The contribution of sports programs to accomplish the United Nations Sustainable Development Goals in poverty reduction in Rwanda

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Abstract
This study was designed to determine how sports programs in Rwanda are contributing to accomplishing the United Nations Sustainable Development Goals (UN-SDGs) in poverty reduction. Structured questionnaires, interviews, and focus groups were extensively used to collect data from 256 sports stakeholders. Descriptive statistics and a structural equation model (SEM) were used to estimate the impact of the selected indicators on the level of poverty reduction in Rwanda. The results indicated that though the contribution of sports programs is very significant in achieving the SDGs including poverty alleviation, the concept is not fully accepted since there are lapses in its implementation process due to the lack of capacity building and good governance in the sports sector. Also, it was discovered that the most pressing challenge in implementing sports programs is reaching out to stakeholders to enhance their understanding of the contribution that sports programs play in attaining the SDGs. This study supports the work of the United Nations in using sports modules as an essential tool in realizing its Seventeen SDGs. It further gives additional evidence of the existence of the correlation between sports programs and the achievement of SDGs as well as alleviating poverty. The most significant limitation lies in the fact that sports program management direction lacks empirical studies. This study recommends that the Rwanda government including relevant stakeholders and authorities should seize the opportunity to assess its current state of affairs, review its sports program policies, capacity building activities, and act appropriately.

Keywords: Sports program, sustainable development goals, poverty, Rwanda

1. Introduction
Similar to other countries, Rwanda views sports and sports programs as an important pillar of social transformation and a facet for both economic and sustainable development. The immense contribution of sports towards development cannot be overemphasized, especially in the area such as peace, health, and socio-economic transformation. Sport as an agent of change can change the world, inspire and unite people, and lastly, speak in a language that the youth outmost understands.

It is an international phenomenon that motivates, empowers, inspires, and brings athletes, coaches, volunteers, and spectators together. Sports contribute to a country’s economy and it is important to the television and tourism industry through sponsorships and fan base. Sport plays a significant role in the development of communities; it brings people together to interact, play, and engage in conversations that can build social harmony. Sports positively impact social development and economic sustainability; it empowers people and teaches various values such as respect, courage, teamwork, leadership, and citizenship skills while inculcating cooperation toward shared goals.

The Rwandan government’s investment in sports infrastructure has improved the country’s sports performance but a lot still needs to be done to gain significant benefits from implemented sports programs. Sports stakeholders are required to work together in moving the sports industry forward.
The country’s sports development policy is aimed at developing a sporting culture that will help to significantly contribute to improved health of individuals as well as promoting social cohesion and generate economic benefits to participants and the country at large.

Several questions have to be asked regarding implementation and the role of sports programs in achieving the Sustainable Development Goals (SDGs) as well as alleviating poverty. If the Rwandan government acknowledges the use of sports for achieving the SDGs; has enough been done to ensure that sports leadership programs are instituted to enable the youth to extend their skills outside the sports arena? Development organizations using sport as an activity to engage and teach young people skills must deliver subjects directed at alleviating poverty as well as improving participants’ understanding of the role of sports in society. This process can take several years to achieve, especially in ensuring that trained youth leaders understand the sports decision-making processes. This study, therefore, aims at closing this knowledge gap, which is thought to be a contributing factor to the lack of an important aspect of total attainment efforts as sport plays an important role in the society of Rwandans.

The study aims to assess the role of sports in accomplishing the Sustainable Development Goals, hence, alleviating poverty in Rwanda. The specific objectives include: examining the sports management dimension in Rwanda; finding out the importance of sport in poverty reduction; evaluating the extent to which sport policies are implemented relative to the intended SDGs; determining the factors that could enhance sport among stakeholders and recommending a sports management model that has a direct bearing on poverty eradication process.

A vast literature exists on the impact of sports programs in achieving the United Nations Sustainable Development Goals in poverty reduction in Rwanda. After 15 years of progress towards the unprecedented Millennium Development Goals (MDGs), the world has turned its attention to the SDGs (17 goals) in a period of transition to the newly adopted 2030 Agenda for Sustainable Development. With the overarching aspiration of bringing people and the planet together and leaving no one behind, the 2030 agenda is a unique opportunity to inspire global action for development worldwide, including the field of sport for development and peace.

Sport has been recognized as a viable and practical tool to assist in the achievement of the SDGs. While sport alone cannot tackle the SDGs, it can be very effective when part of a broad, and holistic approach to addressing the SDGs. The SDGs, officially known as ‘Transforming our World: the 2030 Agenda for Sustainable Development are a comprehensive set of 17 goals, 69 targets, and over 300 indicators (Abbott, 2011) [1], which will go above and beyond the remarkable accomplishments of the 16 targets and 48 indicators of the eight MDGs to create a sustainable world by 2030 (Lamin, 2015) [2]. Formed through extensive worldwide consultations with all segments of society with an emphasis on targeting global challenges, the SDGs are a comprehensive development plan to leave no person behind (Dennis, 2015) [3]. The rest of this study is organized as follows; Section two deals with the methodology which includes questionnaire design, sample selection, data collection, hypothesis statement, and data analysis protocols. Section three extensively deals with the presentation and discussion of the results. Section four builds on the deductions made from the results and concludes on the subject with relevant recommendations and policy implications.

2. Methodology
2.1 Study area
This study was conducted in Kigali City, the capital of Rwanda. Many projects that seek to achieve the UNs SDGs through sports are also being carried out in the region. They include Right to Play, Rwandan Women Associations, and Rwanda Sport Academy. They deal with sports as an attribute of achieving the SDGs and are directly related to poverty reduction. Rwanda Ministry of Sports, Rwanda National Sports Federations, and the Rwanda National Olympic and Sports Committee were selected for this study because they are directly involved in all sports activities in the country. Furthermore, they actively engage in areas such as sports management, training programs, and community interactive activities.

2.2 Data collection
In this study, a well-structured questionnaire, interviews, and focus groups were used as data collecting instruments. All data were analyzed using SPSS version 26. The structural equation model (SEM) was used in estimating the impact of the selected sports indicators on the level of poverty reduction in Rwanda. The first set of questionnaires was tailored for non-agency members. It was to solicit their responses regarding the contribution and modalities of implementation of sports program concept, and how associated sport policies, processes, and procedures are communicated to them. The second set of questionnaires was used to solicit information such as sports program implementation strategy from sports program initiative stakeholders. To test the validity of these questionnaires, they were first pilot-tested on five employees of the staff association committee, and seven non-participants of the study. After the questions were answered, the necessary corrections were made for improvements. A total of 256 questionnaires were distributed to study participants from the Rwanda Ministry of Sports, Rwanda National Olympic and Sports Committee, Rwanda National Sports Federations, Women Association, Peers Coaches, Right to Play, and Academy Rwanda.

2.3 Hypothesis statement
This study seeks to evaluate the following hypotheses:
H0: There is no correlation between the contribution of sport management and attainment of Sustainable Development Goals.
H1: There is a correlation between the contribution of sports management and the attainment of Sustainable Development Goals.

2.4 Model specification
In determining the role of sport in poverty alleviation in Rwanda, an econometric model of simultaneous equation modeling through a structural equation model was built around the indicators of the role of sport in accomplishing SDGs and poverty reduction. The model was used in estimating the impact of these indicators on the level of poverty reduction in Rwanda. Following the work of Knack and Keefer (1997) [4], (Grootaert, 1999) [5], (Putnam, 1995) [6], (Grootaert and Narayan, 2004) [7], (Grochowska and Strawinski, 2010) [8], and (Roslan, et al., 2010) [9] the components of the role of sports in achieving the UNs SDGs in poverty alleviation include the following: (i) Sport Program
Participants (ii) Non-Sport Program Participants, (iii) Initiation of Sport Program, (iv) Awareness training on sports program concerning SDG and Poverty Alleviation, (v) Participation in Sport Program. These can be represented in the following model

\[ Y = f (SPP, NSPP, CS, PSP, IT) \]

Where:
\[ Y = \text{Role of sport in poverty alleviation.} \]
\[ x_1 = \text{Sports Program Participant stakeholders (SPP): initiative members, trainers, coaches, administrators. Stakeholders adequately communicate with the role of sport in poverty alleviation, institute different approaches to sport program implementation and monitoring.} \]
\[ x_2 = \text{Non-Sports Program Participant stakeholders (NSPP): significance of the role of sports program in achieving SDG,} \]
\[ x_3 = \text{Participation in Sport Program} \]
\[ x_4 = \text{timely communication to stakeholders with all information including awareness training on Sports program relationship with SDG and poverty alleviation in Rwanda,} \]
\[ x_5 = \text{Initiation of sports program, trust the role of sport in society include: sport program helps reduce crime in society, education being passed at the sport program activities in the community.} \]

The questionnaires’ responses were coded and the Structural Equation Model (SEM) fitted using SPSS 26. According to (Kline, 2011)\(^{10}\), a sample size that is more than 200 can be considered to be large enough for Structural Equation Modeling (SEM) analysis. The variables considered for this study are Poverty (Poverty), Sports Participant (SPP), Non-Sport Program Participant stakeholders (NSPP), Communication to Stakeholders (CTS), Participation in Sport Program (PSP), and lastly Initiation and Trust of sports program (IT).

3. Results and discussion
3.1 Demographic characteristics
Table 1 summarizes the demographic characteristics of the selected sample. A total of 256 participants were used for the study. From the results, 36 (14.1%) were senior officers, 144 (56.2%) were participants from Sports Program Agencies, and 76 (29.7 %) consisted of non-Sports Program participants from different backgrounds. Moreover, 32.9% of the participants were females, and 67.1% were males.

| Variable                      | Frequency | Percentage (%) |
|-------------------------------|-----------|----------------|
| Gender                        |           |                |
| Male                          | 172       | 67.1           |
| Female                        | 84        | 32.9           |
| Age                           |           |                |
| 20-35                         | 58        | 22.7           |
| 35-60                         | 198       | 77.3           |
| Designation                   |           |                |
| Senior Officers               | 36        | 14.1           |
| Sport Personnel               | 144       | 56.2           |
| Other Stakeholders            | 76        | 29.7           |
| Education                     |           |                |
| Post Graduate                 | 44        | 17.2           |
| Under Graduate                | 76        | 29.7           |
| High School and below         | 136       | 53.1           |
| Total                         | 256       | 100            |

3.2 The role of sports and its implementation strategy in Rwanda
Sport plays an important role both in today’s society and in the lives of many. This subsection addresses the significant roles played by sports in Rwanda society. It further tries to understand how sports programs are implemented. The responses from stakeholders on questions concerning the roles of sports and its implementations strategies are summarized below.

3.2.1 The role of sports programs in achieving educational needs
Table 2 accurately shows the frequency distribution of respondents’ different views on the significant contribution of sports programs in achieving educational needs among the implemented communities.

| Scale                   | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------------|-----------|---------|---------------|--------------------|
| Highly significant      | 172       | 67.2    | 67.2          | 67.2               |
| Significant             | 40        | 15.6    | 15.6          | 82.8               |
| Less significant        | 24        | 9.4     | 9.4           | 92.2               |
| Not significant         | 8         | 3.1     | 3.1           | 95.3               |
| Not aware               | 12        | 4.7     | 4.7           | 100.0              |
| Total                   | 256       | 100.0   | 100.0         |                    |

From the results, the majority of 67.2% asserted that sports have a highly significant influence in achieving universal primary education among various communities. While 15.6% believed sports play a significant role in promoting education among school-going students, 9.4% believe sports plays only a minor role. Finally, 3.1% regarded sports as not promoting education among people. The findings suggest that the majority of respondents regard sports as a catalyst for promoting education. The direct link between sports and education can only be possible if implemented sports programs are commensurate with the uttermost needs of students. These few studies have stressed the role of sports in creating the interest and promoting basic education among participants (Beltran-Carrillo et al., 2012)\(^{11}\); (Allender et al., 2006)\(^{12}\); (Bailey, 2006)\(^{13}\); (Zeng et al., 2011)\(^{14}\).

3.2.2 How sports programs are instituted into the society to achieve the SDGs
Figure 1 summarizes the responses generated from sports program participants (SPPs) on how the government institutes sports programs into the society and how it contributes to achieving the SDG as well as poverty alleviation. The three-point Likert scale was adopted for this activity and classified in the order; strongly agree, neutral, and disagree. From the results, almost 48% strongly agreed, 43% disagreed and 9% stayed neutral on the topic that the government is making much effort to create stakeholder ownership of instituted sports programs. The results further reveal a disturbing
circumstance (43% disagreeing) on the current level of government’s efforts to create stakeholder ownership of sports programs. It is evident that much needs to be done especially if the idea is to use sports to achieve the SDGs as well as poverty alleviation. Nevertheless, since there is a slight difference in opinions pointing to the fact that the government is striving to create a stakeholder ownership concept, we believe government should stay positive and select only the qualified and competent stakeholders to champion most sports programs in rural settings.

Regarding the government’s strategies adopted during sports program implementation which aims to gain positive benefits, 75% of stakeholders disagreed, 13% strongly agreed, and 12% stayed neutral. It suggests that, currently, the methodology used by the government in delivering sports programs needs considerable improvement. Moreover, issues concerning inadequate stakeholder awareness suggest that government lacks majorly (82%) in that direction. In another discussion, 74% of respondents strongly agreed that insufficient stakeholder consultation is the bane to most sports programs not achieving their primary targets. Before implementation, consulting the right stakeholders such as sports coaches, sports administrators, sports agencies, and rural community sports representatives can help gain further stakeholders’ buy-in into the program. These observations suggest the modality in which government and relevant authorities institute sports programs lack a better framework. A good framework is intended to consistently instill desired behavior and actions towards the acknowledgment and creation of ownership that will enable achieve the SDGs as well as alleviate poverty (Abbott, 2011) [1]; (Cadbury, 2000) [15].

3.2.3 Timely communications of sports program information to stakeholders
When stakeholders were asked to respond on the view that government and responsible agencies should timely communicate to them all relevant information including awareness training on the relationship between sports and achievement of SDG in Rwanda, most of the stakeholders seemed to approve this fact. Figure 2 sums up the findings.

The majority, 61% strongly agreed and is consistent with the findings of Cadbury (2000) [15] that well-governed stakeholders are those that are guided and aligned to the government’s objectives and requirements regarding SDG through effective communication. Moreover, 33% agreed, and only 6% were uncertain. Most respondents believed that effective and efficient communication to the right stakeholders increases the success of many sports programs, as well serving the needs of all beneficiaries. Sports activities must carry with them messages of HIV/AIDS, malaria, education, protection of the environment, and other areas relevant to SDG. With an increased societal focus on physical activity as a way to combat child and adult levels of obesity, sport as a physical

Fig 1: Different views on how sports programs are instituted into society.

Fig 2: Timely communications of sports program information to stakeholders.
health intervention tool has been a valuable tactic to justify research and practice investment in sport (Alfano et al., 2002) [16]. Additionally, sport has been shown to effectively promote other health outcomes. For example, sports participation has been linked with increased social connectedness (Putnam, 2000) [17], reduced engagement in risk behaviors (Kulig et al., 2003) [18]; (Pate et al., 2000) [19], and better mental health (Babiss et al., 2009) [20]; (McHale et al., 2005) [21]. Indeed, sport has often been used as a popular tool for social outreach, intervention, and prevention among populations considered “at-risk” for a host of physical, mental, and social issues (Hartmann, 2003) [22].

3.2.4 Disseminating messages during sports activities.

Figure 3 depicts the responses from the non-sport program participants (NSPP) on how often they have heard messages regarding HIV/AIDS, malaria, education, protection of the environment, maternal care, and all those areas relevant to SDG at any sports event they have attended. They asserted that most sport agencies do not usually (55%) announce such messages. Others indicated that messages were announced only at times (30%), a few thought that messages are always there (12%) and only some looked at the frequency as seldom (3%).

![Image](http://www.kheljournal.com)

Fig 3: Frequency of disseminating messages during Sporting activities.

Most non-SPP respondents indicated that it is not usual for such messages to be announced. This suggests that stakeholders are not aware of the need for participating in SDG and poverty alleviation programs hence the reason why Rwanda and of course most African countries are failing to meet deadlines. Some theories have attributed this to an inadequate national framework that incorporates modalities of planning, monitoring, and redefining the main issues at hand (UNOSDP, 2010) [23]. These findings correspond to the previous evidence collected from different societal studies (Mittal, 1994) [24]; (Schlosser et al., 1999) [25]; (Pyun et al., 2012) [26].

3.3 Correlation between knowledge, accountability, and stakeholder awareness

Table 3 shows the result of the correlation relationship between knowledge, accountability, and stakeholder awareness. From the results, the correlation between knowledge of SDG concept and stakeholder awareness capacity is 0.045, and significant at 5%.

| Variables                  | Correlation | Knowledge of SDG concept | Instilling accountability Skills | Stakeholder awareness capacity |
|----------------------------|-------------|--------------------------|----------------------------------|--------------------------------|
| Knowledge of SDG concept   | Pearson Correlation | 1                        | 0.034                            | 0.045**                        |
|                            | Sig.2-tailed  | 0                        | 0.34                             | 0.026                          |
|                            | N            | 256                      | 256                              | 256                            |
| Instilling accountability  | Pearson Correlation | 1                        | 0.044*                           |                                |
| Skills                    | Sig.(2-tailed)| 0                        | 0.023                            |                                |
|                            | N            | 256                      | 256                              |                                |
| Stakeholder awareness     | Pearson Correlation | 0                        | 1                                |                                |
| capacity                  | Sig. (2-tailed)| 0                        |                                  |                                |
|                            | N            | 256                      |                                  |                                |

**Correlation is significant at 0.05 (2-tailed)

The correlation between instilling accountability skills and knowledge of the SDG concept is 0.034 and insignificant. The coefficient between instilling accountability skills and stakeholder awareness capacity is 0.044, and significant. These correlation coefficients (r) show that there is a fairly weak but positive relationship between attributes in the independent variables and the dependent variable. The (**) highlights that the probability of this correlation occurring by chance alone is less than 0.05 (5%), indicating the correlation coefficient is statistically significant. From the correlation matrix results, it can be concluded that the p-values of 0.026 and 0.023 are lower than the conventional 0.05 (p<0.05), hence the null hypothesis H₀ is rejected in favor of the alternative hypothesis H₁. This indicates the existence of a correlation between sports programs and achievement of SDG including poverty alleviation.

3.4 Results of the structural equation model (SEM)

Table 4 shows the results of the structural equation model (SEM) used in estimating the impact of the selected sports indicators in accomplishing the United Nations Sustainable Development Goals in poverty reduction in Rwanda.

Table 3: Correlation Matrix
Table 4: Results of SEM on the contribution of sports program to accomplish the UN SDG on Poverty Reduction in Rwanda

| Construction | β    | SE  | Beta | CR   | ρ    |
|--------------|------|-----|------|------|------|
| SPP          | 0.128| 0.027| 0.244| 4.767| 0.000|
| NSPP         | 0.287| 0.040| 0.422| 7.192| 0.000|
| CS           | -0.007| 0.024| -0.015| -0.304| 0.761|
| PSP          | 0.095| 0.033| 0.148| 2.911| 0.004|
| IT           | 0.153| 0.053| 0.151| 2.897| 0.004|

R² = 0.66, R = 0.44

The R² value of 0.44 indicates that 44 percent of the variation in the dependent variable (Poverty) is explained by the explanatory variables (the role of sports components). According to Chin et al. (2003) [23], R² values greater than 0.67 have a practical value, R² value between 0.33 and 0.66 is assumed to have moderate explanatory value, and, R² value between 0.19 and 0.32 has weak explanatory value. Hence, the R² value of 0.44 obtained in this study is considered to have a moderate explanatory value. A look at the five individual variables (that is the role of sport to accomplish SDGs), only one was not significant indicating that the model is acceptable. Sports Program Participant (SPP- Initiative members, trainers, coaches, administrators, stakeholders adequately communicating on the role of sport in poverty alleviation) has a coefficient of 0.128, with a critical ratio of 4.767 was positively related to poverty reduction and statistically significant. The beta result of 0.244 indicates that Sports Program Participant has a 24.4 percent direct effect on poverty reduction in Rwanda. Non-Sport Program Participant (NSPP- their perception on significance of the role of sports program implementation and monitoring) has a coefficient of 0.287 with a critical ratio of 7.192. This is positively related to poverty alleviation and statistically significant at 1 percent. The beta result of 0.422 indicates that Non-Sport Program Participant has a 42.2 percent direct effect on poverty reduction in Rwanda. Participation in Sport Program (PSP), has a coefficient of 0.095 with a critical ratio of 2.911 and significant at 1 percent. The beta result of 0.148 indicates that the Participation in Sport Program has a 14.8 percent direct effect on poverty reduction in Rwanda. Initiation and Trust of Sport Program (IT- trust the role of sport in the society in that sport program helps reduce crime through the education being passed at program activities in community), has a coefficient of 0.153 with a critical ratio of 2.897. The beta result of 0.153 indicates that trust has a 15.3 percent direct effect on poverty reduction in Rwanda. The present study confirms that sports play an important role in realizing it’s the seventeen Sustainable Development Goals. It also gives additional evidence that there is a correlation between sports programs and achievement of SDG as well as alleviating poverty.

4. Conclusion and Recommendation

The study revealed that sports program has an impact in achieving United Nations Sustainable Development Goals in poverty reduction. Furthermore, it has been revealed that sports programs serve as an effective tool for social mobilization, and in supporting health activities such as malaria, HIV/AIDS education, and immunization campaigns. The study has also shown that sports can be a significant economic force, providing employment and contributing to local development. At the same time, it was also found that sports play a key role and naturally draw the community into volunteer involvement. However, the study revealed some inconsistencies within the sports program management which are the lack of proper organizational planning, and weak conceptual framework which is evident in communication deficiencies at all levels. These findings necessitate the establishment effective project management framework that can plan, organize, implement, monitor, and review sports programs in the country. The present study supports the notion that sports play an important role in realizing the Seventeen Sustainable Development Goals of the United Nations. It also gives additional evidence that there is a correlation between sports programs and the achievement of SDGs as well as alleviating poverty. To reach out to the mass of the people in the Rwandan communities, the effectiveness of sports through communication and social mobilization makes it a highly effective tool for raising public awareness about diseases like malaria and HIV/AIDS. The Rwanda Government should identify and make available resources for sports initiatives and development programs, and strengthen the position of sport and physical activity in policy development.

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