of Work:

The contract must carry out the following activities, without prejudice to any additional, relevant actions deemed appropriate:

1. Prepare a detailed work plan, including a proposal for any revisions to the interventions to be evaluated and evaluation methodology included in Annex 1.
2. Conduct interviews with the teams implementing the activities, and with other parties involved.
3. Prepare a draft evaluation report that:
    a. Analyses the costs, benefits and effectiveness of the selected interventions and applying the approved methodology.

b. Quantifies the impact that the program has generated as of project closure - including direct and opportunity costs along with relevant indirect benefits and impacts – as well as any benefits expected to materialize over a period of time of at least 15 to 20 years after the end of the project and taking into account the progression throughout the life cycle of young people who will be less likely to be victims or perpetrators of crime , or young people who, when they leave detention centers, are more likely to re-enter society and who are less likely to commit activities characterized as crime. This analysis should reflect the impacts and expected results of the project – which are manifested in the impact and outcome indicators of the outcome matrix, as well as the estimates of the baselines and targets associated with these indicators.
c. Includes a detailed review of the literature to have empirical evidence on the effects of changes in each of the variables identified in the conceptual framework.
d. Uses the available tests and selects the best estimates for use in a simulation; or extrapolates in the event there is no testing.
e. Identifies the determinant parameters of the causes of the explanatory factors of the problems that the program intends to address, specifying their magnitude and statistical accuracy, and identifies evidence that these parameters have been solidly estimated – for example, levels of significance and evidence of the applicability of the results in the program context *(internal or external validity).* This review should be aligned with the evidence of internal and external *validity* presented in the project document.
f. Estimates the expected benefits of each intervention and provides an assessment of the accuracy of each of the estimates obtained *(forecasting error).*
g. Includes a sensitivity analysis specifying the risk model used and justifying the application of the methodology used.
h. Estimates the calculation of the internal rate of return, or a cost-benefit analysis of each component, including those relating to the monitoring and evaluation plan.

4. Present the draft Evaluation Report to key stakeholders for comment and review.
5. Present a final Evaluation Report reflecting all comments received.

Deliverables and Payment Schedules	**Timeframe**	**Payment**
Deliverable 1 Detailed work plan, including a proposal for any revisions to the interventions to be evaluated and evaluation methodology included in Annex 1 as well as the schedule of interviews with the teams implementing the activities, and with other parties involved.	**Within 2 weeks of contract signing**	**10%**
Deliverable 2 Draft Evaluation Report.	**Within 8 weeks**	**40%**
Deliverable 3 Presentation of the draft Evaluation Report to key stakeholders	**Within 10 weeks of contract** **signature**	**10%**

Deliverable 4 Final report of the economic assessment, containing an analysis of costs, benefits, effectiveness of the agreed interventions, and other details indicated in section (1-8) of the terms of reference including feedback from key stakeholders and collaboration with consultant for post programme evaluation	**Within 12 weeks of contract signing**	**40%**

3. Duration of Assignment

This assignment is for Four (4) months to allow for completion of administrative functions.

4. Reporting Arrangements

All deliverables must be inspected and approved by the CSJP and The Ministry of National Security prior to payment.

5. Technical Profile of Candidate:
   - v. Master's Degree preferred in Economics, Statistics, Political Science, Public Administration or related disciplines. A Bachelor's degree will be accepted.
   - v. Experience in conducting ex-post programme economic analysis, cost- benefit analysis, statistical analysis, for developmental projects
   - v. Experience applying research, data analysis, in project activities in general
   - v. Experience conducting final/ ex-post evaluations in governmental/non-government projects
   - v. Experience working with the public sector, with preference given to specific experience in The Bahamas and/or Caribbean
   - v. Experience working with international organizations in small island nations **Core**

   Competencies:

   - Written and oral fluency in the English language ☐ Excellent Inter-personal communication skills.
   - Results Oriented: Ability to meet project goals and produce high-quality results.
   - Planning and Execution: Capacity to translate strategic goals and priorities into realistic project deliverables.
   - Reacts to project adjustments and alterations promptly and efficiently
   - Ability to work independently is essential

6. Citizen Security and Justice Programme Recourse:

The Citizen Security and Justice Programme reserves the right to cancel any agreement/contract if performance is unsatisfactory, if work outputs are incomplete, not delivered, or for failure to meet deadlines.

7. Documents to be included when submitting the Expression of Interest.

Interested candidates shall submit the following documents/information to demonstrate their qualifications:

- Completed CV Resume outlining relevant qualifications and experience with (3) references.
- At least two examples of cost-benefit analysis reports prepared previously by the consultant.

8. Obligations of Citizen Security and Justice Programme, Project Implementation Unit:

The Citizen Security and Justice Programme Project Implementation Unit agrees to:

- Review and provide feedback on consultancy deliverables.
- Provide the consultant with all necessary logistical support to ensure that the consultant undertakes the consultancy with reasonable efficiency.
- Meet all the agreed cost related to the consultancy.
- Provide relevant documents and make all necessary contacts that may be needed; and
- Guide the consultancy as needed and necessary.

9. Intellectual Property Rights:

The Bahamas Government shall hold all property rights, such as copyright, patents and registered trademarks, on matters directly related to, or derived from, the work carried out through

I. INTRODUCTION

1. **This technical annex provides a cost-benefit analysis (CBA) of the Citizen Security and Justice Programme (CSJP) of The Bahamas.** This CBA will serve as a technical input of the Proposal for Operation Development (POD) and accompanying documentation of the proposed loan from the Inter-American Development Bank Loan (BH-L1033).

2. **The purpose of a cost/benefit analysis** is to provide a set of quantitative metrics, so that by associating a monetary amount with each cost and benefit item, it enables a comparison of the costs of conducting such projects with their benefits, and a calculation of the net benefits (measured by the net present value, the internal rate of return or the benefit-cost ratio). While typically the benefits created by project interventions are the additional benefits due to, for example, improvements in physical infrastructure, in projects such as this, which focus on crime and violence prevention, benefits are mostly due to the avoided or reduced potential damages and losses related to crime and violence that are prevented by the project interventions.

3. **This paper is divided into four sections,** including this introduction. In section II the overall objectives and outcomes are presented. In section III we present the cost benefit analysis for each of the four components of CSJP. In section IV a summary of results is offered. The annex includes bibliographic references and a glossary.

II. OBJECTIVES AND OUTCOMES

1. The Programme is a crime and violence prevention programme of the Government of The Bahamas (GOBH). The general objective is to contribute to the reduction in C&V (homicides, armed robberies and rapes) in The Bahamas. The specific objectives are to:
    i. improve behaviours for non-violent conflict resolution in New Providence; (ii) increase employability and employment of the at-risk youth population in New Providence; (iii) strengthen institutional capabilities of justice services; and (iv) reduce the recidivism rate among persons within the juvenile and prison systems.

2. **The expected impact of the comprehensive programme is to decrease national homicides, armed robberies, and rape rates as follows**[1]: (i) to reduce the annual homicide rate from 31.5 murders per 100,000 in 2014 to 27.19 per 100,000 in 2020; ii) *reduction of armed robberies* from 270.8 per 100,000 in 2014 to 244.4 per 100,000 in 2020; (iii) reduction of rapes from 27.6 per 100,000 in 2014 to 24.25 per 100,000.

[1] As described in the project document results indicators matrix.

III. COST BENEFIT BY COMPONENT COMPONENT 1: Social C&V prevention in New Providence (US$4,849,000)

1. **Objectives**. This component seeks to improve behaviours for non-violent conflict resolution in the island of New Providence. This will include the following ¨evidence based¨ interventions/activities: (i) training activities provided to youth, adults, and local leaders to address norms that promote acceptance of violence (e.g. parenting, gender norms, rape risk reduction programmes, public awareness and behaviour change campaigns, as well as counselling and conflict resolution); (ii) school-based violence prevention activities (which will seek to improve social skills, address anger management and increase conflict resolution skills, as well as to foster caring, supportive relationships among youth); and

(iii) youth violence interruption activities (which will seek a public health approach addressing violence as a learned behaviour which can be prevented using disease control methods).

2. **The main targets as detailed in the Results Matrix are to**: (i) reduce by 5% the rate of victims of assault in the last 12 months in New Providence; (ii) reduce the number of rapes per 100 thousand inhabitants drops to 31.8; (iii) reduce by 39.3% the proportion of students who have been in a physical fight one or more times (in the last 12 months).

3. Component 1 includes the following outputs:

   - Needs and asset assessments completed.
   - Community centres refurbished and expanded.
   - Community Leaders trained and certified on community mobilization and genderbased violence prevention.
   - Community members trained and certified on parenting.
   - Community members trained and certified on preventing Violence against Women.
   - Surveys on Violence Against Women completed.
   - Community members trained and certified on preventing sexual assault.
   - Comprehensive care model for women who experience sexual violence. Community members trained on conflict resolution.
   - Public awareness campaigns in the media developed and implemented.
   - Feasibility study for violence interruption model completed.
   - Community violence interrupters trained.
   - Community members trained and certified in mediation and conflict resolution.

   Life skills training sessions in schools; and Safe dates training sessions in schools.

4. **Methodology.** Estimating the monetary benefit of each one of these individual outputs is a difficult task, given data availability limitations. For that reason, we focus on the group of activities of Component 1 for which there is evidence-based literature available which offer some guidance to estimate their impact, namely on the ***parenting training*** activities. To estimate the benefits of these interventions, we apply the findings of evaluation research on the effects of parenting programmes[2] similar to the

2 Morawska, A. et al. 'Evaluation of a Brief Parenting Discussion Group for Parents of Young Children.' Journal of

ones to be implemented in The Bahamas, with positive impacts on children, parents, families, and the wider community. As outlined in the POD, ¨Parenting education will be based on the Triple P model as an evidence-based[3] and cost-effective[4] education model, adapted for the Bahamian context. A Randomized Control Trial evaluation of Triple P found a 22% reduction in a validated scale measuring parental over-reactivity (Morawska, A. 2010).

5. In particular, we base our estimate on the finding that, in 2012, the Washington State Institute of Public Policy (WSIPP) reported that when implemented as a public health approach for parent training, Triple P could save US$722 per participant through the prevention of child abuse and neglect, and up to an additional US$1,788 per participant through the prevention of child mental health disorders[5]. That is a total of US$2,510 per participant. Since The Bahamas' per capita income is about **42** percent of US per capita income, we use as a proxy **42 percent** of the US savings, or US$**1,056** per participant to estimate the benefits in the Bahamas programme.
6. In Bahamas, the Triple P program will be implemented through the training and certification over 5 years of 500 community members on Parenting, and 400 community members on Violence against Women. The value of the benefits estimated is about US$11.1 million dollars, with a present value of **US$4.52 million dollars**. This calculation uses the standard IDB discount rate for cost benefit analysis of projects of 12 percent and assumes a 15-year period that the benefits of the project will accrue.
7. Programme Costs. The total programme costs budgeted for Component 1 are about US$4.85 million. However, there are also other costs of the project (for evaluation, audit, programme administration, and contingencies) which are prorated equally among the 4 project components. So, the nominal costs of Component 1 are about US$5,383,050 to be implemented over a five-year period, with a present value of US$4.35 million.
8. **This results in a net present value of benefits of US$ 177,737 dollars**, with a costbenefit ratio of 1.04 meaning that 1.04 US dollars will be recovered for every dollar invested. The social internal rate of return (IRR) is 12.8 percent. This calculation uses the standard IDB discount rate for cost benefit analysis of projects of 12 percent and assumes a 15-year period that the benefits of the project will accrue.

THE ECONOMIC VALUE OF COMPONENT 1 (In US$)						
	Nominal Value of	Present Value of	Present Value of	Net Present	Social	Cost Benefit

Developmental & Behavioral Pediatrics 31(8), October 2010; Triple P. 2014. Proposal for the Inter-American Development Bank (Jamaica). Triple P America.

3 The full list of research evidence on Triple P is listed here: http://www.triplep.net/glo-en/the-triple-p-system-at-work/evidencebased/key-research-findings/.

4 http://www.triplep.net/glo-en/the-triple-p-system-at-work/cost-effective/the-numbers/

5 Lee, S., Aos, S., Drake, E., Pennucci, A., Miller, M., & Anderson,L. (2012). Return on investment: Evidence-based options to improve statewide outcomes, April 2012 (Document No. 12-041201). Olympia: Washington State Institute for Public Policy.

	Benefits	Benefits	Cost	Value	IRR	Ratio
BASELINE SCENARIO (15 Year accrual of benefits and $1,056 benefit per 900 participants)						
Total	11,107,339	4,524,388	4,346,651	177,737	12.8%	1.04
SENSITIVITY ANALYSIS						
Only 10 year duration of accrual of benefits	6,356,101	3,289,144	4,346,651	-1,057,507	4%	0.76
Only 500 participants (excludes Violence against Women)	6,282,193	2,604,980	4,346,651	-1,741,671	2%	0.60

9. **It should be noted that these** results provide a partial estimate (but enough to justify on cost-benefit basis), since it does not account for the additional benefits of reductions in crime that could be expected from the violence interruptions activities, whose outcome targets of reduction of homicides have not been quantified for this particular component. The violence interruption model in Bahamas will be based on the Cure Violence model (as explained in the POD), and the Cure Violence studies show that this intervention did lead to a reduction in shootings and murders in Chicago[6] and Baltimore[7]: a) for Chicago, a 12% reduction in actual shootings (and a 78% reduction in reciprocal gang killings, which is particularly relevant for the violence issues targeted in New Providence[8]), and b) for Baltimore, a reduction in murders and shootings of 23.5%. So, in principle if one could have an estimate of the reduction in homicides attributable to the violence interruption activities of Component 1 and apply it to an estimated cost of crime (of private and public security prevention and punishment expenditures), the value of the benefits of the violence interruption activities of Component 1 would be substantially higher.

Component 2: Youth employability and employment training and strengthening of the Public Employment Services (PES) (US$4,080,000)

10. **Objectives**. This component aims to increase employability and employment among atrisk youth (15-29 years old) in New Providence. As explained in the POD, at-risk youth include youth who have or have not committed crimes. Training for employability could benefit young people who have committed crimes in the past and are now in the process of social and economic reintegration. In terms of placement of beneficiaries into the two treatment groups, an assessment test will be conducted as part of the program that will determine beneficiaries' baseline relevant skill set (soft and technical) and evaluate other variables like previous work experience.
11. **The main outcomes expected as detailed in the Results Matrix, are to:** (i) increase from 0 to 35% by 2019 that the at-risk youth 15-29 obtain a certificate of completion in the "training for employability" program that has transitioned to the "training for employment" program up to 6 months after the training for employability program; (ii) increase from 30%

6 Skogan, W. G., et al. 2008. Evaluation of Cease Fire—Chicago. Washington, D.C.: National Institute of Justice, Office of Justice Programs, U.S. Department of Justice. This study focused on 7 intervention areas, with match comparison areas.

7 Daniel Webster, Jennifer Whitehill, Jon Vernick, and Elizabeth Parker. 2012. Evaluation of Baltimore's Safe Streets Program: Effects on Attitudes, Participants' Experiences, and Gun Violence. Johns Hopkins Center for the Prevention of Youth Violence. 8 Police data points to 33% of homicides being attributed to "retaliation", which is typically associated with unresolved conflicts among criminal groups (In Jamaica, 65% of homicides were gang-related in 2012 according to the Jamaican Constabulary Force (JCF) Major Crime Statistics Review 2012 ; while in Trinidad and Tobago, 34.8 percent of homicides were gang-related

according to the Caribbean Human Development Report 2012, UNDP).

to 40% by 2019 that the at-risk youth 15-29 obtain a certificate of completion in the "training for **employment**" program that has a job in the sector they were trained in 3 months after training; and (iii) increase from 2% to 18% by 2020 the job placement rate by the Public Employment Services (PES) in New Providence.

12. **The <u>outputs</u> are as follows**: (i) 1600 of at-risk youth 15-29 that finished their soft + technical skills training (obtaining a certificate of completion) in the "training for employment" program in New Providence trained, with 250 youth trained in the second year, 550 in the third year, 550 in the fourth year, and 250 in the fifth year; (ii) 1,000 of atrisk youth 15-29 that finished their soft skills training (obtaining a certificate of completion) in the "training for employability" program in New Providence; and (iii) Capacity building of the PES under the Ministry of Labour (in coordination with the Technical Cooperation already provided by IDB), including Enhancements and Maintenance to Electronic Labour Exchange, Improvement of PES offices, Train employees, and Development of youth targeted services.
13. **<u>Estimation of Benefits</u>**. To estimate the benefit of this component we quantify the dollar benefits of how much extra employment and income would be generated from the impact of the training provided. We do not consider the benefit of keeping at-risk youth busy in job training – and thus out of trouble in the streets or even possibly being incarcerated[9] or the benefits of youth continuing education[10] (and thus on future earnings). In addition, the overall estimates do not take into account the benefits derived from the Institutional strengthening of Labour referral office, so the estimates calculated are conservative.
14. **To quantify how much extra employment and income** could be attributed to the impact from labour training of both employment and employability programmes, we look for guidance from the literature of impact evaluations of labour training programmes. We find the following sources which provide the basis for our calculations.
15. In ***Card, D., Kluve, J. and Weber, A. (2010)***[11] a meta-analysis uses a sample of 199 programme estimates extracted from recent micro-econometric evaluations of active labour market policies in 26 countries. This paper finds that in general, most active labour market programmes are short, with a typical duration of 4-6 months (which is a similar duration of the Employment Programme of Bahamas), and ¨the short duration of the programmes suggests that at best they might be expected to have relatively modest effects on the participants – comparable, perhaps to the impact of an additional year of formal schooling¨. Their impression is that ¨an impact on the order of a 5-10% permanent

9 As explained in the POD, in Raphael, Steven & Winter-Ebmer, Rudolf (2001), an analysis of unemployment effects on C&V state level data in the U.S. consistently indicate that unemployment is an important determinant of crime rates. The relationship between unemployment and crime and violence is also evident in other studies like Bushway, Shawn. "Labor Markets and Crime" in Wilson, J.Q. and Petersilia, J. eds. 2011 Crime and Public Policy and in Downes, Andrew. "Labor Markets and Human Resources Development in the Caribbean" (2007).

10 As explained in the POD, comprehensive skills training programs for at-risk youth such as the programs developed by Youth Build International, have certain impact on youth returning to school. One example cited by the POD is the YouthBuild El Salvador Program, which found that as of 2012, the program has achieved reinsertion results above the average of other programs: 85% of participants graduate, and, of these, 77% achieve reinsertion (35% obtain employment, 23% self-employment, and 19% returned to school).

11 Card, D., Kluve, J. and Weber, A. (2010), Active Labour Market Policy Evaluations: A Meta-Analysis. The Economic Journal,

120: F452–F477. doi: 10.1111/j.1468-0297.2010.02387. Their main analysis uses an ordered probit framework, assuming that program effectiveness is a partially observed latent random variable. They test this assumption by fitting separate probit models for the occurrence of significantly positive or significantly negative impact estimates.

increase in labour market earnings (or a somewhat larger short-term impact) would be large enough to justify many of the programmes on a cost-benefit basis¨[12]. In fact, on this point Card, D., Kluve, J. and Weber, A. also cite a detailed cost-benefit analysis for various Danish programmes and conclude that subsidized public and private sector employment programmes have positive employment and earnings effects.

16. In addition, we use as reference for our calculations an ***IDB study that reports the impact of a job-training programme for youth in the Dominican Republic***, using a random sample of applicants to undergo training.[13] The Card et al paper present estimates of the programme effects, including low positive effects on employment outcomes. The parameter estimates for the increase in employment rates by location (in the capital) were

5.3 percent, and by a combination of higher education and location was 10.5 percent. They also found a relatively large positive effect for residents of the capital of the country (about 46 percent salary differential between the controls and the treatment), and an even larger effect for combination of education and location (64.8 percent salary differential).

17. The Programme will concentrate in the New Providence area. We apply as a proxy the parameters found in the literature discussed above, that is, an increase in employment of about 5 percent for all participants. In the absence of available income statistics to estimate salary differentials for people with or without after job training, we use as a conservative proxy in our benefit calculations the entry level average salary of $12,000 Bahamian dollars according to the Occupational and Wages Survey 2011 (unpublished). We use this proxy for all project participants. This figure is for 2011, so it is an underestimate, since the average salary for that same year was US$15,091 dollars.

18. **To estimate the benefit of the increase in employment**, we multiply the impact of the increase in employment (5 percent) times the number of participants in the program training for employment (1600), and also times the entry level average salary of $12,000. We take into account the planned calendar targets scheduled along the five years of the programme.

OUTPUTS OF COMPONENT 2 LABOR TRAINING						
LABOR TRAINING	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**TOTAL**
PROGRAMS	**2015**	**2016**	**2017**	**2018**	**2019**	
TARGETS OF # OF YOUTH TRAINED						
Youth 15-29 trained to employment	0	250	550	550	250	**1600**
Youth at risk 15-29 trained for employability	0	500	500	0	0	**1000**
IMPACT ON EMPLOYMENT						
5% of Youth 15-29 trained to employment	0	12.5	27.5	27.5	12.5	**80**

12 Card, D., Kluve, J. and Weber, A. (2010), pages 11-12

13 Card, David, Pablo Ibarraran, Ferdinando Regalia, David Rosas-Shady, and Yuri Soares (2011). "Labor Markets Impacts on Youth Training in the Dominican Republic" Journal of Labor Economics. Vol 29, no. 2. p. 267.

19. **Thus, the benefits of Component 2** amounts to US$9.6 million dollars, with a present value of US$4.1 million dollars, using the standard IDB discount rate of 12%, and assuming a 10-year period that the benefits of the project would accrue. The overall estimates of component 2 have not taken into account the benefits from the Institutional strengthening of Labour referral office or the program training for employability, so the estimates calculated are conservative.

THE ECONOMIC VALUE OF BAHAMAS TRAINING FOR EMPLOYMENT (In US$)					
	Present Value of Social Benefits	Present Value of Cost	Net Present Value	Social IRR	Cost Benefit Ratio
BASELINE SCENARIO (10 Year accrual of benefits of employment and $12,000 annual salary)					
5% impact of Youth trained to employment	4,108,942	3,363,545	745,398	18%	1.2
SENSITIVITY ANALYSIS					
Using $15,091 average salary	5,167,406	3,363,545	1,803,861	25%	1.5
Only 5 years accrual of benefits and average salary	3,296,745	3,363,545	-66,800	11%	0.98

20. **The total programme costs budgeted for Component 2** are US$4.08 million (US$4.67 million when adding other costs for evaluation, audit, programme administration, and contingencies) to be implemented over a five-year period, resulting in a present value cost of US$3.36 million dollars. Thus, the net present value of benefits is **US$745,398 dollars**, with a cost/benefit ratio of **1.2**, meaning that **1.2** US dollars will be recovered for every dollar invested. **The social internal rate of return (IRR) is 18 percent**. This component has a very high social return, and higher than the reference social rate of return for 12 percent for Bank projects. This result is due mainly to the long run period of permanent employment assumed is 10 years.
21. **Sensitivity analysis.** If we use the average salary in 2011 of US$15,091 (instead of the minimum salary) the social IRR is 25% with a cost/benefit ratio of 1.5. If in addition we addition, we reduce the period of permanent employment to only 5 years the social IRR is 11 percent, with a cost/benefit ratio of 0.98.

Component 3: Strengthening of Justice Institutions (US$5,554,800)

22. Objectives. The objective of this component is to address the institutional shortcomings of the justice administration system to prosecute and sentence crimes successfully and in a timely manner at the national level.
23. In terms of **outcomes**, this component aims to reduce the length of prosecution for criminal cases in the justice system, by increasing the clearance rate of completed cases by the court system within a year from 18% in 2013 to 24% in 2020 and by reducing the backlog of criminal cases from 814 in 2011 to 656 in 2020. The **activities** envisioned include: (i) design and implementation of an integrated electronic system for case management, digital recording and scheduling; (ii) creation of a Public Defender Programme; and (iii) design of innovative justice services (restorative justice).

24. **In terms of outputs,** as detailed in the Results Matrix of the POD, the outputs planned include:

- Case management and scheduling systems designed and implemented.
- Court Recording Systems expanded
- Public Defender Programme in operation
- Restorative justice services plan designed and implemented. Restorative justice services centres renovated.

25. **To estimate the benefits of Component 3** we take into account that by reducing the time from day of charge to conviction or acquittal of cases, this is expected to increase the efficiency of the courts and increase trust in the legal system, and rule of law in general. This also has other benefits because by reducing the backlog (which includes all cases before court that do not have a trial date) it also reduces the number of cases actually going to trial, because it will make determination faster if a case goes to trial or not[14]. In addition, it also reduces the number of people on bail[15].

26. **To estimate the benefits** (efficiency savings), in the absence of official data on cost of trials, we estimate an approximate cost of trial per case, by dividing the budget of the Attorney General´s Office[16] and of the Magistrate Courts by the number of actual cases resolved by the courts in 2013. With the **qualification** that we assume that only 15% of the AGO budget is spend on criminal prosecution (according to interviews with the AOG officers), and also for lack of data we assume that only about 20% of the Magistrate Courts are spent on criminal cases. In addition, we apply the program targets of reduction clearance rate of completed cases by the court system within a year from 18% in 2013 to 24% in 2020 to estimate the efficiency savings.

27. **Results. The benefits of Component 3** amounts to US$13.6 million dollars, with a present value of US$5.6 million dollars, using the standard IDB discount rate of 12%, and assuming a 15-year period that the benefits of the project would accrue.

28. **The total programme costs budgeted for Component 3** are US$5.5 million (6.1 million when adding other costs for evaluation, audit, programme administration, and contingencies) to be implemented over a five-year period, resulting in a present value cost of US$4.95 million dollars. Thus, the net present value of

14 As explained in the Matrix of Results, item 10, The backlog includes criminal cases originated since 1996. Evidence from a pilot project in 8 courts of India, show a 7% average rate of decrease of old backlog, when implementing new case management systems (Salkute, S, 2014).

15 There are currently about 67 homicide cases on bail now. These are sore points for the prosecution. The constitution says there must be trial within a reasonable time (3 years). So, there are applications for bail, some get released but some also commit crimes again and become repeat offenders. In addition, people sue the government for damages when do not get a trial within reasonable time.

16 The Attorney-General's portfolio encompasses a diverse range of responsibilities including notaries public, criminal prosecutions, international legal cooperation, law school, coroners, Justices of the Peace, law reports, legal aid, relations with the industrial relations tribunal, intellectual property rights, etc. Source Attorney General Report 2011 http://www.bahamas.gov.bs/wps/wcm/connect/410451d3-bff5-4ed0-9f8b-aa173376045f/OAG-Report-2011- ForEmail.pdf?MOD=AJPERES.

benefits is **US$641,991 dollars**, with a cost/benefit ratio of **1.13**, meaning that **1.13** US dollars will be recovered for every dollar invested. **The social internal rate of return (IRR) is 14.7 percent**, higher than the reference social rate of return for 12 percent for Bank projects. This result is a conservative estimate because it does not include the social benefits of savings from the alternative dispute resolutions of restorative cases.

29. **Sensitivity analysis.** When we lower to only 10 years the period of accruing of benefits, the social internal rate of return (IRR) is 8.5 percent, with a cost/benefit ratio of 0.89. If we increase to 30% the budget of the Magistrate court for criminal cases, the social IRR is 18.8 percent, with a cost/benefit ratio of 1.33.

Component 4: Rehabilitation and Reintegration of offenders (US$ 3,215,000)

30. The **objective** of this component seeks to improve the effectiveness of the BDOCS and the DRWS in reducing offender recidivism at the national level, by financing the following **activities**: (i) design and implementation of a comprehensive rehabilitation model; (ii) design and implementation of a case management and monitoring system to identify risks and needs, provide treatment and manage cases; (iii) development and implementation of a continuous and flexible training curriculum to facilitate knowledge gain and build the necessary skills associated with using evidence based practices for the effective management of offenders for BDOCS and DRWS; and (iv) expansion of the BDOCS reintegration programmes.
31. In terms of **outcomes**, this component aims to improve DOCS effectiveness in reducing offender recidivism at the national level by reducing recidivism rate among adult offenders from 24% in 2013 to 20% by 2020. As explained in the POD, evidence (Lipsey, M. W., & Cullen, F. T., 2007) indicate that adult rehabilitation programs based on cognitive behavioural therapies, have shown a fall in recidivism by 25% in the targeted population.
32. **In terms of outputs,** as detailed in the Results Matrix of the POD, the outputs planned include:

- A comprehensive rehabilitation model plans for inmates designed and implemented.
- A comprehensive rehabilitation model plans for juveniles designed and implemented
- Inmates trained and certified
- Juveniles' offenders trained and certified
- A case management and monitoring systems for inmates designed and implemented.
- A case management and monitoring systems for juveniles designed and implemented.
- DOCS staff who completed training in rehabilitation and social integration model.
- DRWS staff who completed training in rehabilitation and social integration model.
- A Work Release programme expanded.
- Inmates who completed the work release.

33. **To estimate the benefits of Component 4** we take into account that by reducing recidivism this is expected to reduce the costs of prisons as well as reduce cost of crime and reduce prosecution and courts costs.

34. **To estimate the benefits** (efficiency savings), we first estimate an approximate cost per prisoner by dividing the budget of Prisons by the number of prisoners. We also add the prosecution and courts costs (along the lines of the estimates from Component 3 using

the partial budget of the Attorney General´s Office[17] and of the Magistrate Courts) of 2013. In addition, we use the programme targets of reduction of recidivism from 24% in 2013 to 20% by 2020, to estimate the efficiency savings.

35. **The results show that the benefits of Component 4** amounts to US$7.2 million dollars, with a present value of US$3.2 million dollars, using the standard IDB discount rate of 12%, and assuming a 10-year period that the benefits of the project would accrue. The overall estimates of component 4 have not taken into account the benefits from reduced crime so the estimates calculated are conservative.

36. **The total programme costs budgeted for Component 4** are US$3,380,000. This plus the other pro-rated costs (for evaluation, audit, programme administration, and contingencies), the nominal costs of Component 4 are US$3,965,400 to be implemented over a five-year period, resulting in a present value cost of US$3.2 million dollars. Thus, the net present value of benefits is **US$6,737 dollars**, with a cost/benefit ratio of **1.002**, meaning that **1.002** US dollars will be recovered for every dollar invested. **The social internal rate of return (IRR) is 12.1 percent**, slightly higher than the reference social rate of return for 12 percent for Bank projects.

37. **<u>Sensitivity analysis</u>.** When we lower the success of reducing recidivism to only 0.5% annually (instead of 1%) the social internal rate of return (IRR) is -

    5.6 percent, with a cost/benefit ratio of 0.5.

IV. SUMMARY OF RESULTS

1. **The cost-benefit analysis** performed, under conservative assumptions, shows that the total estimated **benefits** of the four components of the project amounts to **US$47.7** million dollars **with a present value of US$20.3 million** with a discount rate of 12 percent. The total annual **costs** of the project, assumed to be spent equally over five years, are **US$20 million with a present value of US$16.3 million dollars**. **Thus, the net present value of benefits is US$4.05 million dollars, with a cost/benefit ratio of 1.25, meaning that**

   1.25 US dollars will be recovered for every dollar invested.

2. **The social rate of return (TIR) is 17.2% percent,** a weighted average of the respective rates of return of each of the four components. The results show that all the components of the Programme have a high social return, even under conservative assumptions, and higher than the reference social rate of return for 12 percent for Bank projects.
3. **As is expected, the CBA depends on the assumptions** used to estimate the monetary value of the benefits as well as on the achievement of the main targets of each component.

17 The Attorney-General's portfolio encompasses a diverse range of responsibilities including notaries public, criminal prosecutions, international legal cooperation, law school, coroners, Justices of the Peace, law reports, legal aid, relations with the industrial relations tribunal, intellectual property rights, etc. Source Attorney General Report 2011 http://www.bahamas.gov.bs/wps/wcm/connect/410451d3-bff5-4ed0-9f8b-aa173376045f/OAG-Report-2011- ForEmail.pdf?MOD=AJPERES.

One of the key variables used to estimate the benefits and which has an important impact in the sensitivity analysis is the number of years of the lasting of the benefits for all components. For example, in both the first and third components the base case assumes that the benefits will last for 15 years, while for the second and four components it is assumed that the benefits will last 10 years. The sensitivity simulations for all the individual components assume a reduction of 5 years in the lasting of the benefits. When this is done, in all cases the social rate of return and the cost benefit ratio decrease significantly below the 12% (TIR) and less than 1 (cost/benefit ratio).

4. Another variable impacting the sensitivity calculations is the annual salary used to estimate the benefits in the second component. The base case uses a very conservative and low minimum salary (2011 data) of about $12,000 dollars. The sensitivity analysis uses instead the average salary of 15,091 (2011 data), and when this is done the results are a significant increase in both the TIR and the cost/benefit ratios.

5. To estimate the benefits of the third component, two of the key variables used are the small conservative portions of the total budget of the Attorneys General Office and of the Magistrate Courts to process criminal cases. The base case assumes 15% and 20% shares of their budgets respectively. When a larger share (30%) of the Magistrate Courts´ budget is used in the sensitivity analysis, as reported above, the TIR and the C/B ratio increase significantly.

6. Lastly, the key variable to estimate the benefits of the fourth component is the reduction in the recidivism rate (base case assumes 1% annual reduction). When this rate is assumed to be only 0,5% annually, the sensitivity simulation shows, as reported, that the social rate of return and the cost benefit ratio decrease significantly.
7. On the other hand, the CBA estimates are very conservative. Given the lack of available data in some cases, the use of proxies was required, and to be cautious in the results, values on the lower bound of each variable were used (salary and budget shares for example). Furthermore, for lack of data, this CBA did not include all potential benefits from some activities. Finally, since crime and violence are considered one of the main development constraints in The Bahamas, it would be expected that a reduction in crime would have a significant and broader positive social and economic effect.

Attachments:

https://devbusiness.un.org/system/files/ECONOMIC%20ANALYSIS%20CONSULTANT.pdf