The Local Implementation of the United Nations' Sustainable Development Goals by an International Charity Project in Africa

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Abstract

The United Nations' Sustainable Development Goals (UN SDG) framework was signed by virtually every nation on earth in 2015 and addresses topics ranging from environmental protection; via equal opportunities, education and the eradication of diseases; to overcoming famine, poverty, slavery and child labor. The UN SDG framework arguably represents – both in terms of its scope and its worldwide support – one of the most significant international frameworks in human history.

International projects should not only be aware of the UN SDG in general and the intended national implementations of the framework by the different countries in which each project operates; but they should ensure that they implement themselves relevant key goals of the framework and contribute to the achievement of the national commitments by the countries they operate in. Apart from helping to improve the world we are living in, this will help to significantly reduce project risks, secure funding opportunities from both governmental and non-governmental organizations, and bring about more sustainable solutions as project deliverables.
Using the example of a charity project that is concerned with the development of a local health care system in a deprived region of Cameroon, this paper illustrates a pre-emptive implementation of certain key aspects of the UN SDG framework at the local level, prior to and in support of the anticipated full implementation of the framework at the national level by Cameroon.

Introduction

In September 2015, the United Nations Sustainable Development Goals (SDGs) were adopted by 193 countries (1). They represent a "a plan of action for people, planet and prosperity" (1) from 2015 to 2030. The SDGs build on the success of the Millennium Development Goals (MDGs) which addressed the needs of Less Economically Developed Countries (2). The 8 MDGs set targets for key areas such as reducing extreme poverty & hunger and improving access to sanitation. The MDGs ran from 2000 to 2015 and have been described as "the most successful anti-poverty movement in history" (2).

Despite the significant improvement delivered towards the MDGs, we still live in a world where people experience hunger, suffer from air pollution and are disadvantaged by inequality. The SDGs go beyond the MDGs with a broader range of goals and apply to all countries, hence are

often referred to as the 'Global Goals'. The SDGs consist of 17 goals (shown in Figure 1) and 169 targets, providing more detail within each goal.

Cameroon was one of the countries which made significant progress towards the 8 MDGs but still faces major challenges in, for example, eradicating extreme poverty and reducing the burden of disease (3). The country restated its commitment to "Développement Durable" (Sustainable Development) and the adoption of the SDGs at the 70th session of the United Nations General Assembly (4).

Figure 1: The United Nations Sustainable Development Goals (1) **(Image used in accordance with the Global Goals Asset License at GlobalGoals.org)**

This paper will look at an example international development project in Africa, the Mahola project (5), and how the project is implementing certain key aspects of the UN SDG framework pre-emptively prior to and in support of the anticipated full implementation of the framework at the national level by Cameroon. The Mahola project is concerned with the development and delivery to the local population of a local health care system in a deprived area of the country, in the African rain forest. The population in the region around the village of Siliyegue, which is about 60 km from the capital of Cameroon Yaoundé and surrounded by villages with similar needs, is suffering from multiple diseases; lack of pastoral and spiritual care; lack of secondary education, professional training and employment prospects; lack of infrastructure such as proper roads, electricity, running drinking water, recycling and waste disposal; as well as lack of medical care in case of emergencies, in particular regarding (but not limited to) first aid and related transportation capabilities (6).

A system can be defined as an integrated set of interacting elements such as products, services, people, processes, hardware, software, firmware and information. It serves a defined purpose,

may consist of several integrated sub-systems, and may be integrated itself into a wider system (i.e. the 'served system'). Often, within a system, several people perform generic roles, operating different processes while using appropriate facilities, equipment and supplies, in order to serve the defined purpose of the system (6).

Figure 2 depicts the Project Management, Awareness & Fundraising, and the Systems Engineering activities of the Mahola project. The Systems Engineering activities as applied for the Mahola project are displayed in phases that are roughly aligned (albeit simplified) with the INCOSE Systems Engineering Handbook (7) and the ISO 15288 (8):

- Concept phase;
- Design phase;
- Implementation & Integration phase;
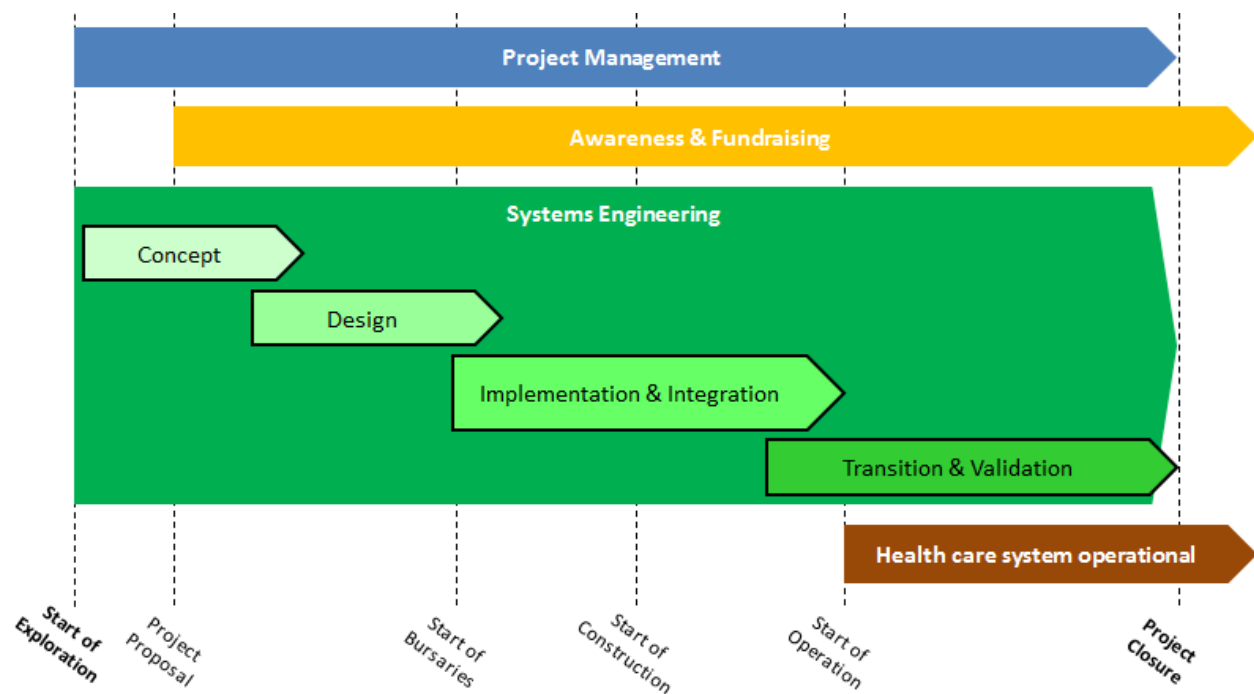- Transition & Validation phase.

Figure 2: Project Management, Awareness & Fundraising and Systems Engineering activities of the Mahola Project

At the time of writing this paper, the Mahola project was near the completion of the design phase. In the following sections of the paper, we will look in turn at the implementation of the UN SDG framework by nations and multi-national corporations, and at the pre-emptive, local implementation of key aspects of the framework by the Mahola project; before offering some preliminary conclusions on this early, anticipative, partial implementation by the project.

The Implementation of the UN SDG Framework
By Nations and Multinational Corporations

The SDGs are an ambitious set of goals adopted by 193 nations but they do not have the status of international law. There are a wide variety of implementation routes and stakeholders, though national governments are the "duty-bearers" in the end (9). Achievement of the SDGs is beyond the means or capacity of individual governments and the SDG framework explicitly recognizes this in Goal 17 Partnerships for the Goals. Governments must work with other local and international stakeholders, including businesses and third sector organizations, for practical implementation. Some goals may be achieved through legislation or taxes, for example Goal 13 Climate Action. Other goals will require mobilization of business investment, e.g. Goal 7 Affordable and Clean Energy. As part of their support for the SDG partnership approach, the United Nations maintain a voluntary register of multi-stakeholder programs for delivery of the SDGs. At the time of writing, there were 9 partnership programs registered with impacts in Cameroon (10).

Implementation approaches will vary between nations based on their local circumstances and may take time to develop and deploy (9). Local government also has a big part to play and the Mayor of Bangangté, Cameroon was with other mayors in New York in September 2015 to express her commitment to the 'Urban Partnership for the Sustainable Development Goals' (11).

Many businesses are now starting to express the development benefits they provide, as well as the negative impacts they have, using the SDG framework. For example, Airbus has published its analysis of the 8 SDGs which are most relevant to its business (12). Some businesses are concerned that the 17 SDGs and 169 targets are too large a scope for them to engage with meaningfully. A group of leading organizations in the fields of sustainable development and corporate social responsibility have published the "SDG Compass" as an approach for business leaders to "align their strategies as well as measure and manage their contribution to the realization of the SDGs." (13). The SDG Compass approach is shown in Figure 3.

Non-Governmental Organizations (NGOs) or 'Third Sector Organizations' usually have more experience in aligning their activities and reporting with national and international development priorities. This is often necessary in attracting donor support and those which have already been operating in the context of the MDGs will find it a natural transition to the SDGs. Faith-based organizations have played a significant role in the negotiation of the SDGs. Indeed, Pope Francis addressed the United Nations General Assembly which was gathered to adopt the SDGs. The SDGs are strongly consistent with the papal encyclical 'Laudato Si' (14).

As well as implementing partnerships to achieve the SDGs, there is a parallel requirement to report on progress towards the SDG targets. The data collection will be carried out by national governments and consolidated by the United Nations Statistics Division. They publish an annual report on progress to the SDGs (15).

This combination of evolving national and partnership initiatives alongside national reporting processes is the context of the Mahola project. Since the specification of these are as yet incomplete, we must use the SDGs framework as the outline requirements for the system and be prepared to report in a way consistent with the 17 SDGs and 169 targets.
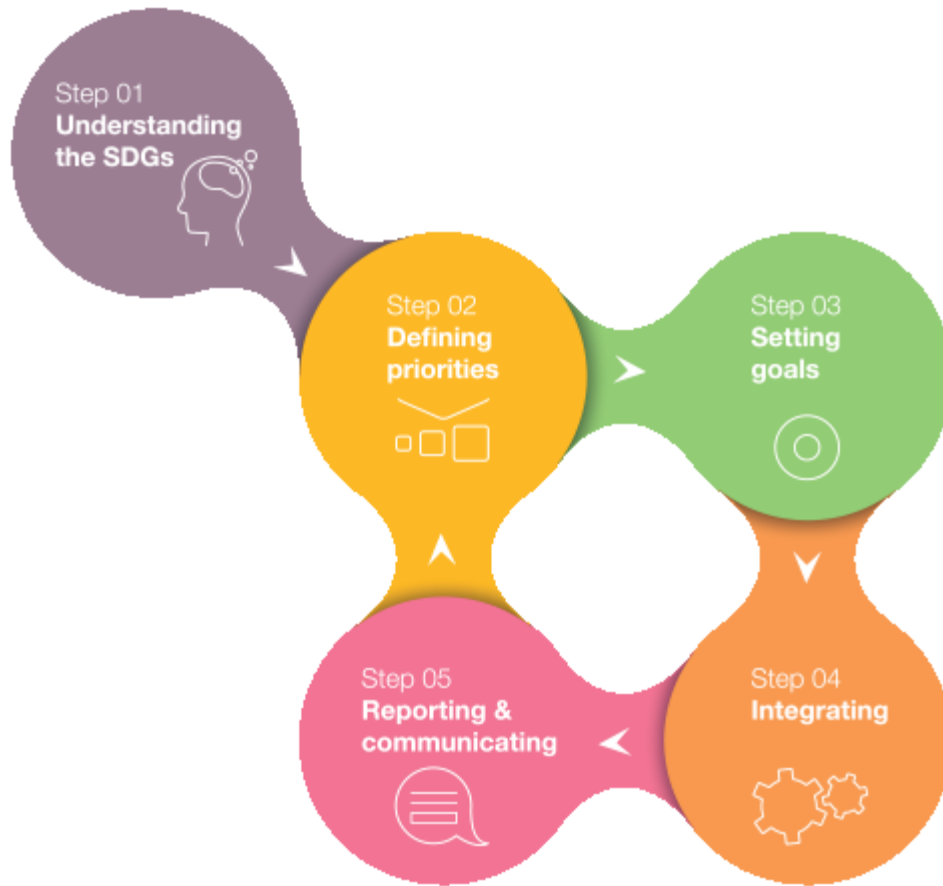
Figure 3: SDG Compass Approach (13)

The pre-emptive, local implementation of the UN SDG by the Mahola Project

Anticipating the full implementation of the UN SDG framework at the national level by Cameroon, in terms of legislation, regulation, programs and reporting, the Mahola project took a prioritized approach to partial, pre-emptive implementation of the framework at the local level as shown in Figure 4.

Key aspects of the framework were identified and explicitly fed into the project at the level of the User Needs, cascaded down via the System Requirements, and translated into corresponding Design solutions, and the Governance of the Mahola system, including the Governance organization, policies and training.
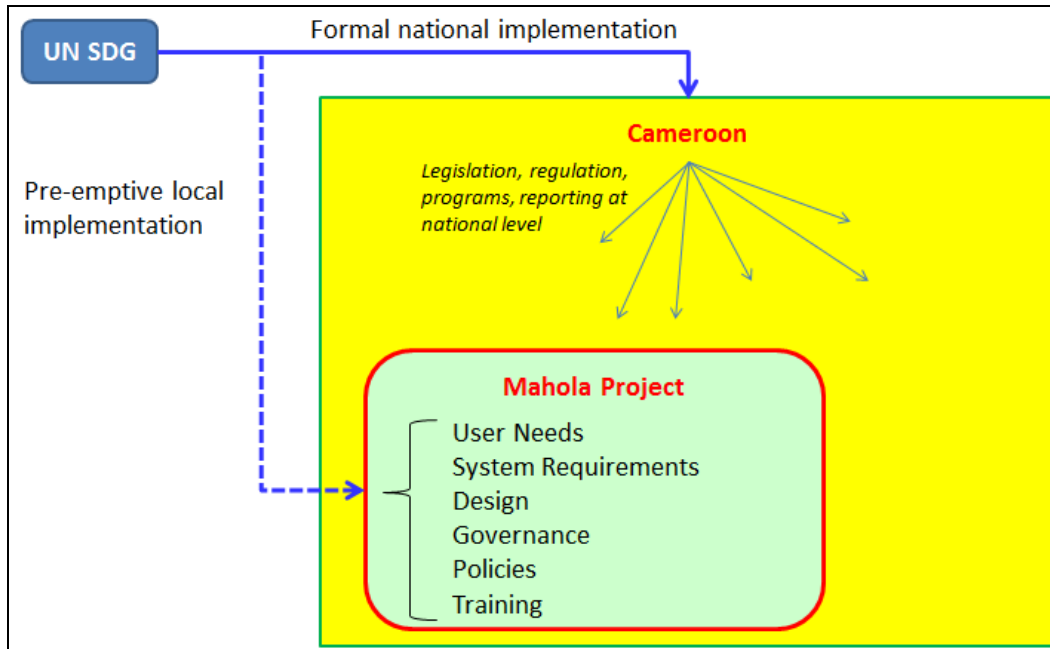
Figure 4: Pre-emptive local implementation of the UN SDG by the Mahola Project

By explicitly addressing the UN SDG framework as User Needs for the project, as shown in Figure 5, System Requirements were derived that meet these at a more detailed level, and they were linked to the User Needs. For both the User Needs and the related System Requirements acceptance criteria were defined that allow later verification of whether the Mahola system satisfies the system requirements (verification), and once put in operation (i.e. in the intended context), whether it satisfies the User Needs (validation).

Figure 5: Implementation via User Needs of Local Authorities

Design solutions were developed to meet the relevant System Requirements that had been allocated to the sub-systems of the Mahola system. Some of these solutions to the requirements are the health center, the ambulance, the Governance organization, policies and training of the local population. Many parts of the Design solution would satisfy also System Requirements that were specifically derived from the two User Needs shown in Figure 5.

Figure 6 shows the overall layout of the health center with the modular building, the combined utility housing and the waste and recycling housing; as well as details of the related water distribution network, cess pools, pathways and the rooms of the modular building. The rooms of the modular building from left to right are the reception and triage room, the medical treatment room, three patient rooms for up to 6 patients each, one staff room, and one wet room with four showers and four rainwater fed toilets, ensuring access for people with disabilities. Each room of the modular building has one sink with running drinking water. 'Black' sewage water from the toilets is led to one maintainable cess pool; 'grey' sewage water from the sinks and showers is led to another cess pool.
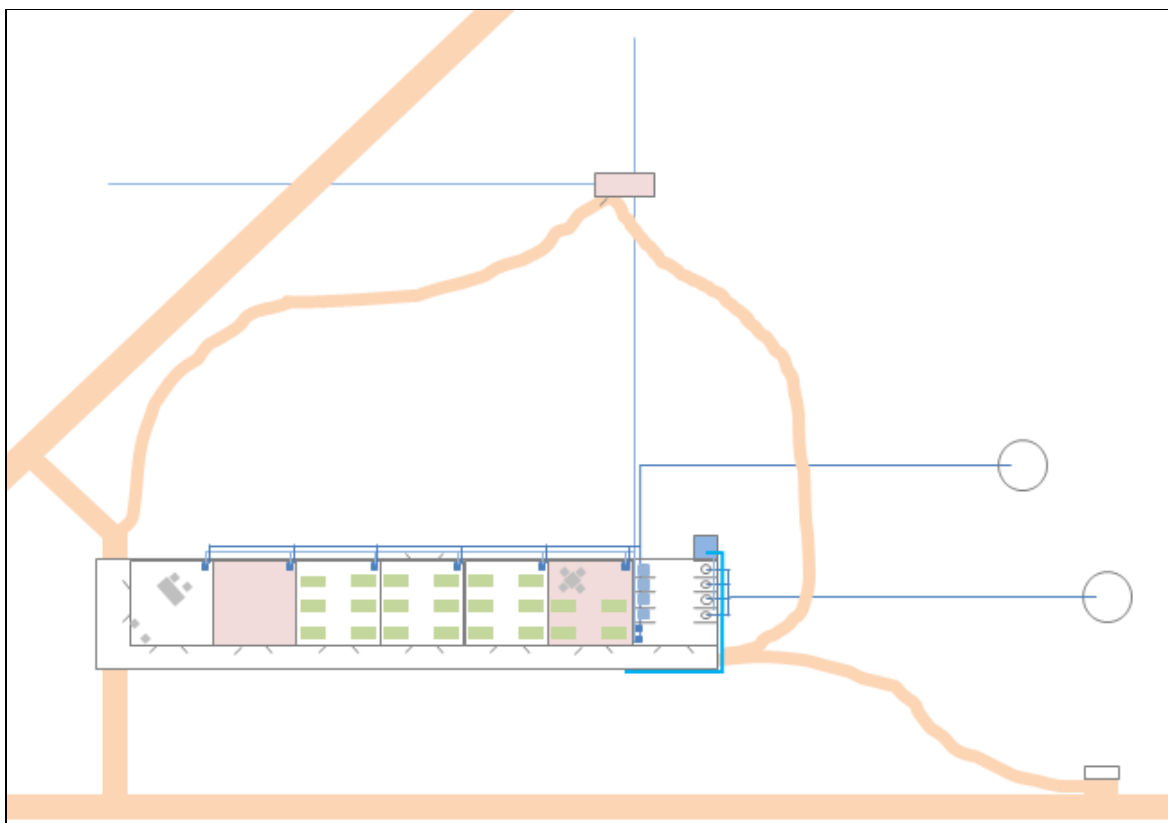
Figure 6: Overall layout of the health center (conceptual)

Also, flexible extensions of the health center as recommended by the World Health Organization in case of an outbreak of viral hemorrhagic fevers such as Ebola was incorporated in the layout of the health center, with the possibility to use prepared sets of materials and kits to create divided areas that would allow the separation of infected patients from staff (high and low risk

areas). Furthermore, the specific requirements in terms of space and drinking water for a nominal number of patients could be identified.

The Governance, Policies and related Training of the local population form part of the solution, too. The Governance Plan describes at a high-level all governance aspects of the Mahola health care system that need to be addressed to deploy, operate and at the end of its life cycle dispose of the system, including the business model both during the Mahola project and after the closure of the project during the operational use of the system. It describes the local decision-making and the way the project and later the system will be governed and strategically directed by means of policies that are appendices to the Mahola Governance Plan. It also describes the oversight of the day-to-day operations; the actual day-to-day operations of the Mahola system in terms of its processes and roles; and finally, it provides a nominal resource model that defines the number of employees and volunteers needed to operate the system as intended in accordance with the current system baseline.

Figure 7 depicts the Governance organization of the Mahola system, which has already been partly put in place during the Mahola project. The elected Steering Committee has already started overseeing the local activities related to the Mahola Project - supported from abroad by the project leader, the systems engineer and the local coordinator of the project - and will oversee the day-to-day operation of the Mahola System, once deployed, which will be managed on their behalf by the 'Administrator'.

The Steering Committee also nominates and supports five 'Officers' from among the local population for the five different topics of the Mahola Policies, i.e. Environmental Protection, Child Protection & Safeguarding, Health & Safety, Security and Ethics & Compliance. These officers will drive their respective topics and ensure that necessary steps be taken to continuously improve the Mahola system and generate awareness among the local population regarding their topic. They own the corresponding policies, which are one of the most important means by which the Steering Committee can govern and strategically direct the Mahola system; while they are also necessary to secure funding and other support from industrial, governmental and non-governmental organizations. Many of these potential partner organizations must, or will want to make sure that adequate policies be in place and well implemented to qualify for their respective funding or other support schemes.

Furthermore, the policies under the ownership of these dedicated officers help to strategically guide and make explicit reference to the UN SDG framework. For example, the Environmental Protection Policy states that 'the Mahola Project is committed to minimizing the negative environmental impact of its practices with the continual improvement in its environmental performance... The Mahola Project will consistently strive to raise awareness in the community, encourage participation and educate all concerned, even those who live locally but are not directly involved in environmental matters. In particular, the Mahola project makes reference to

(and strives to follow where applicable) the recommendations of the United Nations' Sustainable Development Goals (1).
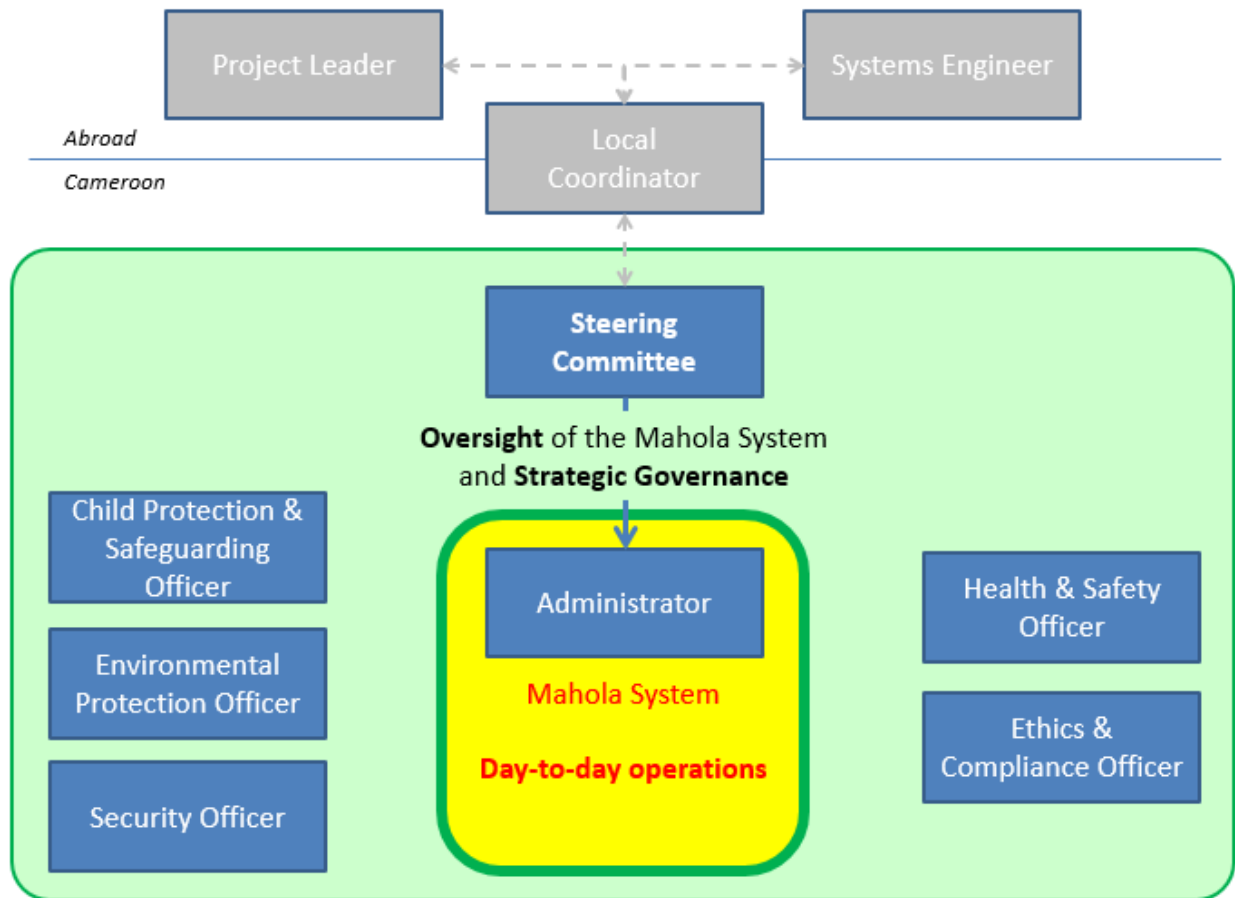

Figure 7: The Governance organization of the Mahola system

Thus, it is anticipated that multiple objectives of the UN SDG framework will already be sufficiently addressed, independently of the timescale of the national implementation of the full framework by Cameroon. However, this national implementation may contain detailed aspects that the project could not anticipate, e.g. reporting mechanisms and frequencies. The need for minor adjustments, therefore, should be expected. Still most of the relevant, underlying topics are likely to have been addressed in a significant way already.

Conclusion

The paper looked at the UN SDG framework, which was argued to be one of the most significant international frameworks in human history, both in terms of its scope and its worldwide support. Then we briefly addressed the implementation of this framework by nations and multi-national corporations, and looked in more detail at the pre-emptive, local implementation of key aspects of the framework by an example of an international charity project, i.e. the Mahola project that is concerned with the development of a local health care system in a deprived area of Cameroon.

This pre-emptive and partial implementation at the local level, prior to and in support of the anticipated full implementation of the framework at the national level, was pursued for multiple reasons. These included foremost the wish of the project team and stakeholders to bring about significant improvements along some of the axes suggested by the framework; but also, the necessity to secure funding and other support from various organizations that increasingly expect at least partial project alignment with key elements of the UN SDG to qualify for their support. In addition to that, not anticipating pending changes in the local legislation that are based on Cameroon's commitments vis-à-vis the national implementation of the framework would have represented a major risk both for the project itself and the sustainability of its deliverables.

There are of course many unknowns related to the implementation of the UN SDG by the nations in which a project operates, and by multinational organizations with which a project may have to cooperate. Therefore, international projects should be aware of the UN SDG in general and the intended implementations of the framework by the project relevant countries and multi-national organizations. Also, they should ensure that they implement themselves relevant key goals of the framework, even if only partially and pre-emptively, to contribute to the achievement of the national commitments by the countries they operate in, which helps to reduce risks.

Furthermore, the very aim of the UN SDG is to improve the world we are living in, so that aligning the project with these aims is a valuable thing to do: It helps to make the world a better place, creates sustainable project deliverables and people everywhere including supporters, beneficiaries of the project, team members, and other stakeholders will appreciate this. This is good for the project's reputation and perceived value and importance; and helps the project to qualify for financial and other support by both governmental and non-governmental organizations, including industrial sponsors.

Finally, it is hoped that this article will be helpful reading for project leaders, project managers, systems engineers and requirements engineers, especially for those who are involved in charity projects in developing countries; who, despite all the difficulties and obstacles that can be expected, strive to bring about concrete improvements of the quality of life of people in one of the many deprived areas of our planet. May their projects bring about real improvements of the quality of life of many.

References

1. United Nations General Assembly. Transforming our world: the 2030 Agenda for Sustainable Development [Internet]. A/RES/70/1 2015 p. 1–35. Available from:

http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E

2.   United Nations. The Millennium Development Goals Report 2015 [Internet]. New York; 2015. Available from: http://www.un.org/millenniumgoals/2015_MDG_Report/pdf/MDG 2015 rev (July 1).pdf

3.   United Nations Statistics Division. MDG Country Progress Snapshot : Cameroon [Internet]. New York; 2015. Available from: https://mdgs.un.org/unsd/mdg/Resources/Static/Products/Progress2015/Snapshots/CMR.pdf

4.   Biya P. Declaration by The Cameroon at UN General Assembly 70th session [Internet]. New York: Permanent Mission of The Cameroon to the United Nations; 2015. p. 6. Available from: https://sustainabledevelopment.un.org/content/documents/20628cameroon.pdf

5.   Mahola Project. Mahola Project [Internet]. 2017 [cited 2017 Mar 9]. Available from: http://maholaproject.org/

6.   Kossmann M. Developing the system requirements for a local health care system in Cameroon. Proj Manag World J [Internet]. 2014;III(IV):1–11. Available from: http://pmworldjournal.net/wp-content/uploads/2014/04/pmwj21-apr2014-Kossman-requirements-health-care-system-cameroon-AdvancesSeriesArticle.pdf

7.   INCOSE. Systems engineering handbook: a guide for system life cycle processes and activities. Walden D, Roedler G, Forsberg K, Hamelin R, Shortell T, editors. Vol. Fourth. Hoboken, New Jersey: Wiley; 2015. 510 p.

8.   ISO/IEC. ISO/IEC 15288: 2008 Systems and software engineering - System life cycle processes [Internet]. Vol. 2008, Software Process: Improvement and Practice. 2008. Available from: http://www.iso.org/iso/catalogue_detail?csnumber=43564

9.   Sustainable Development Solutions Network. Getting Started with the Sustainable Development Goals [Internet]. Paris; 2015. Available from: https://sdg.guide/

10.   United Nations. Partnerships for SDGs platform [Internet]. 2017 [cited 2017 Mar 10]. Available from: https://sustainabledevelopment.un.org/partnership/search/?str=

11.   Sustainable Development Solutions Network. Global Mayors, Governors Commit to Urban Sustainable Development Agenda and Aggressive Emissions Reductions [Internet]. 2015 [cited 2017 Mar 10]. p. 1. Available from: http://unsdsn.org/news/2015/09/23/global-mayors-governors-commit-to-urban-sustainable-development-agenda-and-aggressive-emissions-reductions/

12.   Airbus. Airbus Group - Responsible business [Internet]. 2016 [cited 2016 May 18]. Available from: http://www.airbusgroup.com/int/en/corporate-social-responsibility/Responsible-Business.html#

13.   Global Reporting Initiative, UN Global Compact, World Business Council for Sustainable Development. SDG Compass – A Guide for Business Action to Advance the Sustainable Development Goals [Internet]. 2015 [cited 2016 Feb 15]. Available from: http://sdgcompass.org/

14.   Francis. Laudato Si [Internet]. Vatican: Vatican Press; 2015. 184 p. Available from: http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html

15.   United Nations. The Sustainable Development Goals Report 2016 [Internet]. New York; 2016. Available from: https://unstats.un.org/sdgs/report/2016/

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