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| **COST-BENEFIT ANALYSIS OF THE THIRD PHASE OF THE CITIZEN SECURITY AND JUSTICE PROGRAM (CSJP III)** |
| **(JA-L1043)** |
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**COST-BENEFIT ANALYSIS OF THE THIRD PHASE OF THE CITIZEN SECURITY AND JUSTICE PROGRAM (CSJP III) - JAMAICA**

1. **INTRODUCTION**
2. **This technical annex provides a cost-benefit analysis (CBA) of the Third Phase of the Citizen Security and Justice Program (CSJP III).** 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 (JA- L1043). This loan will also be co-financed by grants from the Department for International Development (DFID Government of the United Kingdom), and the Department of Foreign Affairs, Trade, and Development (DFATD / Government of Canada).
3. **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 us to compare the costs of conducting such projects with their benefits, and to calculate the net benefits (measured by the net present value, the internal rate of return or the benefit-cost ratio). While the benefits created by project interventions are the additional benefits due to, for example, improvements in physical infrastructure, in projects such as this one that focus on crime prevention, the benefits are mostly due to the avoided or reduced potential damages and losses related to crimes that are prevented by the project interventions.
4. The Government´s security strategy has two tracks: crime control (by the police and military) and crime and violence prevention, which is where CSJP fits. **CSJP III is a multidisciplinary crime and violence prevention program** of the Ministry of National Security (MNS) and the Ministry of Justice (MOJ), whose main objective is to enhance community security and justice in target communities, mostly in the urban marginalized areas of Jamaica.
5. **The objectives of the CSJP are aligned with the Vision 2030 Jamaica-National Development Plan,** in which National Outcome # 5 relates to Security and Safety. In particular, Chapter 5-1 of the Vision 2030 Jamaica refers to “Strengthen the Capacity of Communities to Participate in Creating a Safe and Secure Society.” There are other GOJ and international programs which also deal directly or indirectly with citizen security and justice, and which are complementary to CSJP as envisioned by the National Security Policy 2012.
6. **This paper is divided into four sections,** including this introduction. In section II we present the detailed objectives, expected results and cost benefit analysis for each of the three components of CSJP III. In section III we present the summary of results, and the sensitivity analysis is presented in section IV. The annex includes the bibliographic references and a glossary.
7. **CSJP III COST BENEFIT BY COMPONENT**
8. **The overall objective of CSJP III is to enhance citizen security and justice in target communities.** CSJP III has three components, for which the objectives in the targetcommunities are to: (i) improve behaviors for non-violent conflict resolution; (ii) increase labor market attachment and employability among youth; and (iii) increase access to effective community and alternative justice services.
9. **The combined effects of the three components are expected to produce the following outcomes in the target CSJP communities**: i) to reduce the annual murder rate from 50.5 murders per 100,000 in 2012 to 40.4 per 100,000 in 2018[[1]](#footnote-1). This is equivalent to a 20 percent reduction in the murder rate in CSJP communities over five years, or about 4 percent per year; ii) *reduction of shootings* in parishes with CSJP target communities from 53 per 100,000 in 2012 to 39.5 per 100,000 in 2018; iii) *increase the perception of safety at night by residents* in CSJP target communities from 74 percent of survey respondents in 2012 to 79.1; and iv) *increase the perception that the courts provide justice quickly* and help crime victims from 15.5 percent of respondents in 2012 to 24.2 percent in 2018.

**CSJP III COMPONENT 1:** **Culture Change & Community Governance**

1. **Objectives**. This component seeks to improve behaviors for non-violent conflict resolutions in target communities, which is expected to contribute to the impacts described in paragraph 7 (i.e. a reduction in the level of major crimes and interpersonal violence, and to increase the perception of safety).
2. **The main targets for this result** as detailed in the Results Matrix, are to: i) reach *cease fire agreements* (between gangs) in 60 percent of communities where violence interruption takes place; ii) decrease by 18 percent *the persons who reportedly avoid certain areas of their own community* because of fear of crime; iii) increase by 28.5 percent *the proportion of witnesses to crime who talked to police* about the last crime they witnessed in their communities; iv) decrease by 10 percent the *proportion of parents who used coercive parenting strategies* by participants in target communities; and v) ensure that 100 percent of target communities will have a *Community Safety Plan that integrate findings from women´s safety audits*.
3. **To achieve the above targets, the outputs of Component 1 include:** i) ***training courses*** for community members on parenting, and on healthy gender norms; ii) ***counseling/psycho-social support*** to victims/witnesses of violence; iii) ***violence interruption services*** (targeting gangs); iv) violence prevention and conflict resolution ***training in schools***; v) ***social marketing*** for awareness and attitude changes, to promote culture of lawfulness; vi) ***community events*** to improve citizen-police relations, vii) crisis intervention activities; viii) ***training*** and technical assistance to community leaders and residents to improve community governance capacity; ix) community ***infrastructure*** expansion or renovations; ix) development and advocacy for ***community safety plans*** *and women’s safety audits;* and x) ***cultural and sporting events***to promote peace.
4. **To estimate the monetary benefit of each one of these individual outputs (**of infrastructure, counseling, peace building and sporting events, social marketing, training in healthy gender norms and conflict resolution, and community governance capacity), is a difficult task, given the data limitations. For that reason**, we focus only on the two following indicators** for which there is evaluation literature available that can guide us on their estimation methodology, namely: ***A)*** ***target communities that achieve cease fire agreements that were sustained for at least six months***; and ***B)*** ***use of coercive parenting strategies by participants in target communities***. This CBA thus results in a conservative estimate, since it does not account for the additional benefits gained through fewer people avoiding areas of their community due to fear of crime, more people talking to police about crimes they witnessed, and more community safety plans with content related to women’s safety audits.
5. **Benefit A):** To estimate the ***benefits of cease fire agreements***, we refer to the following studies conducted on the Cure Violence programme in Chicago and Baltimore, since the gang interruption model used in Jamaica is similar to the Cure Violence model (as outlined in the POD):
   1. The ***evaluation of Cure Violence in Chicago***[[2]](#footnote-2) found mixed but largely positive outcomes. The program contributed to the decline in *murders* in one of the seven study sites, where the decline in the program area was twice than in the comparison area.[[3]](#footnote-3) *Reciprocal gang killings* dropped by 100 percent in 5 out of the 7 study sites, with either no change or an increase in the comparison areas. In a 6th treatment area, there was a 46% reduction, and in the 7th treatment area, there was no change (and no change in the comparison area). The average effect was a 78% reduction. For “*actual shootings*,” there was a drop in 3 of 7 areas (23.4 pct., 26.6 pct., 34.5 pct. declines). In 3 additional areas, there was a similar reduction in both the treatment and control areas, and in the 7th area, there was no change. “Actual shootings” is the most relevant effect for our purposes, as it includes both non-fatal shootings and gun homicides – which is a similar grouping to shootings and murders in Jamaica (given that most murders are gun homicides). We estimate the average reduction in actual shootings across the 7 areas, assuming the effects not due to the program (i.e. similar reduction in both the control and intervention area) or no significant change are quantified as 0. The average effect for the reduction in *actual shootings* is 12%.[[4]](#footnote-4)
   2. The evaluation of ***Cure Violence in Baltimore***,[[5]](#footnote-5) where the program is called Safe Streets, also found promising results.[[6]](#footnote-6) These results are even more notable because the implementation period covered by the study is relatively short (2007-2010). The program was implemented in four neighbourhoods, with two having a longer period and more intensity of implementation. In one neighborhood in Baltimore, there was a statistically significant reduction in homicides of 56 percent and in nonfatal shootings of 34 percent. In a second neighborhood, the reduction in homicides was 53 percent, with no significant change in shootings. In a third neighborhood, there was no change in homicides and a 34 percent reduction in shootings. In the fourth neighbourhood, there was an increase (270%) in homicides and a 44% reduction in shootings. It is important to note that this neighbourhood had the shortest implementation period, with the smallest number of participants, fewest programme staff, and the fewest conflicts addressed; the increase in homicides should be understood in this context. More generally, the study notes that in the neighborhoods with more consistent, intense, and longer programme activities, the results were stronger (neighbourhoods 1 and 2). To estimate a weighted average of the effects, we take the number of mediations as a proxy for the importance of each program (number of participants, length of time, and intensity of intervention). Using this, the weighted average effect for the reduction in *homicides* is 33.14% and the weighted average effect for the reduction in *shootings* is 13.9%.[[7]](#footnote-7) Combining these two figures, the *average combined effect for murders and shootings* is a reduction of 23.5%.
6. In summary, the Cure Violence studies show that this intervention did lead to a reduction in shootings and murders in Chicago and Baltimore, albeit with community-specific variations a) for Chicago, a 12% reduction in actual shootings (and a 78% reduction in reciprocal gang killings, which is particularly relevant for the gang violence issues targeted by CSJP III), and b) for Baltimore, a reduction in murders and shootings of 23.5%. A key outcome measure for Component I is to increase the percentage of ceasefire agreements that are sustained for at least six months by 60%. We assume that sustaining a ceasefire agreement among gangs for this period of time will also lead to a significant reduction in shootings and murders in Jamaican communities, particularly those committed by gang members.
7. In the Jamaican context, to estimate the potential benefits of this intervention, we need to first estimate **what proportion of the estimated reduction in murders and shootings that are expected through CSJP III can be attributed to the gang interruption intervention in Component 1**. The estimated outcome of CSJP III in terms of reductions in murders and shootings is *20 percent over five years* (indicator 1, for murders,**[[8]](#footnote-8)** and indicator 2, for shootings**[[9]](#footnote-9)**). We assume that the gang interruption intervention only influences gang-related murders (including intra- and inter-gang, as well as murders of non-gang members perpetrated by gang affiliates, but not all murders). According to the JCF, 65 percent of the murders in Jamaica in 2012 were gang-related.[[10]](#footnote-10) We assume that the share of shootings that are gang-related is also 65 percent, and that *this same percentage of murders and shootings that are gang-related applies in CSJP communities*. (This is a conservative assumption, as gang presence is significantly higher in CSJP communities than the national average, so the proportion would likely be higher.)
8. We also take into account that CSJP focuses on 50 communities with a population of about 352,690 (excluding 4 communities for which population data is not available), equivalent to *13 percent of the total country population* of 2.7 million.[[11]](#footnote-11) These communities experience higher-than-average poverty and crime rates, and face multiple risk factors, as described in the POD. The number of murders in CSJP target communities in 2012 was 178[[12]](#footnote-12) out of 1,087[[13]](#footnote-13) for the country as a whole. *Thus, the share of murders in CSJP communities is about 16.3 percent of all murders in Jamaica*that year.[[14]](#footnote-14) We assume that the share of the shootings occurring in CSJP communities out of all shootings in Jamaica in 2012 (that is, 1224 shootings[[15]](#footnote-15)) is approximately similar (16 percent).[[16]](#footnote-16) Using these figures, **the proportion of murders and shootings that are *gang-related and occur in CSJP communities* is *10.4 percent of the national total*** (65 percent of the 16 percent of the national numbers).
9. There are different **methodologies to measure the costs of crime and violence and the benefits of crime reduction.**[[17]](#footnote-17) W**e follow an “accounting approach,”** which involves adding up all the assorted public and private expenditures associated with crime. This requires collecting data or estimating disaggregated categories of the costs of crime and then adding them up in a single monetary figure to get the total cost associated with crime. For example, non-tangible costs, such as the suffering of victims and their families, and the psychological effects of living in fear are not included.
10. **The costs associated with crime that we consider include**: direct costs of crime such as medical costs due to both fatal and non-fatal injuries due to violent crimes, as well as the indirect security costs for crime prevention and investigation, detention, punishment, etc., i.e. courts (justice), prisons, and police, defense, and private security. For this we have used a variety of data sources and methodologies.
11. As discussed above, about 16.3 percent of all murders and shootings in Jamaica are concentrated in the 50 CSJP target communities, and 65 percent of these are gang-related. This share of murders and shootings (10.4 percent) will be used for the CBA calculations. In addition, in line with the proposed targets in the Matrix of Results for reducing the murder rate for 2018, the estimates assume a 20 percent reduction in the murder rate in CSJP target communities (and a similar reduction in shootings) or 4 percent per year. As discussed above (para 13), this is a reasonable (though conservative) expected effect size for the result due to gang interruption interventions (i.e. reduced gang-related murders and shootings), as it falls within the range of effect sizes found in communities where Cure Violence was implemented.
12. **Medical costs**: Crime and violence cause substantial medical costs in Jamaica. Ward et. al. (2009) estimate that “during 2006, direct medical cost (J$2.1 billion) of injuries due to interpersonal violence accounted for about 12% of Jamaica's total health budget.” To estimate this cost for more recent years, we use this percentage and apply it to the budget of the Ministry of Health in 20013-2014. However, many costs related to violence-related injuries are not counted in this calculation – for example, funeral costs for murder victims, private health costs of those injured and/or disabled, lost wages due to being incapacitated to work, etc. -- due to lack of data on the precise number and nature of such injuries. These omissions make the estimate of medical costs to be on the lower bound.
13. **Police, Defense, Courts and Prison Costs**. The 2013-2014 national budget allocation for security services, including police, defense (only recurrent), courts (justice), and correctional services (prisons), totaled J$40.6 billion, which represented 7.6 per cent of the overall Government of Jamaica (GOJ) Budget, or about 2.7 percent of GDP. This was the third largest budget allocation after the Ministry of Finance and the Public Service, and Ministry of Education. The full value of Government expenditures on the justice system were included because the biggest share of court cases were criminal cases, indicating that the greater part of government expenditure on the justice system is crime related.
14. **Private Security.** In 2012, the strength of the Jamaican Constabulary Force was about 9,260 people. However, the total number of registered private security guards was double that amount (18,841) in over 294 registered private security firms. There is no official statistic on the volume of sales of private security services. However, security costs for firms in Jamaica are high, and it is estimated[[18]](#footnote-18) that private firms spend on average about 2 percent of total sales. Industry experts estimate that private security firms services amounted to around JM$8-10 billion in 2006 (or about US$ 207 million).
15. **Results.** By adding up the value of losses (related to major and violent crime) due to medical costs, the value of public and private security, and the courts, we estimate that these costs of crime in Jamaica in 2013 amounted to about US$827.5.6 million, equivalent to about 5 percent of 2012 GDP.[[19]](#footnote-19) Costs are substantial, especially the ones for public and private prevention. On the other hand, **the benefits that can be attributed to ceasefire agreements between gangs refer to social benefits related to reductions every year in public and private health resources associated with public security and prevention expenditures (police, defense, prison, and courts services) due to decline in the rate of gang-related murders and shootings.** Given that the expected impact of the program (attributable to Component 1 gang interruption) is to reduce the gang-related murders (and shootings) in CSJP target communities by 4 percent per year, and also that these communities´ share is 16 percent of the national rate (out of which 65% is gang related), we can estimate the benefits of the murders and shootings prevented due to gang interruption activities. When we apply these parameters to the estimated cost of crime (as described above), **the value of the benefits of the gang interruption activities of Component 1 is about US$7 million dollars[[20]](#footnote-20), with a present value of US$2.6 million dollars**. This calculation uses the standard IDB discount rate for cost benefit analysis of projects of 12 percent, and assumes a 20 year period that the benefits of the project will accrue.
16. **Benefit B):**To estimate ***the benefits of the intervention on parenting training***, we apply the findings of evaluation research on the effects of parenting programs[[21]](#footnote-21) similar to the ones to be implemented in Jamaica, with positive impacts on children, parents, families, and the wider community. As outlined in the POD, the parenting training in Jamaica will use the Triple P model, as an evidence-based[[22]](#footnote-22) and cost-effective[[23]](#footnote-23) training model, adapted for the Jamaican context.
17. In particular, 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 a community 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.[[24]](#footnote-24) That is a total of US$2,510 per participant. Since Jamaica´s per capita income is about 17 percent of US per capita income, we use as a proxy 17 percent[[25]](#footnote-25) of the US savings, or US$427 to estimate the benefits in the Jamaica parenting program.
18. In Jamaica, the Triple P program will be implemented in 25 communities with 50 participants per community each year (1,250 participants per year, or 6,250 over five years). **The value of the benefits of the parenting training intervention in Jamaica is therefore about US$53.4 million dollars, with a present value of US$19.97 million** dollars. This calculation uses the standard IDB discount rate for cost benefit analysis of projects of 12 percent, and assumes a 20 year period that the benefits of the project will accrue.
19. Thus, the combined total benefits of the two interventions in Component 1 for which benefits are calculated (gang interruption and parenting training) is about **US$60.5 million dollars**, with a present value of **US$22.6 million dollars**. This calculation uses the standard IDB discount rate for cost benefit analysis of projects of 12 percent, and assumes a 20 year period that the benefits of the project will accrue.
20. **Program Costs.** The total programme costs budgeted for Component 1 are US$16 million. However, there are also other overall costs of the project of US$10 million dollars (for Transition Plan, Monitoring and Evaluation, Programme Management, Technical Advisory Team, and IDB Administrative Fees) which are prorated equally among the 3 project components. So, **the nominal costs of Component 1 are US$19.3 million to be implemented over a five year period, resulting in a present value cost of US$13.9 million dollars**, using the IDB standard discount rate for projects of 12 percent.

**CSJP III Component 2: Labor Market Attachment and Employability**

1. **Objectives**. This component aims to increase labor market attachment among youth in target communities.
2. **The main targets for this result as detailed in the Results Matrix, are to:** i) achieve that at least 15 percent of Group 1 (most job ready) participants obtain jobs; ii) help at least 95 percent of scholarship recipients obtain their secondary or tertiary education; iii) help 56 percent of Group 1 and 2 (high and intermediate job readiness) to obtain HEART certification levels 1&2; iv) help 64 percent of Group 3 (low job readiness) to pass the eligibility test for HEART level 1; and v) help start up new businesses (with market studies, business plans, access to funding and links to private sector) with 40 percent still in operation after the first year.
3. **In terms of outputs** as detailed in the Matrix of Results of the POD, the outputs planned include giving 20 workshops for job training/placement, involving about 500 males and 500 females; 200 training workshops for curriculum development (through service providers); scholarships support to access tertiary education to 125 males and 125 females; scholarships to access secondary education to 375 males and 375 females; remedial education with integrated and life skills training to 750 males and 750 females; job seeking placement and training to 500 participants, including 10 job expositions; and Job apprenticeships/internships for 500 youth males and 500 female youths. In summary, the CSJP in five years will target 4,750 beneficiaries in the vocational training, and secondary and remedial education and life skills. In addition an extra 250 people would receive scholarships for tertiary education.
4. **Estimation of Benefits**. To estimate the benefit of the results of the second component we quantify the dollar benefits of how much extra employment and income would be generated from all the education and training provided. We also consider the benefit of keeping at-risk youth busy in school, sports activities, or in job training – and thus out of trouble in the streets or even possibly being incarcerated. In addition, the overall estimates of component 2 have not taken into account the benefits derived from the start-up and operation of new businesses, so the estimates calculated are conservative.
5. **To quantify how much extra employment and income could be attributed to the programme,** we look for guidance to the literature of impact evaluations of youth training programs. In particular, we use as a reference for our calculations an IDB study that reports the impact of a job-training program for youth in the Dominican Republic, using a random sample of applicants to undergo training.[[26]](#footnote-26)
6. **The Card et al paper present estimates of the program effects,** including low effects by gender, and low positive effects on employment outcomes. The parameters 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. In addition, they estimate increases on earnings, according to different ages (18.7 percent), gender (9.9 percent), and levels of education (30 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).
7. In **Jamaica**, given its low rate of economic growth[[27]](#footnote-27) (GDP growth about 1 percent in 2013/14) and high unemployment (about 15 percent) it seems reasonable **to expect low impacts in terms of employment**. In addition, since most of the CSJP communities are also in the capital Kingston area, we apply as a proxy the corresponding parameters (for Santo Domingo) found in the Dominican Republic paper, that is increase in employment only of 5.3 percent for all participants, except for the few ones involved in tertiary education where the parameter of increased employment is 10.5 percent.
8. In the absence of available **income** statistics to estimate salary differentials for people with or without secondary education, tertiary education, or with or without after job training, we use as a conservative proxy in our benefit calculations the lowest rate, i.e. the national weekly minimum wage of $5,600 Jamaican dollars (JMD) per 40 hour week as of January 2014, according to the Ministry of Labor and Social Security. We use this proxy for all project participants except for the professionals (with tertiary education), for whom we use the 2012 annual average earnings per week of all employed persons in large establishments for all industries of $19,606 JMD. Again, this figure is for 2012, so it is an underestimate.
9. **To estimate the benefit of an increase in employment** for all project participants (excluding tertiary education) we multiply the increase in employment (5.3 percent) times the total number of CSJP participants in component 2 (4,750 participants) excluding tertiary education, and also times the annual minimum wage converted to US dollars ($5,600 JMD weekly) increased by the income effect of 46 percent. In all calculations we use an exchange rate of 91 US dollars per JMD.
10. To estimate **the benefit of increase in employment for the professionals (tertiary education)**, we multiply the increase in employment (10.5 percent) times the total number of CSJP participants in tertiary education (250), and also times the annual average earnings of all employed persons in large establishments for all industries of ($19,606 JMD weekly) increased by the income effect of 64.8 percent. In all calculations, we use an exchange rate of 91 US dollars per JMD.
11. **To estimate the savings of keeping at-risk youth in school or training** (instead of in the streets at the risk of committing crimes), we assume that a small portion of such youth (10 percent) may otherwise end up incarcerated or in detention for a year. Thus, we multiply the cost of a prisoner inmate, times a 10 percent of the total number of CSJP component 2 participants (4,750+250). Due to the lack of available data for the cost of a juvenile prisoner inmate in Jamaica, we use as proxy twice the cost of a prison inmate in El Salvador in 2011 of US$1,042 per year[[28]](#footnote-28). This includes the cost to feed, clothe, and care for each inmate. We take twice this cost, taking into account that El Salvador’s prison occupancy is about 299 percent, compared to Jamaica´s 122 percent.[[29]](#footnote-29) Even still, this estimate is very conservative.[[30]](#footnote-30)
12. **The overall benefits of Component 2 of Labor Market Attachment and Employability, is obtained by adding up** the dollar benefits of how much extra employment and income would be generated from all the education and training provided, plus the benefit of keeping thousands of youth at risk busy in school, or in job training. **This amounts to US$54 million dollars, with a present value of US$20.2 million dollars**, using the standard IDB discount rate of 12 percent, and assuming a 20 year period that the benefits of the project will accrue. In addition, the overall estimates of component 2 have not taken into account the benefits from the assistance to start up new businesses, so the estimates calculated are conservative.
13. **The total programme costs budgeted for Component 2** are US$16 million. However, there are also other overall costs of the project of US$10 million dollars (for Transition Plan, Monitoring and Evaluation, Programme Management, Technical Advisory Team, and IDB Administrative Fees) which are prorated equally among the 3 project components. So, the nominal **costs of Component 2 are US$19.3 million to be implemented over a five year period, resulting in a present value cost of US$13.9 million dollars**.

**CSJP III Component 3: Community Justice Services**

1. **Objectives**. This component aims to increase access to effective community and alternative justice services.
2. In terms of targets, this component aims to: i) settle 67 percent of the mediation cases in the target communities, similar to the current national average; ii) reach agreements in 50 percent of restorative justice cases in the target communities; and iii) have 75 percent of the juveniles (about 200) selected for Child Diversion Program complete the program.
3. **In terms of outputs,** as detailed in the Results Matrix of the POD, the outputs planned include reaching 2,860 new clients in Victim Services, 5,100 new clients in Dispute Resolution Foundation, and 200 new participants in Child Diversion (who will be given alternatives to incarceration). In addition, 1,250 new mediation cases in target communities, and 500 new Restorative justice cases in target communities will be conducted.
4. **To estimate the benefits of Component 3 of Community Justice Services** we add up the social benefits of savings from Child Diversion and the alternative dispute resolutions of mediation and restorative cases. Thus, in the case of **Child Diversion**, we estimate the savings by multiplying the cost of a prison inmate (as explained under component 2, approximately $2,084 per person per year) times the number of child diversion participants attributed to CSJP, i.e. 200 juveniles selected for Child Diversion Program. This is a conservative estimate of the benefits, because we are calculating only one year of avoiding a prison sentence; in reality some juveniles may have been incarcerated for more than one year if they were not given the diversion option.
5. **To estimate the benefits of alternative dispute resolutions (ADRs**), namely mediation cases and restorative justice cases, is a difficult task, because there is lack of available data on average direct costs of mediation versus litigation from Jamaica to estimate how much savings in cost and time is expected from these ADRs. However, there is some literature on assessing costs of ADRs relative to litigation in other countries; cost savings estimates vary greatly depending on countries and types of cases. In general, ADR is more cost-effective than litigation.
6. One World Bank study[[31]](#footnote-31) reported that **costs incurred by firms that use an ADR process range from 3 to 50 percent of** the **costs incurred by firms that use a court litigation.** For example, in the cases of the USA and Canada, the cost savings are about of about US$6,000 per mediation case.
7. **There is little data on this topic in developing countries**. The World Bank report cites some examples: data from 2006 in Bosnia and Herzegovina show that the direct costs of mediation averaged US$225, about 50 percent of the costs of litigation (about $470). Similarly, 2005 data from **Argentina** estimated costs of US$431 for mediation, US$2,536 for arbitration, and US$14,295 for litigation.
8. Using the results of the studies done for other countries mentioned above, **we assume for Jamaica a conservative estimate of savings of about US$3,456 per case,** equivalent to only about 25% of the savings between litigation costs minus mediation costs in Argentina.[[32]](#footnote-32) This **does** not include other indirect benefits such as increasing the effectiveness of courts by reducing their backlogs of cases, and improving trust in the legal system (which can then improve trust in contract enforcement for private investment too).
9. **The overall benefits of Component 3 of Community Justice Services, is obtained by adding up** the social benefits of savings from Child Diversion and the alternative dispute resolutions through mediation and restorative cases**.** This amounts to US$81.8 million dollars, with a present value of US$30.5 million dollars, using the standard IDB discount rate of 12 percent, and assuming a 20 year period that the benefits of the project will accrue.
10. **The total programme costs budgeted for Component 3** are US$13 million. However, there are also other overall costs of the project of US$10 million dollars (for Transition Plan, Monitoring and Evaluation, Programme Management, Technical Advisory Team, and IDB Administrative Fees) which are prorated equally among the 3 project components. So, the nominal costs of Component 3 are US$16.3 million to be implemented over a five year period, resulting in a present value cost of US$11.8 million dollars.
11. **SUMMARY OF RESULTS**
12. **The cost-benefit analysis** performed, under conservative assumptions, shows that the total estimated **benefits** of the three components of the project amounts to **US$196.3** million dollars **with a present value of US$73.3 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$55 million with a** **present value of US$39.7 million dollars**. Thus, the net present value of benefits is **US$33.7 million dollars**, with a cost/benefit ratio of **1.85**, meaning that **1.85** US dollars will be recovered for every dollar invested.
13. **The social rate of return (TIR) is 56% percent,** a weighted average of the respective rates of return of each of the three components. The highest cost-benefit ratio (2.6) is for the third component of Community Justice Services. The second cost-benefit ratio (1.6) is for the first component of culture change and community governance, while the cost-benefit ratio of labor market attachment and employability is 1.45. The results show that all the components of CSJP III have a high social return, even under conservative assumptions, and higher than the reference social rate of return for 12 percent for Bank projects.
14. **These estimates are conservative.** Given the lack of available data in some cases, the use of proxies was required, and to be cautious in the results we used values on the lower bound of each variable as much as possible. In addition, this CBA does not try to include all potential benefits. For example, excluded are losses due to theft and extortion, and the higher impacts of crime on doing business, on tourism, or more generally the impact on economic growth, as well as intangible effects related to fear, suffering, and adverse family relationships. Furthermore, since crime and violence are considered one of the main development constraints in Jamaica, it would be expected that a reduction in crime would have a significant and broader positive social and economic effect.[[33]](#footnote-33)
15. **SENSITIVITY ANALYSIS**
16. **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. However, since there are three different project components whose benefits are derived from different sources, the overall results are not extremely sensitive to small variations from any particular variable.
17. To complement the CBA calculations presented in section III: the following s**ensitivity analyses exercises were done:**
18. **Sensitivity of the overall expected net benefit of the project to a lower discount rate**: obviously that a lower discount rate (instead of the standard IDB discount rate of 12 percent) would increase the net present value of benefits, and vice versa the benefits decrease as the discount rate is increased. For discount rates above 56 percent the benefit ratio becomes 1 or less, while for discount rates of 5 percent the cost-benefit ratio is 2.56. It should be noted that it is not uncommon for CBAs for crime costing to use a much lower social discount rate.[[34]](#footnote-34)
    1. **Sensitivity to the rate of reduction in murders in Component 1.** A reduction of the target by half (that is to 10 percent) or 2 percent per annum) instead of the target of 20 percent or 4 percent per annum, would reduce the cost-benefit ratio to 1.81. The impact is not too great because the share of CSJP communities in the homicide rate is only 16 percent, out of which 65 percent is gang related.
    2. **Sensitivity to the share of CSJP communities in total of murder crimes in Component 1.** A reduction of the share to 5 percent (instead of 16 percent) would reduce the cost-benefit ratio to 1.8. Furthermore a combination of reduction of murder rates and CSJP shares to only half of the target, that is a 10 percent reduction in murders and a 5 percent share of CSJP communities in murder rates, would reduce the cost-benefit ratio to 1.79.
    3. **Sensitivity to impact on employment creation of Component 2.** If the program were not successful at all in creating employment as targeted (i.e. the impact of employment creation would be 0) this would reduce the overall cost-benefit ratio to 1.53.
    4. **Sensitivity to impact on child diversion of Component 3.** If the program were not successful at all in steering juveniles in conflict with the law away from criminal charges, prosecution and/or jail, (i.e. the impact on child diversion would be 0) this would reduce the overall cost-benefit ratio to 1.77.
    5. **Sensitivity to impact on savings from alternative dispute resolutions of Component 3.** If the program i) does not generate any savings (in terms of court costs) from the mediation or from restorative cases the cost-benefit ratio is reduced to 1.31 and 1.68 respectively for these interventions; or ii) does not achieve any of its targets to resolve mediation or restorative cases, this would reduce the overall cost-benefit ratio to 1.16.

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**GLOSSARY OF TERMS**

CBA Cost-Benefit Analysis

CIDA Canadian International Development Agency (CIDA)

CSJP Citizen Security and Justice Programme

DFID Department for International Development - GOV.UK

GOJ Government of Jamaica

IDB Inter-American Development Bank

JCF Jamaican Constabulary Force

LAC Latin America and the Caribbean

MDAs Ministries, Departments and Agencies

MNS Ministry of National Security

MOH Ministry of Health

MOJ Ministry of Justice

OAS Organization of American States

PIOJ Planning Institute of Jamaica

POD Proposal for Operation Development

SIMU Statistics and Information Management Unit of the Jamaica Constabulary Force

UN United Nations

1. The GOJ´s national target of security and safety was to reduce the national murder rate from 59 per 100,000 in the baseline year 2007, to 50 per 100,000 in 2012, to 42 per 100,000 in 2015, and to 10 per 100,000 by 2030. Source: Vision 2030 – National Development Plan, Indicators and Targets for National Outcome #5 – Security and Safety. [↑](#footnote-ref-1)
2. 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. [↑](#footnote-ref-2)
3. Summary of results at <https://www.crimesolutions.gov/ProgramDetails.aspx?ID=205>. In the remaining 6 neighborhoods, 2 saw “significant declines in killings” but a similar decline occurred in matched comparison areas. In the other 4 neighborhoods, there was no decline in killings. The magnitude of the effect size is not quantified in the study. [↑](#footnote-ref-3)
4. This is estimated by assuming that the 2 areas with no change or similar change as the control area are calculated as 0. [↑](#footnote-ref-4)
5. 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. [↑](#footnote-ref-5)
6. Webster et al 2012. [↑](#footnote-ref-6)
7. Proxy (number of conflict mediations, as per Table 2 in Webster at al 2012) gives us Neighbourhood 1 (Cherry Hill) with 26.5% weight, Neighbourhood 2 (McElderry Park) with 60.5% weight, Neighbourhood 3 (Elwood Park) with 8% weight, and Neighbourhood 4 (Madison-Eastend) with 5% weight. The respective effects are -56%, -53%, 0%, and +270%. [↑](#footnote-ref-7)
8. As noted in the Results Matrix for Indicator 1: The baseline is computed by dividing the number of reported homicides in CSJP target communities in 2012 (178) by the total population of the CSJP communities combined (352,690) and multiplying the result by 100,000. (50.46 is rounded to 50.5) The target is estimated based on the decline in the national murder rate from 2009 to 2012: from 62.76 to 40.14, or a 36% decline (using JCF murder incidents and STATIN mid-year population). However, this trend is levelling off (4.3% decline from 2011 to 2012), so the target for 2018 is estimated more modestly (20% of 50.5 is 10.1, which leads to a target rate of 40.4). The rate in CSJP communities will likely continue to be higher than the national rate, but the decline trend may be steeper. The population of CSJP communities is 352,690 (excluding 4 communities for which population data is not currently available). This is approx. 13% of the 2012 national population (STATIN end-year figure). [↑](#footnote-ref-8)
9. As noted in the Results Matrix for Indicator 2: The Baseline is computed by dividing the number of reported shootings in parishes with CSJP target communities in 2012 (1,084) by the total population of the parishes (2,044,874), and multiplying the result by 100,000. 53.01 is rounded to 53. The target is estimated based on the decline in the national shooting rate from 2009 to 2012: 62.13 to 45.2, or a 27% decline (using JCF shooting incidents and STATIN mid-year population) However, this trend is levelling off (10% decline from 2011 to 2012), so the target for 2018 is estimated more modestly (20% of 53 is 10.6, which leads to a target rate of 42.6). The rate in CSJP communities will likely continue to be higher than the national rate, but the decline trend may be steeper. The CSJP community population (352,690) represents 17% of the total population of the 8 parishes (2,044,874). [↑](#footnote-ref-9)
10. JCF Major Crime Statistics Review 2012. [↑](#footnote-ref-10)
11. 2012 STATIN and SDC population figures. [↑](#footnote-ref-11)
12. Jamaica Crime Observatory. [↑](#footnote-ref-12)
13. JCF Major Crime Statistics Review 2012. [↑](#footnote-ref-13)
14. The crime data used in this CBA comes from the MNS (JCO), the JCF and the Statistics and Information Management Unit (SIMU) of the Jamaican Constabulary Force, and from the Planning Institute of Jamaica (PIOJ). It should be noted that this data is based on crimes reported to the police authorities, so, there may be an underestimation bias due to under reporting. [↑](#footnote-ref-14)
15. JCF Major Crime Statistics Review 2012. [↑](#footnote-ref-15)
16. Estimating the number of shootings in CSJP communities strengthens the logic of the CBA, because one of the costs of crime is medical costs, a large portion of which are related to treating people injured by gunshots. [↑](#footnote-ref-16)
17. There is not any agreed general theoretical framework to quantify the costs of crime. The methodology most used is the accounting method, but there are other methods, for example, estimating costs of specific sectors or groups; or estimating effects on economic growth by regressing GDP per capita on homicide rates, and controlling for a country’s level of income inequality, and other variables. [↑](#footnote-ref-17)
18. Source: World Bank Report on Crime and its Impact on Business in Jamaica. [↑](#footnote-ref-18)
19. These estimates are consistent with estimates obtained by different studies. For example, a study by Juan P. Schmid (2012, IDB) estimated such costs to be about US$721 million or about 5 percent of 2011 GDP. [↑](#footnote-ref-19)
20. This estimate is conservative. It does not capture all possible crime costs (and potential savings). For example, non-tangible costs, such as the suffering of victims and their families, the psychological and social effects of living in fear, and the reduction in crimes that are un-reported are not included. Also excluded are the benefits of other interventions in Component 1 that are meant to reduce violent crime in CSJP communities, such as improved police-citizen relations or increased proportion of witnesses who will talk to the police about the last crime they witnessed. [↑](#footnote-ref-20)
21. Morawska, A. et al. 'Evaluation of a Brief Parenting Discussion Group for Parents of Young Children.' Journal of Developmental & Behavioral Pediatrics 31(8), October 2010; Triple P. 2014. Proposal for the Inter-American Development Bank (Jamaica). Triple P America. [↑](#footnote-ref-21)
22. The full list of research evidence on Triple P is listed here: http://www.triplep.net/glo-en/the-triple-p-system-at-work/evidence-based/key-research-findings/ [↑](#footnote-ref-22)
23. http://www.triplep.net/glo-en/the-triple-p-system-at-work/cost-effective/the-numbers/ [↑](#footnote-ref-23)
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25. Jamaica´s per capita income in 2013 was US$9,048 in PPP terms, compared to the USA per capita income of US$53,101. Source: http://en.wikipedia.org/wiki/List\_of\_countries\_by\_GDP\_(PPP)\_per\_capita [↑](#footnote-ref-25)
26. Card, David, Pablo Ibarrarán, Ferdinando Regalía, 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. [↑](#footnote-ref-26)
27. Source for GDP and unemployment data is IMF – Jamaica Report 2014. [↑](#footnote-ref-27)
28. This was calculated by the NGO Catholic Relief Services, presented at the IDB 26 Nov 2013. [↑](#footnote-ref-28)
29. OAS Alert Americas 2012 statistics. [↑](#footnote-ref-29)
30. For example, if we divide the 2013-2014 budget of the Correctional Services by the number of adult prison inmates (4,500), this would give us a much higher cost of a prison inmate per-year of around 1,024,364 JMD or equivalent to over US$11,000. [↑](#footnote-ref-30)
31. World Bank ¨Settling Out of Court, How Effective is Alternative Dispute Resolution¨, The World Bank Group, Financial and Private Sector Development Vice-presidency, October 2011, Viewpoint Note Number 321. [↑](#footnote-ref-31)
32. This assumption is conservative due to lack of available data. As a reference, in 2011 Argentina´s per capita income in PPP of (US18,400) was about twice of Jamaica´s per capita income (US$9,100). [↑](#footnote-ref-32)
33. To give a sense of the potential impact on GDP growth, a World Bank/UN report estimated the impact of crime on overall economic growth rates on selected countries, and suggested that Jamaica's economic growth rate would increase by 5.4 percent per annum if the homicide rate could be brought down to that of Costa Rica. This implies that at a 5.4 percent growth rate of GDP, the accumulated cost of crime in Jamaica from 1972 to 2010 would have been about US$12.7 billion. [↑](#footnote-ref-33)
34. In the context of Latin America and the Caribbean (LAC), Humberto Lopez (2008) argues that the social discount rate should be a function of GDP growth rate. In this case, since Jamaica´s average GDP growth rate has been around 1% for the last 30 years, this could support a lower discount rate. Obviously, a much lower discount rate would increase substantially the net present value of benefits. [↑](#footnote-ref-34)