



Vital Signs Evaluation

Final Report

Prepared for //
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Melinda Gates Foundation

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Executive Summary

The evaluation

- i. This report presents the findings of an independent evaluation of Vital Signs. The study was commissioned by the Bill and Melinda Gates Foundation, which is funding phase 1 of Vital Signs with a \$10 million grant. The evaluation comprised two main components: a process and management review of project implementation and performance to date; and coordination and synthesis of an expert scientific review of Vital Signs' methods. As a formative rather than summative exercise, the evaluation was also charged with identifying opportunities to strengthen the project in the future.
- ii. In addition to the scientific review, the terms of reference directed the process review to examine project administration and implementation, performance against objectives, and progress in policy engagement, capacity building and establishing strategic partnerships. The evaluation was conducted by a team led by IOD PARC, over a period of 3 months, from late August to November 2014. It involved document review, key informant interviews, a scientific review of Vital Signs' methods and protocols and country visits to Tanzania, Kenya and Ghana.

The project

- iii. Vital Signs aims to inform and improve land use decisions by public and private actors in Sub-Saharan Africa and contribute to more sustainable agricultural development. To achieve this vision, the project is establishing a monitoring system and associated capabilities that can provide co-located, integrated, real-time measurements of ecosystem services and well-being metrics, along with the analytical and decision-support tools needed to assess the trade-offs between human, economic, and environmental outcomes of agricultural intensification.
- iv. Vital Signs is led by a tripartite consortium, comprising Conservation International, the Earth Institute at Columbia University and the Council for Scientific and Industrial Research (CSIR), South Africa. Phase 1 of the project began in February 2012 and will end in September 2015. The longer term vision, however, is for Vital Signs to expand geographically over the next 10-15 years and to transition from a stand-alone project into a fully embedded African (and subsequently global) monitoring service, capable of stimulating and supporting better, evidence-based decision making.
- v. The Vital Signs proposal targeted three specific objectives during phase 1:
 - Design an integrated and efficient ecosystem services and biodiversity monitoring system to provide policy relevant information;
 - Establish or empower local organisations with the capacity for sustained monitoring in 5 regions of Sub-Saharan Africa;
 - Deliver integrated information products for 5 regions of Sub-Saharan Africa.

Evaluation findings

Achievements to date

- vi. Vital Signs is a challenging undertaking. Slower than anticipated progress – particularly in establishing an operational presence in Ethiopia – has resulted in the project reducing the geographical scope of phase 1 monitoring activities from five to three regions and prioritising data collection and associated activities above other aspects of the project plan. These changes were undertaken in close consultation with the Foundation and reflect more the over-ambitious expectations at design than implementation failures *per se*.
- vii. To date, the project has established monitoring arrangements in two countries (Tanzania and Ghana) and preparations to start monitoring in a third (Uganda) are well advanced. Baseline data have been produced for the two operational regions and review and analysis of the data is now underway. A fundamental element of the project, setting up the monitoring systems is a significant achievement. Led by the Executive Director, the tripartite consortium established the leadership and management structures and systems to oversee and deliver what is a logistically challenging monitoring system in partner countries. Although by no means problem-free, the operational success to date is all the more notable given that the consortium was a new arrangement, created largely at the Foundation's request.
- viii. The monitoring that is now underway also reflects achievements to date in addressing the technical challenges associated with designing a co-located, integrated monitoring system that aims to be efficient, flexible and policy relevant. The design solutions and innovations introduced by the project represent notable improvements in a number of respects on many existing biophysical/socio-economic monitoring systems. While the evaluation's scientific review identified a number of specific issues for consideration, overall it found Vital Signs' methods to be generally sound, demonstrating an impressive effort and technical quality.
- ix. Progress in Tanzania and Ghana also been underpinned by the project's achievements in building the capacity of data collection teams within the project's Implementing Partners. This has been a significant effort for the project, which was underestimated at the design phase, but critical to overall success. Training has been well-received and highly appropriate, enhancing the technical knowledge and skills of field teams. On the basis of this success, the project can now draw on existing members of field teams to train new enumerators as the project expands.
- x. Less progress has been made against the actions envisaged at design to address policy relevance. This partly reflects the impact of decisions taken in consultation with the Foundation to prioritise data collection and related activities. The project has, nevertheless, taken steps to position itself for policy influence, by drawing on the personal networks of Technical Council members and through the establishment of an Oversight Council comprising regionally and internationally influential members. Some potentially valuable relationships have already been developed with organisations in Tanzania and internationally. There is significant interest in the project and even among those who had not heard of it directly – the majority of respondents we interviewed during country visits – there was near universal support for the project's general concept.

Risks to success

- xi. As an evaluation of an on-going project, our assessment does not have the advantage of hindsight associated with *ex post* evaluation. As a result, rather than providing summative judgement on the different aspects of Vital Signs to date, we consider the risks posed to continued success in the future.

- xii. At this early stage in the project's life, our judgement is that Vital Signs still represents a high-risk investment. It is operationally challenging, requiring collaboration across range of different organisations and types of relationships. While there are success cases, the evidence in general indicates that this is not easy to achieve. Technically, developing cost-effective methods that not only describe current conditions but also support diagnosis and decision-making among a range of stakeholders poses a number of challenges that are still being resolved. Institutionally, Vital Signs' longer term success will depend on successfully transitioning from an externally driven project to an information service with local ownership and legitimacy. Finally, Vital Signs aims ultimately to inform policy and contribute to more sustainable agricultural development. Again, while there are examples of policy influence, research generally points to the unpredictable nature of the policy process and the uncertain role that evidence-based decision-making plays in it.
- xiii. This does not mean that Vital Signs cannot succeed, or that it is not worth pursuing. Throughout the evaluation, the range of stakeholders interviewed consistently endorsed the project concept, recognising the potential value of long-term, integrated monitoring with a strong focus on decision-support. However, it does suggest that attention to managing the most significant risks will be essential.
- xiv. The evaluation finds the majority of activities and outputs in the project results framework are subject to some risk. Given the evaluation was conducted at a relatively early stage in a complicated project, this is not surprising. However, those rated at *significant* risk deserve close consideration – nearly a quarter of activities and 30% of outputs. The more limited progress recorded against these elements largely reflects decisions taken with the Foundation to reprioritise efforts in the face of unexpected delays. However, there is good reason to believe that the planned activities and outputs remain important and necessary for the project, and the limited attention to them to date poses significant risk.
- While the operating model and working relationships established to date between the participating organisations have been effective in mobilising monitoring on-the-ground in two countries, the evaluation concludes that it needs review going forward. It appears insufficiently distributed to facilitate smooth geographical expansion, while the very limited nature of the partnerships established pose significant sustainability risks. Nor do we think this is a transitory problem, given that in reality the evolution of Vital Signs from a project to a new, locally-embedded institutional form will take time.
 - Both the scientific and process reviews raised a number of questions relating to the technical design of data collection and analytical methods. Specific points are discussed in the report but more broadly, the evaluation found limitations in the documentation/explanation of key aspects of the approach and clarity of intended uses, which in turn provide a test of fitness for purpose. The project plans to review the technical design in 2015, providing an opportunity to address technical risks. A review at that time can usefully be informed by better understanding of user data needs and cost-efficiency analysis.
 - In practice, there are multiple potential delivery chains between Vital Signs and its target users. Success will depend to an important extent on the project's ability to mobilise and engage the capacity of users, who occupy different positions in the system and who have different information needs. The project is well aware of this, but to date has not elaborated clearly its strategy in this regard. This weakness poses longer term risks if the necessary understanding of needs of potential users is not adequately reflected in design developments. But in the shorter-term, it also may put continued project funding at risk, if potential donors

cannot see how results will be used and how the project is resolving the tension between monitoring over the long-term and the demand for immediate results.

Mitigation Measures

- xv. The significant outstanding risks faced at present by the project are by no means insurmountable. The final section of the report elaborates a limited number of practical steps designed to mitigate substantially if not entirely the risk faced. In summary:
- Prioritise the remaining activities required to demonstrate ‘proof of concept’ in existing partner countries, over resource allocation for further geographical expansion;
 - Invest in understanding the policy, institutional, analysis and user environment at the national and regional level to inform the project’s engagement strategy;
 - Develop the project’s approach to partnership working at a programme and national level;
 - Broaden the skills base that the project can access in order to implement these measures;
 - In the medium term, consider a more plural, networked model as the institutional form for Vital Signs in the longer-term.

1. Introduction

1. This report presents the findings of an independent evaluation of the Vital Signs project (February 2012-to date). The evaluation was commissioned in August 2014 by the Agricultural Development Initiative in the Bill and Melinda Gates Foundation (the Gates Foundation), the main funding source for Vital Signs. The evaluation was conducted by a team established and led by IOD PARC.

The Vital Signs project

Background

2. The project is led by a tripartite consortium, comprising Conservation International, the Earth Institute, Columbia University, and the Council for Scientific and Industrial Research (CSIR), South Africa. Phase 1 of the project started in February 2012, following a pilot phase in Southern Tanzania in 2010, and is due to finish in September 2015.
3. The Gates Foundation funds phase 1 with a \$10 million grant to Conservation International. Conservation International in turn manages a series of sub-grant agreements with participating organisations (including consortium members) and contracts with short-term service providers.

Objectives

4. The Vision of the project is to inform and improve land use decision-making in Africa and ultimately contribute to more sustainable agricultural development.
5. To do this, the project is establishing a monitoring system and associated capabilities that provides co-located, integrated, real-time measurements of ecosystem services and well-being metrics. As part of this, the project is developing analytical and decision-support tools to enable the analysis of trade-offs and synergies between food production, poverty alleviation, and environmental outcomes of agricultural intensification in Sub-Saharan Africa. The monitoring system is intended to meet the needs of government, the private sector, NGOs and donors for better evidence to inform policy and investment decisions in the agricultural sector.
6. The project is in its first phase and has targeted three specific objectives:
 - i. Design an integrated and efficient ecosystem services and biodiversity monitoring system to provide policy relevant information
 - ii. Establish or empower local organisations with the capacity for sustained monitoring in 5 regions of Sub-Saharan Africa
 - iii. Deliver integrated information products for 5 regions of Sub-Saharan Africa

The longer term ambition over the next 10-15 years is for Vital Signs is to expand geographically and to transition from a stand-alone project to a fully embedded African (and subsequently global) monitoring system.

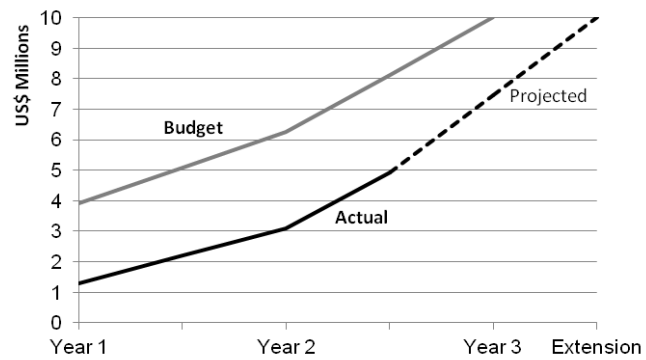
Implementation to date

7. For Phase 1, the project originally planned to establish the monitoring system in five regions in Sub-Saharan African. This ambitious target has since been revised in consultation with the Foundation to

three regions and the project is currently active in Tanzania and Ghana. The project devoted significant efforts during the first two years to establishing Vital Signs in Ethiopia - a priority country for the Foundation. Progress, however, was slow. A decision was subsequently made to delay engagement until phase 2 and instead begin work in Uganda. Steps to establish the project in Uganda are now at an advanced stage though the time invested in building links in Ethiopia has had an adverse impact on project implementation, at least in the short-term. The project has also established a regional Field Office in Nairobi and appointed an African Field Director there.

8. Expenditure to date has been significantly below plan (Table 1.1). primary reason has been slower than expected disbursement due to implementation delays, rather than underestimation of costs. The lengthy engagement process with the government in Ethiopia was an important factor in this. The project is expecting to expend the budget fully completion of phase 1 (with an agreed extension to September 2015). Certainly, the rate of expenditure as a proportion of the budget figure has increased over time, though too has absolute between budget and actual. this basis, there is some risk that the budget will not be fully expended.

Table 1.1 Project expenditure against budget



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Purpose

9. The purpose of the study is to conduct a formative evaluation of the Vital Signs project to identify achievements to date and opportunities for improvement. The study terms of reference (**annex 1**) identified two main strands:
 - a) **Implementation Review:** a process and management review of the project, covering administration, implementation, policy engagement, capacity building, strategic partnerships and performance relative to goals;
 - b) **Scientific Review:** coordination of a group of experts conducting a review of the project's protocols and methods and synthesis of their findings.

Implementation

10. The evaluation team comprised: Simon Henderson (team leader and IOD PARC director), Michael Flint (results/policy specialist), Emma Henrion (organisational development specialist) and Judith Friedman (study coordinator/deputy team leader). The core team was enhanced in Tanzania and Ghana by regional experts in research into use/policy: Agnes Kayondo and Gisèle Lopès D'Almeida respectively. The Scientific Review was led by Sheelagh O'Reilly (IOD PARC director) with support from Judith Friedman. Quality assurance has been provided by Julian Gayfer, IOD PARC director.
11. The study began at the end of August 2014. Following a three week Inception Phase, the team conducting the implementation review visited Tanzania and Ghana for one week each (28 Sep - 12 Oct), with the team leader and organisational development specialist also visiting the project's regional Field Office in Nairobi. Feedback was given to the country Field Director at the end of each country visit and draft findings were presented to the members of Vital Signs' Technical Council and the Gates Foundation on 27 October. The Scientific Review was conducted in parallel, working closely with the Gates Foundation throughout the review to identify expert reviewers and establish lines of enquiry for the review. IOD PARC designed the review framework which was then refined through consultation with the Vital Signs' technical council (September 8-17). Using the review framework, reviewers were given approximately one month to complete the review (27 Sep-31 Oct). Reviewers' general findings were presented to the members of the Vital Signs' Technical Council and the Gates Foundation along with the findings of the implementation review (Oct 27) and were synthesised in a report which is included in annex 5.

Approach and methodology

12. Our Inception Report (22 Sep 2014) sets out in detail the evaluation approach and methodology. The evaluation matrix is included at annex 2. For the implementation review, we adopted an evaluative case study approach as our overarching design. Within this framework, we drew on a range of disciplines relevant to the main areas of interest, to provide the conceptual underpinning for the evaluation. We took an explicitly risk-based approach to the evaluation, given both the formative nature of the study and in particular the uncertainty associated with the project. This uncertainty stems from: the innovative, long-term nature of project itself; the early stage of its implementation; the vagaries of the operating environments in which it works; and the complexity of cause and effect relationships in policy/decision making. In this situation, the evaluation cannot 'know' the outcomes, but it can develop an informed view of the risks.

13. Each case study employed a mix of qualitative and quantitative data and methods:
 - Secondary data review: Qualitative review and analysis of project documentation; quantitative: review and analysis of administrative and financial data;
 - Key informant interviews: Semi-structured interviews were held with project staff (Technical Council members, research staff, implementing partners), with ‘boundary’ partners - other organisations collaborating with the project, and finally with a number of informed but external stakeholders, to provide a broader perspective and situate the project in local contexts. A list of all people consulted is provided at annex 3;
 - Comparison with external experience: based on a targeted literature review, we drew on frameworks and criteria of better practice to inform our understanding of the Project’s approach;
 - Triangulation: wherever possible, we triangulated different data sources as a means of corroborating conclusions or identifying inconsistent or divergent evidence.
 - Comparative analysis: as a means to identify opportunities for improvement through examination of variation in practice and experience. As part of this, awareness of the importance of context is key to inform interpretation of results and development of recommendations.
14. At the whole-of-project scale, we used programme logic methods to review the project’s strategy to achieve its objectives and vision.
15. For the Scientific Review, we used open ended questions and a traffic light rating system to assess the validity and projected utility and efficiency of the Vital Signs’ methods for their intended purpose.

Evaluation context

16. To frame our *a priori* appreciation of the risks facing the Vital Signs investment, we conducted a targeted, rapid literature review¹. The results informed our assessment of the risks to success and the adequacy of the project’s response to date. A number of important messages come out of this exercise:

On the influence of monitoring and evaluation data

- Defining what information is important is a significant challenge
 - Information needs are rarely defined through a structured, rigorous elicitation and prioritisation process; the test is not whether the information is better than what is available, but how valuable is the reduction in uncertainty achieved.

¹DFID 2014 *What is the evidence on the impact of research on international development* DFID literature review, July
 Shepherd, et al 2013 *Review of the evidence on indicators, metrics and monitoring systems* DFID
 DFID 2013 *Assessing and analysing the data requirements for stakeholders in African agriculture*, August
 CLEAR, 2013, *Demand for and supply of evaluations in selected sub-Saharan African Countries*;
 Nutley, T, 2012, *Improving data use in decision-making – an intervention to strengthen health systems* Measure evaluation special report
 Hughes and Weiss 2007 *Simple rules for making alliances work* Harvard Business Review, November
 Bamfed, Ernst and Fubini, 2004, *Launching a world-class joint venture*, Harvard Business Review, February

- Evidence typically has only weak or indirect influence on policy and decision making
 - Notwithstanding some exceptions, most decision-makers are not naturally motivated to use research evidence, and if it is used, it is often late on the process to support a decision already taken or assess outcomes post-decision making.
- There is little evidence for the impact of monitoring initiatives on decision-making and management
 - This no doubt relates in part the challenge of identifying the effect of evidence on policy-making, but to a large extent it reflects the importance of human and financial capacity impediments to uptake and the role of political economy in determining the opportunity for 'objective' measures to inform decisions.

On the success of cooperative working arrangements

- Alliances and other forms of joint working are difficult to operate successfully
 - Evidence from the private sector suggests that while the number of new corporate alliances continues to grow annually, the failure rate lies between 60% and 70%. In the case of joint ventures, prospects of success may be no better than a 50:50 bet.

The conclusion to draw from the above is not that Vital Signs cannot succeed, but it does point to the significance of the challenges and risks faced by the project.

Structure of the report

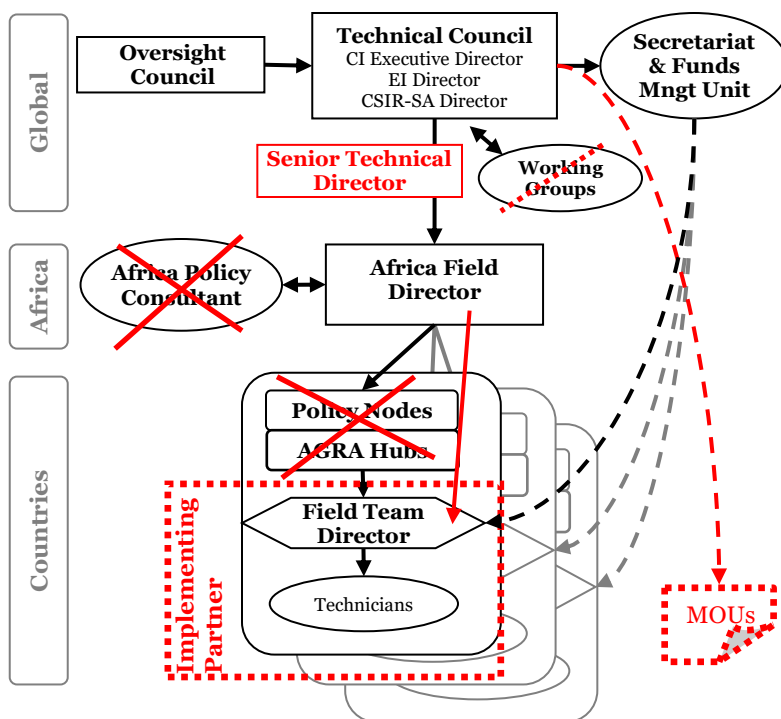
17. Evaluation findings are presented in the next five sections of the report, following the structure set out in the evaluation matrix developed during the Inception Phase (annex 2). Section 2 discusses the project's management and implementation arrangements, while sections 3-6 address project performance against the three objectives (design, capacity and products) and the vision set out in the project's results framework. In keeping with our risk-based approach, each section concludes with what are in our judgement the significant outstanding risks faced by the project. Section 7 of the report provides a set of recommended mitigation measures to reduce, though not eliminate these risks.

2. Management and implementation arrangements

Governance structure

18. The project has established a fairly streamlined, centralised, hierarchical structure. This has been reinforced by changes made during implementation, compared to plans at proposal stage (Figure 1). However, the new organisational model has not been documented anywhere; the chart referred to in

Figure 2.1 Vital Signs structure: proposal stage (and **current**)



the project’s Operational Manual is not actually included.

19. The project is led by a Technical Council –comprising a member from each of the consortium organisations: an Executive Director from Conservation International and two Deputy Directors, from the Earth Institute, Columbia University and the Council for Scientific and Industrial Research (CSIR), South Africa respectively. Each member of the consortium brings relevant expertise but the consortium itself was formed by the Gates Foundation during the conception phase of the project.

20. In principle, the Technical Council takes strategic direction and high-level operational guidance from an Oversight Council, comprising 6-8 members from a range of organisations, including the Gates Foundation, the three organisations leading the project and prominent African figures from NGO, academia and government organisations. The Council meets twice a

year (once in person, once virtually). In practice, review of the Council meeting minutes suggests its substantive significance in establishing the project’s strategic priorities is variable.

21. Day-to-day administration (including financial management) at the “global” level² is the responsibility of the “VS Administrator”, currently Conservation International, with the various functions provided by different parts of the organisation³. Conservation International, as project administrator, manages the sub-grants issued to all participating organisations through a series of

² Administrative support is also available at the Africa regional and country levels.

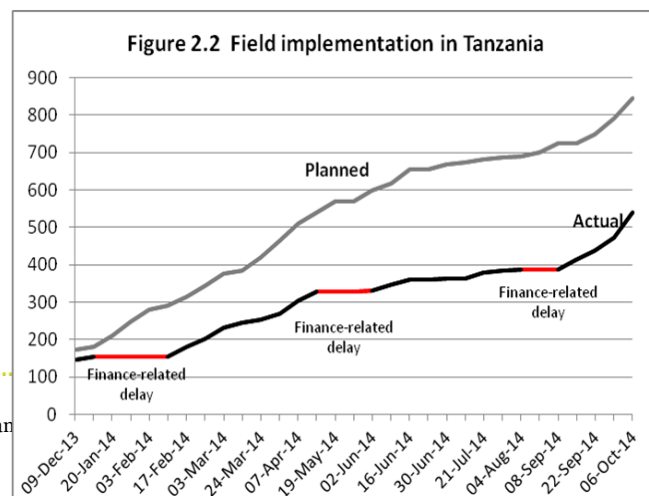
³ e.g. financial risk assessment by the Finance division, on-going financial management by the Ecosystems Finance and Markets division, administrative support located within the technical team working on the project.

grant agreements and annual allocations. The Executive Director also plays a central role in project administration, with final sign-off on all contracts and grant disbursements.

22. At the regional level, there is an Africa Field Director, whose primary responsibility is operational, to oversee and problem-solve field level implementation. The Africa Field Director liaises with other members of the Technical Council or their teams as necessary and since July 2014 reports to the Senior Technical Director.
23. At the country level, the Project works with Implementing Partners who receive sub-grants from Conservation International and who employ the Field Team Director and members). Implementing Partners report to the Africa Field Director. In addition, the project has MOUs with a limited number of organisations in country.⁴
24. This hierarchical, centralised management model has served the project well to date in two main respects. The prominent and central role of the Executive Director has enabled strong project leadership and active promotion of the project’s vision on the national, regional and international stage. Similarly, the top-down, externally-driven approach has been successful in mobilising and delivering data collection in challenging conditions in two countries within in the first two years of operation, with a third about to start. However, the model also has entailed risks for the project, which have become apparent during the course of implementation. These are discussed below.

Management systems

25. The financial management systems and controls operated by Conservation International (as VS Administrator) appear to be robust, though it should be noted we have not conducted a detailed audit. Overall financial management appears adequate, though the project has faced budgeting challenges, with significant variances in actual costs from estimates. Against the background of slower than anticipated expenditure, some country-level costs, notably transport and allowances, have been significantly higher, which in turn contributed to decisions taken with the Foundation to reduce the scope of some planned outputs (e.g. number of atlases). Analysis of variances from plans has been conducted and used to inform planning. Detailed unit cost analysis that would enable cost comparisons between protocols and countries has not been undertaken.
26. There are some weaknesses evident in the approach and follow-up to financial risk assessment of Implementing Partners. In the case of both Tanzania and Ghana, assessments were undertaken *after* the selection of partners and so did not inform the choice of partner. In addition, in spite of an extensive questionnaire, it seems that unexpected weaknesses in Partners’ systems were still encountered during implementation.
27. Implementing Partners’ ability to manage project finances and meet financial obligations has been a source of delay in both countries (see Figure



⁴Office of the Vice President and National Bureau of Statistics in Tanzania

2.2). In the case of CSIR-Ghana, problems with financial reporting have meant that no funds have been provided during the last seven months. In this period, CSIR-Ghana has been self-financing field operations.⁵ These problems, however, are neither unusual nor unforeseen. Both Implementing Partners were rated “high risk” for financial management capacity in the assessment exercises. Paradoxically, such a rating imposes more stringent monitoring controls, which by definition a high risk organisation will struggle to meet. The project’s Operational Manual acknowledges this and allows for provision of additional funds to address capacity shortfalls. However, to date the project has not taken this on. Nor has it undertaken the annual visits to Implementing Partners to review financial management arrangements that were recommended in the risk assessment reports. Some learning is evident in the approach to partner selection in Uganda, with a more extensive pre-selection assessment process used, based directly on experiences in Tanzania and Ghana. However, additional financial management and administrative support that might be necessary to reduce implementation risks has not been considered.

28. Activity level monitoring and reporting systems are largely effective, notwithstanding the financial reporting problems experienced by the Implementing Partners⁶. The project has not yet developed an approach to monitoring “reach” or intermediate outcomes, such as web-site traffic or downloads (e.g. downloads of/interest in the sampling frame, data protocols, atlases) or the effectiveness of participation in international events. Developing a simple but systematic approach would have advantages not only for strategic management of the project – e.g. informing discussions at the Oversight Council – but also in providing a clear, compelling narrative to donors about the project’s strategy and progress towards objectives.
29. Vital Signs has produced an Operational Manual to “provide wholly comprehensive operational and administrative guidance to the Vital Signs Administration Team and partners.”⁷ In principle, this is an important element in the project’s control systems. In practice, it is unlikely that it adds the intended value. The document explains the broad objectives of Vital Signs and the main organisational structure, though not all the information included appears necessary or appropriate⁸, other information is out of date and there are gaps⁹. Detailed information about partner financial risk assessment and grant agreement obligations is included, though much of it written for audiences at the “global” level managing those relationships. The document is light on information regarding the main operational procedures for regional and country level participants; for example, arrangements to manage and control the development of data collection protocols; data quality assurance procedures; monitoring and reporting obligations at the different levels. Nor is there discussion in the Manual (or in any other document) of the project’s approach to risk management, which seems a notable omission.
30. Not surprisingly, Implementing Partners and the Africa Field Director make little use of the current Manual but this does not appear to have created any significant problems– at the current scale of operations, it may not yet be essential that learning is codified. However, the risk relates to any future expansion of the project, when informal approaches are no longer feasible or efficient. The

⁵ According to Vital Signs Executive Director, at least part of this cost is monies owed by CSIR-Ghana to the project as a result of unauthorised expenditures from the first tranche transferred by Conservation International.

⁶ Country Field Directors provide weekly reports on implementation progress to the Africa Field Director.

⁷ Vital Signs Operational Manual, 26-Mar-13: page 3

⁸ e.g. reference to the transfer of Vital Signs to a local African institution by the end of Phase 1 (page 6)

⁹ e.g. reference to the organisational model (figure 1) that is not actually included (pg 3); reference to the creation of national policy nodes by the end of year one (pg 21); no elaboration of division of responsibilities between the Executive and Deputy Directors (pg 12); no reference or explanation in the main text of the Private Sector Advisory Council presented in an annex (pg 67).

Africa Field Director submitted a revised version of the Operational Manual (for country and regional levels) to the Executive Director in September but at the time of our review had not yet had a response. The Informatics Manager is also developing a Data Management Manual. All of these are expected to be complete by mid-January. There is clear merit in updating and revising the document, and mapping the business critical processes that country-level partners need to know.

Implementation arrangements

31. The management structures and systems established by Vital Signs are relatively 'lean'. This no doubt reflects funders' expectations but also has advantages for a project in developmental stages, where agile decision-making and hands-on engagement is necessary. Indeed, 'vertical' communication up and down the hierarchy appears to be good, with Implementing Partners and the Africa Field Director expressing a high degree of satisfaction with the access to and responsiveness of key personnel along the chain. However, to work well, the model requires clear and extensive delegation, enabled with effective communication and coordination mechanisms. In practice, this has not happened to the extent necessary (see Box 2.1).
32. To date these issues have not resulted in critical failures for project implementation, though they are likely to have led to inefficiencies (e.g. in the development of IT tools to assist field implementation). What is clear, however, is that they have contributed to significant levels of dissatisfaction among staff working on the project with the current management arrangements.

Box 2.1: Limitations in implementation of the management model

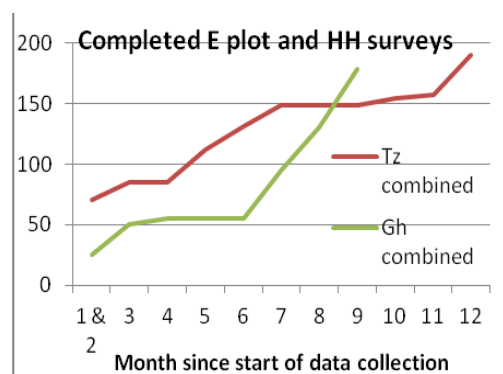
- Problems in 'horizontal' communication and coordination arrangements between the VS Administrator (financial management) and the Executive Director and other members of the Technical Council have resulted in delays in decision-making and payment of sub-grants;
- The extent of delegation has been limited with many decisions requiring referral to the Technical Council. This has made for cumbersome decision-making and delays in the management of contracts and in the adaptation of protocols and data entry forms during field implementation;
- In part, this lack of delegation explains why the "working groups" concept (envisaged at proposal) has not been formally developed; in practice, interaction between staff from the consortium members below the level of the Technical Council has been limited to *ad hoc* relationships.
- These problems have been compounded by uncertainty regarding where responsibilities begin and end between the Deputy Directors/technical leads, the VS Administrator and the Executive Director, resulting in confusion and mistrust.
- Under the centralised project model, the (in principle) part-time role of Executive Director has become overloaded, with responsibilities for technical, contractual, financial, personnel, promotional, fund-raising and overall leadership functions. This has had implications for the workload of the individual, the timeliness of decision-making and the broader sense of ownership among participating organisations.

33. Notwithstanding the impact of financial management challenges on

field implementation, the management arrangements for field implementation appear broadly effective. The Africa Field Director has provided operational advice to the Country Field Directors on more efficient ways to organise fieldwork; along with advice from Technical Council members and their staff and Country Field Directors' own input, some progress has been made in improving implementation performance.

34. Arrangements to manage the revision of protocols during implementation were established by the Technical Council in June 2013. Ensuring compliance by teams has, however, been challenging, with teams often overlooking agreed processes due to their limited understanding of the implications of changes to protocols. There would be value now in formalising and codifying the processes in the project's Operational Manual.
35. Nevertheless, data collection schedules are demanding, given inevitable logistical challenges associated with working in difficult terrains, the technically challenging nature of some protocols¹⁰ and the range and depth of the information being collected¹¹. A detailed reading of the weekly reports submitted by Implementing Partners provides a clear picture of the scale of the challenges faced. As such, the project is heavily reliant on the commitment of the field-teams¹². To date, turnover among team members has not been a problem though it must be considered a risk. The more immediate risk, however, may be to data quality, if teams trade this to meet tight schedules and in the relatively high level of capacity required to carry out some of the data collection processes (e.g. water quality and availability).
36. The recent rapid improvement progress in Ghana is a case in point (Figure 2.3). The project's initial review of the available data does not appear to have raised any significant concerns, the fact remains that data quality control and assurance arrangements are not clear. For example, in Tanzania the original field oversight provided by the National Bureau of Statistics no longer operates, while in Ghana no oversight arrangement has been established¹³.
37. A final note on implementation: Vital Signs is committed to awarding a minimum of 67% of grants to African organizations¹⁴. On current reported expenditure, the proportion stands at 45%. Projected expected based on pipeline and commitments place this figure at 62%.

Figure 2.3 Vital Signs fieldwork progress



Significant outstanding risks

38. Two significant risks arise from the current management and implementation arrangements. The first is the risk to operational efficiency and effectiveness posed by the challenges discussed above. This risk is only likely to be exacerbated as the project continues and expands. There has already been some recognition of these challenges and adaptation in response (see Box 2.2). Nevertheless, significant risk remains and a number of further steps are recommended:

¹⁰ E.g. water quality and availability

¹¹ For example, one household interview can take between a half and one full day.

¹² In Tanzania, for example, the team has recently worked extended periods in the field, seven days a week, to make progress against data collection and upload schedules.

¹³ In the case of Tanzania, the socio-economic team lead informed us that he conducts a 10% sample check on the survey forms.

¹⁴ This excludes that part of the grant to Conservation International that is the management fee.

- Clearer division and delegation of roles and responsibilities from the ‘global’ level downwards is required. The current centralised approach is likely to be untenable going forward.
- The project’s approach to financial problems encountered by Implementing Partners reflects in part resource constraints but is out of line with the project’s own operational policy and is ultimately self-defeating. Greater priority should be given to addressing this issue. More broadly, the allocation of financial risk between Implementing Partners, Conservation International and the Gates Foundation should be reconsidered, to explore options to smooth short-term difficulties in accessing funds at the field level.
- Finally, risks to data quality posed by the implementation schedule require explicit consideration. In the absence of a project policy, Implementing Partners will inevitably determine their own solutions to the trade-off, which may or may not be in line with Vital Sign’s expectations.

39. The second risk relates to the overall sense of organisational commitment to the project engendered by the approach. For participating organisations, the underlying relationship with Conservation International is conditioned by the grant agreements, which are essentially a contractor–subcontractor model. In spite of repeated references to partners in discussions and project documentation, we found no evidence of any meaningful partnership arrangement (formal or informal).

40. This is partly a resource prioritisation problem: the focus has been on meeting design and data collection and analysis commitments. In this respect, the project has responded to the direction provided by the Foundation. The time and resources needed to establish partnership arrangements on a sound basis have not been invested.

41. This is also partly a product of the management model and implementation practice. Insufficient clarity, delegation and communication between members of the Technical Council have led to misunderstanding and mistrust. At the field-level, the relationship with Implementing Partners, as defined by the grant agreements, is narrow and limited to data collection and financial acquittal

Box 2.2: Evidence of learning from implementation

- Allocation of more resources to manage the interface between Executive Director and Financial Management Unit; one significant result has been the development of tools to improve tracking of impending decisions and responsibilities.
- Assignment of a senior technical director to assume some of the responsibilities for engagement with the Africa Field Director currently residing with the Executive Director; the detailed job description for this position is still work in progress.
- Recruitment of the Informatics Manager and delegation of some aspects of IT contract management.
- Steps taken to agree a more structured way of working between the main IT contractor and the project’s Technical Council.
- Revised approach to partner selection in Uganda, including conducting the initial financial risk assessment before selection of the partner; no significant change, however, expected in the nature of support provided by the project.

obligations. That is not to say that all interactions are governed solely by the grant agreements¹⁵, but these documents set the tone and establish the default *modus operandi*.

42. This is also partly a skills problem: Vital Signs is not unique in being a complicated programme with multiple partners, but the skills needed to manage it effectively have not been explicitly considered in the set up. While there is no question about the technical competence of existing staff, the skills-set required for building, managing and maintaining effective partnerships (collaborative, process-orientated, relationship-management, etc.) have not been strongly evident to date.

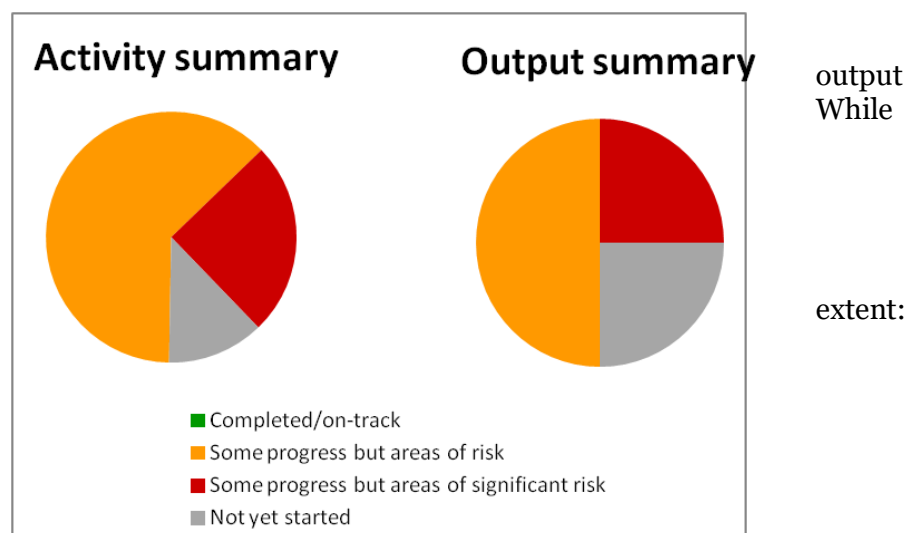
¹⁵ There are numerous examples where participating organisations contribute in ways that fall outside a narrow interpretation of their respective grant agreements.

3. Design an integrated, efficient and policy-relevant monitoring system - Objective 1

Progress towards outputs

43. The summary assessment in the chart relates to progress against the activities and outputs included in Vital Signs’ results framework. A summary assessment of each individual activity and is presented in **annex 4**. there has been good progress in a number of respects, all activities/outputs underway face risks to full achievement to some

- Good progress has been made in defining the sampling design, data collection methods and the ‘threads’ linking observations to analytical outputs. A set of peer-reviewed protocols and manuals have also been produced and are in use and are available online. Some progress has been made on the methods and models for generating indicators.
- Less progress has been made so far on defining the methods and models for analysing the trade-offs and synergies¹⁶ or with defining the analytical framework for the integrated monitoring system. While this partly relates to lack of specificity concerning the intended use of the data from the system, it also reflects the very challenging nature of this work, which is still in progress. The deliverable for the tradeoffs workflow is due in February 2015. Some technical progress has been made on designing an information and communication system but the outputs and reporting formats are still under discussion and development
- Those areas of greatest risk relate to the limited progress to date in the establishing national policy nodes (or equivalent) and identifying and engaging direct beneficiaries . The cost-effectiveness of the protocols still needs to be assessed.



¹⁶ A workshop on trade-offs was held in February 2014 and two papers are in preparation.



Key issues for progress towards the objective

44. The assessment in this section reflects broader consideration of two key questions: the likelihood that the technical design will meet expectations; and the sufficiency of steps taken to ensure policy relevance.

Technical design

45. As part of this evaluation, IOD PARC coordinated a group of experts to conduct a scientific review of the VS protocols and methods. A full report of the scientific review is provided in annex 5. This section presents a summary of the reviews findings together with additional findings from the implementation review. The Scientific Review found that the Vital Signs methods were generally sound, demonstrating an impressive effort and ‘great technical quality’. While the reviewers identified a number of specific concerns/areas for possible improvement, their assessment was constrained by two general factors: insufficient background documentation of the analytical or policy justification for some design choices limited the depth of the review that was possible of the threads and methods; secondly, limited information on the intended purpose(s) for Vital Signs’ results made it difficult to judge definitively the utility or appropriateness of the data being collected.
46. The scientific review found the **sampling framework** to be reasonably coherent and clear and that the nested integrated approach is scientifically robust. However, a final judgment on the soundness of the framework depends on how the data will be drawn together and used. This is not yet clearly defined. Possible gaps in the sampling frame are also difficult to identify in the absence of this clarity. One important omission for a reviewer was data on groundwater quantity and quality but the project’s view is that the sampling situations to date have not required this. The relative costs and benefits of the different levels and types of measurements – particularly the relatively costly Tier 4 sampling – will also need to be reviewed once the sampling frame has been fully trialled. While the type of long-term, high quality dataset envisioned by the project has intrinsic value, decisions on what data to collect have to be guided by some view of the balance between likely utility and cost.
47. The **decision support threads** are designed to connect the environmental, agricultural and human welfare metrics, analytical outputs and indicators in flexible ways to inform policy and management decisions. The review of these ‘threads’ was hampered by their inherent complexity and by the limited amount of documentation justifying the construction of the indices and explaining the weightings within and between threads. How the sector threads feed into the sustainability thread and hence into the inclusive wealth index is particularly unclear, as is how the threads will produce information that is usable by policy makers. In order to be sound, the threads ideally need to build upon existing sectoral indices and models or, if new ones

Box 3.1: Monitoring for sustainable intensification

A recent DFID review¹ on the use of monitoring initiatives in the sustainable intensification of agriculture identified a total of 103 monitoring initiatives and looked in more detail at a subset of 24, including Vital Signs.

The over-riding lesson of this review was that, despite the massive investment in monitoring initiatives, there is a surprising lack of evidence for their actual impact on decision-making or management, except in cases where initiatives have been explicitly designed to inform specific decisions (e.g. regulation). This may be a reason why few monitoring initiatives are actually sustained.

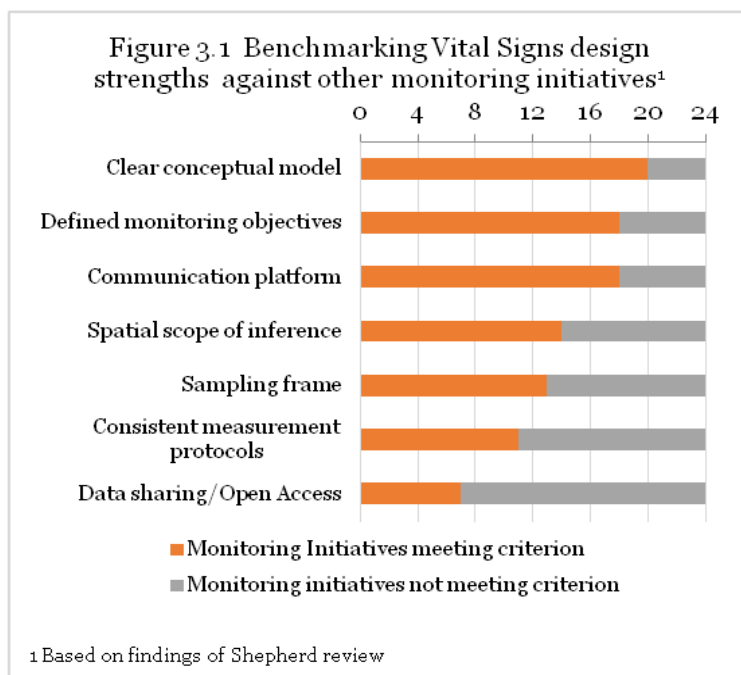
The review also concluded that there are important opportunities for increasing the returns on these investments by better integrating monitoring systems with development decision processes and thereby increasing impacts on development outcomes

¹ Review of the Evidence on Indicators, Metrics and Monitoring Systems. Shepherd, K.D. et al (2013)

are being proposed, to clearly reference and justify these.

- 48. Vital Signs has developed a series of **protocols** to guide measurement across environmental, agricultural and human systems. Standardised and well-documented scientific methods are critical to producing a reliable picture of the state and trends over time. For the four (out of eight) protocols examined, the review found they are generally comprehensive and consistent. While they are broadly in line with international standards, reasons for variance from standard approaches are not described. A number of recommendations for improving the water, biomass and rapid roadside assessment protocols are contained in the review (annex 5). The critical importance of enumerator training and supervision, as well as close interaction between remote sensing analysts and field teams, was highlighted. The water protocol in particular requires a high level of training to achieve the required data quality.
- 49. Vital Signs was also recently reviewed as part of a DFID review exercise (see Box 3.1). Although a relatively rapid exercise, the results broadly corroborate the findings of this evaluation. Compared to many, Vital Signs has avoided a number of the common design weaknesses and demonstrates a number relative strengths: it has a relatively clear conceptual model, monitoring objectives, spatial scope of inference, sampling frame, measurement protocols, and communication intentions (via the dashboard for decision makers). In addition, Vital Signs data is intended to be open access (Figure 3.1).

- 50. While the technical design reflects many positive features, there are a number of areas of concern. Disaggregation at the landscape level by farm type, economic resources, gender and age will not be possible at the current level of Tier 4 sampling (see below). Assessment of the trade-offs between the cost of the information and the value of the analysis has not yet been carried out. But most significantly, Vital Signs has been designed without a specific (albeit minimum) set of decisions, decision processes, or decision making bodies in mind. This, as the Shepherd review concludes, increases the risk regarding the likely use and sustainability of the monitoring system. In this regard, although some initial efforts have been made to collaborate with governments, donors, NGOs and the private sector, the extent of the involvement of these stakeholders in the design and implementation of Vital Signs is limited.



- 51. During the country visits, the evaluation team met with the Implementing Partners in Tanzania and Ghana (but were not able to see data collection in the field). In both cases, and especially in

Tanzania, the evaluators were impressed by the quality and commitment of the enumeration team, and had no concerns about the technical quality of the bio-physical design.

52. The scope and quality of the Tier 4 household surveys, however, are a concern¹⁷. These are expected to contribute to a detailed understanding of the spatio-temporal relationships among agricultural management practices, ecosystem services and human well-being. The sample size has, for costs reasons, been reduced from 200-300 households in each tier 4 landscape in the original project plan, to 30 households in the 2013 sampling frame. This makes it unlikely that the sample will be representative of the landscape; large enough to span the full range of agricultural, environmental and household circumstances; or large enough to disaggregate by important household characteristics (e.g. gender, age and socio-economic category). The intention of coinciding the household surveys with national surveys, thus allowing the data sets to be pooled, has also been difficult to realise. The project's Technical Council is aware of the potential limitations of the number of households per landscape and is planning a review in 2015 of both the sampling strategy and the household data collected so far. The comments raised by the evaluation should also inform that review.
53. The household survey omits a number of important questions (e.g. finance, credit, remittances, health, shocks, assistance and groups) that are asked in national version of the LSMS survey and that would appear to be directly relevant to an understanding of poverty and agricultural intensification. The evaluation team accepts that it is important that the questionnaire does not become even longer, but there would be merit in a review of the questionnaire at this stage. The quality of the data collected also needs to be reviewed. For example, reliance on a single team of Vital Signs household enumerators means that crop data from the different landscapes will relate to different years and/or will be unrealistically dependent on farmer recall from many months ago. Vital Signs' view is that the risks these pose for data quality and utility are manageable.

Policy relevance

54. Relevance in development assistance is normally defined as a measure of the extent to which the intervention meets needs and country priorities, and is consistent with the policies of governments, donors and other stakeholders. At a general level, a case can be made that Vital Signs is relevant. Balancing agricultural intensification, ecosystem services and human welfare is an important issue, and existing data are poor, patchy, and/or unintegrated. Certainly, respondents interviewed during fieldwork expressed near universal interest in and support for the general concept. By this relatively undemanding test, the design and implementation of Vital Signs is relevant.
55. By a more demanding definition – the likely utility or influence on policy – there is more reason to question whether the monitoring system is 'policy relevant' as currently designed and implemented. While some steps have been taken to discuss data needs with policy makers (e.g. in the national workshops), in the main there has been a huge under-investment in this area compared with technical design and data collection. This is in part a question of available resources, but more significantly it reflects the priority attached by Vital Signs and the Gates Foundation to establishing data collection in three countries during phase 1. The Regional Policy Profiles have not yet been produced in the form intended. These were expected to provide the understanding of the policy environment and institutional landscape necessary to inform system design.

¹⁷ Note, the social surveys were not included in the scientific review. Comments on these reflect the views of Implementation Review team.

56. Furthermore, ‘policy relevant’ is not a static, one-time concept. The value of any information can be expected to depreciate over time as other information becomes available or the nature of the policy challenge shifts. However, plans to establish on-going Policy Nodes as the means to understand and track the needs of identified beneficiaries have not been implemented.
57. None of the above means that Vital Signs cannot be policy relevant. But this is an area that requires much greater attention and investment. The nature and scale of the policy challenge faced by Vital Signs makes it even more important that it does the three things outlined in its original project plan: commission detailed Policy Profiles for each region; identify, establish and support appropriate Policy Nodes in each country; and design data collection and analysis based on this. National policy influence is likely to require local analysis involving some national staff and/or institutions with links into the policy process. This will be essential for legitimacy and policy traction.
58. This also has implications for staffing in the project at all levels (international, regional and national). Vital Signs will need a wider and more policy-skilled team if it is to address the challenge of policy relevance in the countries where it is working, as well as regionally.

Significant outstanding risks

59. Three significant risks are identified from the current arrangements under objective 1. We recognise that Vital Signs is still only in its third year of operation with another 10-11 months to run. As such, the opportunity exists to address these risks in a reasonably timely manner.
 - The first of these relates to the as yet unproven cost-efficiency of design. Planned development of a cost-benefit framework to analyse information needs is work in progress. Once this first phase of data collection and analysis has been completed, the quality assessed and feedback obtained on utility from partners and target users, there would be merit in reviewing the costs and benefits of all the data collected and data recording methods, and the availability of existing alternatives. This particularly applies to the Tier 4 household surveys.
 - The second relates to concerns specifically about the adequacy of the Tier 4 household surveys. There is reason to doubt whether the Tier 4 household surveys will produce information of sufficient accuracy, precision and insight. They currently account for approximately 50% of the data collection costs. The design and implementation of these surveys need review, and alternatives considered¹⁸. Cutting the sample size and scope of these surveys to fit the budget available is not a defensible approach. A larger sample size and a larger enumerator team may be required. Consideration may also be given to adding to/replacing part of the quantitative survey effort in the landscapes with a qualitative research element, to aid understanding of the interplay between agricultural practices, ecosystems services and household characteristics.
 - The third relates to the unavoidable risk of limited policy relevance. As discussed, this is a challenge for all monitoring systems. In part it is a function of the messy, complex and ultimately political nature of policy making. In part, it is a function of the timeline for a long-term monitoring system such as Vital Signs that is still in its early stages. However, it is also a function of the engagement with target users in defining needs. There is an inevitable tension

¹⁸ This would include alternative sources of household data or movement of E-plots to areas where the LSMS enumeration areas to increase the extent of collocated data.

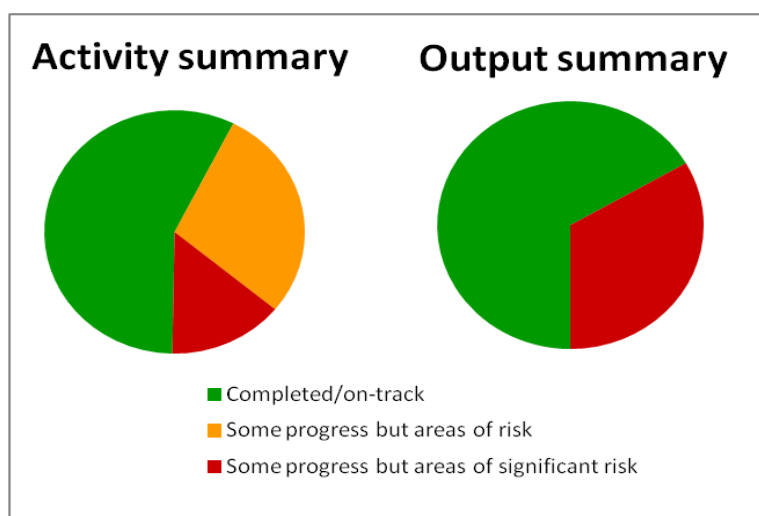
between a global/regional monitoring system, requiring cross-country standardisation and control, and a nationally-relevant and responsive system tailored and adapted to local needs. If any system is not tailored to the local context, and if legitimacy and ownership are not prioritised and built from the start, achieving use and policy influence at a national level will be more difficult.

4. Empower local organisations with the capacity for sustained monitoring – Objective 2

Progress towards outputs

60. This part of the results framework demonstrates the most progress to date against planned activities and outputs (see chart). Annex 4 provides a more detailed summary of assessment and ratings for each activity and output included under this objective. In particular, progress is evident in:

- The project’s own governance and financial management systems have been established and are functional;
- Local implementing partners have been identified in (now) three countries, with field teams trained, funded (in principle) and operating in two of those;
- Delivery of the IT infrastructure is largely on-track, although this output is still sensitive to further delays.



61. Echoing experiences under Objective 1, less progress has, however, been made in two important areas:

- Engagement of local decision makers through the national Policy Nodes or other bodies; and
- Establishment of an institutional framework for (on-going) data collection, beneficiary engagement and dissemination.

Key issues for progress towards the objective

62. In considering the prospects of achieving objective 2, there is a clear disconnect between our assessment of progress against the results framework (as defined) and our judgement of the risks to achieving objective 2. This is explained more by the design of the results framework, and the fairly narrow perspective on “capacity” implied. For our part, we see capacity challenges somewhat differently. We discuss these issues under two topics: capacity building for implementing partners; capacity building of the wider monitoring system.

Implementing Partners

63. Almost all of the capacity building activity undertaken by Vital Signs to date has been directed to the field teams of the two Implementing Partners: Tanzania Forest Conservation Group (TFCG) and the Council for Scientific and Industrial Research (CSIR) Ghana¹⁹. The project has delivered intensive training in the data collection methods, conducted mostly by staff from the Earth Institute and CSIR South Africa but with additional training inputs from the National Bureau of Statistics (NBS) in Tanzania and ICRAF in Ghana (Table 4.1). Both teams received further training following the initial sessions, on soil sampling, water gauge installation and data recording and entry. There has also been regular input to both teams on the changes in protocols and data entry requirements from the Informatics Manager (based in the Africa Field office in Nairobi).

Table 4.1 Training provided by Vital Signs (training days)

Topic	Tanzania	Ghana
Biophysical surveys and protocols	16	13
Socio-economic surveys and protocols	12	10
Water gauge installation and use	5	4
Data entry, recording , tablet use	3	1
On-the-job training (measurement)	-	4
Planning and reporting, job descriptions, budget review	4	-
Total	40	32

64. The training provided has been well-received and highly appropriate. During the course of the country visits, the evaluation team met with representatives from the field teams in both countries and was impressed by their quality, understanding of the data collection and uploading methods and commitment to the task. Some team members in both Ghana and Tanzania are already sufficiently skilled and confident in their respective areas of responsibility to train others.

This has happened already in the case of the training delivered to CSIR Ghana (with some TFCG input) and there are plans to involve staff from both Tanzania and Ghana to train the new team in Uganda. That said, the Tanzanian team identified a need for further technical training, particularly on hydrology and use of measuring equipment. CSIR Ghana has not requested further training, possibly reflecting the higher qualification levels of its staff.

65. Capacity development of the teams (in terms of the knowledge and skills for data collection and upload activities) is a notable achievement of the project. It has been a significant effort for the project but critical to the overall successful. The time and resources required to address training needs appear to have been significantly underestimated at the design phase. In view of the relatively similar levels delivered to both TFCG and CSIR Ghana and challenging nature of some of the protocols, this appears to reflect unrealistic design expectations rather than weaknesses in the choice of partners.

66. In the case of CSIR Ghana, almost all team members are full-time employees and the skills gained can be considered ‘institutionalised’, subject to the usual risks associated with applying new skills

¹⁹ Note, CSIR-Ghana and CSIR-South Africa (one of the Vital Signs consortium organisations) are unrelated organisations

and knowledge in organisations. For TFCG, team members are on contract for the duration of the grant agreement with Conservation International. Part or all of the capacity may therefore be lost to TFCG if and when their participation in Vital Signs comes to an end, but not necessarily to the country.

67. The second major area of investment in capacity has been the supply of field equipment for soil sampling and water and weather measurement. This has not been without problems however: delays to receiving equipment in Ghana due to local processes for tax and customs clearance; problems locally sourcing batteries and chargers for water gauges. We also have some sustainability concerns about the some of the equipment supplied (Box 4.1). Rain has been a challenge to the functionality of some of the equipment and both biophysical team leaders stated a need for waterproof equipment, (paper, pens, cameras and tablets etc.), which has not been supplied. Teams also questioned

whether there is enough equipment to do the work efficiently and at sufficient pace; requests for additional equipment enable teams to divide have not yet actioned. Our general sense is that choices about the allocation of at some equipment appears driven by costs than operational requirements in the two countries.

68. Notwithstanding this broadly positive picture, two main limitations in the assistance provided are evident:

69. Capacity development has focused almost entirely on data collection upload. Other critical elements of project – data analysis, stakeholder engagement, dissemination, etc. – appear completely outside the scope of the arrangement with the project. Elements of Vital Signs’ work are certainly challenging, but this represents an opportunity missed. example, both Implementing Partners have some existing capacity for data analysis yet the opportunity to bring them

Box 4.1 Equipment supply in Ghana and Tanzania

Vital Signs is supplying some new hydrological and meteorological equipment where the existing network has gaps. The review team did not undertake a detailed review of this new equipment (ie. number, type, manufacturer, location, etc.). However, the team was informed that some of the equipment provided to supplement existing national monitoring systems is of a different manufacture and therefore different use, service and maintenance requirements.

The Technical Council’s view on this is that Vital Signs is not replicating national systems and the equipment provided is WMO compliant and fit for its purposes. Vital Signs places no requirement on the national system to operate or maintain the equipment..

However, this misses a basic point about whether Vital Signs, and other donor projects, help or hinder national monitoring systems. In the case of Ghana, for example, the meteorological agency is already struggling to maintain a shrinking network of monitoring stations, including 46 automatic stations from two manufacturers. Other donor-supported projects are exacerbating this problem by establishing new stations outside the national network, providing new equipment, and assuming that the agency has the resources to maintain the new stations after the project. Setting up parallel monitoring systems makes short-term sense but risks making no long-term contribution.

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alongside during the design and development of the analytical approaches, or data analysis (occurring in the primarily in the US and Kenya – ICRAF). Although expressing a strong interest, neither Implementing Partner sees the data, nor are they aware of any plans for them to do so. There is a lack of clarity here given that the grant agreements state: *“The Work shall remain the intellectual property of Grantee, provided however that Grantee hereby grants to CI, and to any applicable funding source,... a non-exclusive license to [use] the Work”*.

70. Second, in spite of some “on-the-job” assistance provided with, for example recruitment of field staff, the focus has been on technical capacity while broader organisational capacity development has not been an objective. A number of observations are relevant here:
- While specific needs vary, organisational capacity is frequently a limiting factor for many public sector and NGOs in developing country settings; the Vital Signs Implementing Partners are no exceptions to this and, as experiences in Ghana with financial management demonstrate, such factors can easily put at risk any technical achievements that have been made ;
 - In spite of an avowedly “experimental” approach to partner selection – to explore the implications of different organisational and institutional settings – in practice, Vital Signs’ approach has not materially varied between the different types of implementing partners;
 - The Technical Council bodies have significant organisational strengths and experience that, in principle, could be a significant value-add of the partnership for Implementing Partners;
 - In spite of the language of partnership, we found no evidence of effective partnering arrangements; the arrangements with Implementing Partners are far closer to a contractor-vendor relationship, relating to the supply of field data (see Box 4.2).
71. In the view of the evaluation team, achieving the objective of empowering local organisations with the capacity for sustained monitoring requires more investment in the relationship with Implementing Partners. But ultimately, it is for Vital Signs to determine the best strategy. However, where partnership is the aim, more input to build the relationship will be needed.

Box 4.2

Characteristics of effective partnerships

- Shared strategic vision and objectives for the partnership
- Clarity on partners’ roles, functions and resources
- Clear governance arrangements, partner responsibilities and accountabilities
- Effective communication and review processes and mechanisms to adapt as needed
- Proportionate benefits/advantages of the partnership for individual members

Assessment of Vital Signs (VS) – Implementing Partner (IP) relations

- Very weak: Limited in-depth knowledge among IPs about overall purpose and application of VS, constraining IPs’ scope to promote understanding of VS nationally. Project design/proposal document not seen by Country Field Directors.
- Limited: Clarity is limited to data collection and upload roles and obligations of IPs. Lack of clarity about data access while potential wider roles and functions of IPs and VS’ wider role (beyond funds and training) are not included in scope. No formal position on ‘subsidiarity’ principle.
- Limited: Clarity on grant accountability, reporting and compliance obligations. Respective and mutual responsibilities and contributions of each partner to advance the VS objectives however not included in the scope.
- Very weak: Communications on field implementation issues effective but there are no formal review mechanisms for the governance, resources and objectives of the partnership arrangement. Termination arrangements are standard contractual clauses.
- Limited: For the IPs the primary benefit appears currently to be financial; potential value to their strategic missions is limited by narrow scope of engagement. Broader contributions to the partnership are not part of the grant agreement;

Wider monitoring system

72. The evaluation has applied a broader definition of “monitoring”, to include not only data collection arrangements but the arrangements for analysis, intermediate and end uses, and the promotion and advocacy that will be required if the capacity is to be in place to sustain the system. Although this differs from the scope expressed in the results framework, it is not out of line with views elsewhere²⁰. However, one clear implication is that, given the range of roles and functions included, it is highly unlikely that a single Implementing Partner in each country will be adequate for the project’s purpose. This does not mean that formal grant agreements need to be established with multiple organisations. Rather that the project will need to find effective ways of engaging with different parts of the system to advance the overall objectives.
73. The project has taken steps to engage the wider system. The basis for good relationships has been established in Tanzania with the SAGCOT Secretariat and the Ministry of Food and Agriculture’s (MOFA) Environmental Monitoring Unit. In the case of the latter, Vital Signs is helping to build

²⁰ At the Tanzania Stakeholder Workshop (2012), a country representative commented: “Vital Signs must take care in finding the right partners, and ensure that it involves multiple sectors and institutions as stakeholders (it is best to involve a wide range of stakeholders at this early stage, so they feel ownership).”

capacity with respect to the Agriculture Climate Resilience Plan. In Ghana, where the project has been involved for a shorter period, limited linkages have been established to date.

74. Vital Signs has also established MOUs with a small number of organisations: Office of the Vice President and National Bureau of Statistics (NBS) in Tanzania; Ministry of Environment, Science, Technology & Innovation in Ghana. The extent to which these frameworks are guiding joint working between Vital Signs and the organisations, however, appears minimal. In the case of NBS, for example, the Chief Executive was unaware if the MOU was still active, while operational inputs from NBS to support quality control of data in the field have been stopped due to lack of funds.
75. Some broader observations about the challenges of building capacity in the wider system can be made:
 - Even allowing for the early stages of the project, the scope of engagement with the wider system has been limited. This in part reflects the limited time and resources available for overseas-based, project staff to spend time developing in-country relations. But it also reflects the limited scope of the role of Implementing Partners, who are not charged with identifying and developing relations with other useful actors. Building the capacity of the wider system to realise Vital Signs' ambitions requires sustained engagement.
 - The relationships established to date (outside of the Implementing Partners) have been episodic in nature and in many cases reflected the personal contacts of Technical Councils. A relational-driven approach is reasonable in the early stages but entails two risks: first, unless it shifts to a more organisational-based arrangement, it will be vulnerable to personnel changes; and second, there is the obvious risk that the most important links will not be made.²¹
 - There is a strong sense that Vital Signs is not making use of existing capacity to advance its agenda. We found no substantive contacts with the research/university community²² in spite of significant interest in the science and technical aspects (and reference to the involvement of the University of Sokoine in the project proposal). Similarly, at a regional level, the CAADP process provides a significant, African-driven framework linking regional and national researchers and policy-makers but the project has not established contacts. Internationally, the CGIAR research programs (in particular farming systems research) provide an avenue of users and influence for the project and contacts are more developed in this sphere, with links established with ICRAF, IITA, Bioversity, the HumidTropics CRP and Africa Rising. Of course, there are limitations in all of these, but in practice the challenge is to work with what there is, rather than what would be ideal.
 - The Regional Strategic Analysis and Knowledge Support System (ReSAKSS) identifies not only the importance of developing analytical capacity within policy and research institutions but of developing the capacity of policy makers to “have the ability and motivation to demand and use

²¹ For example, while the project has an MOU with the Office of the Vice President in Tanzania, informants repeatedly directed us to the Office of the Prime Minister, given that body's primary role in convening government on cross-cutting issues. Vital Signs informed us that they had met with the Office of the Prime Minister, but the informants we met there had no knowledge of the project. Again, the Environmental Management in MOFA, with whom the project has worked to build engagement, felt that Vital Signs should be engaging with the MOFA's Director of Policy and Planning (and the Monitoring and Evaluation division within that directorate).

²² Beyond, that is, the involvement of Professor Oteng-Yeboah (University of Ghana) in the Oversight Council.

the information”.²³ Demand needs to be informed and stimulated through consistent and targeted promotion of the methodology and potential applications.

76. It is important to stress the above does not imply that Vital Signs should be responsible for building the capacity of all the organisations potentially included in the system. Rather that it needs to be under the capacity of the system and how it can facilitate and support that with a view to sustaining its value in the future.

Significant outstanding risks

77. There above assessment points to two significant risks to achievement of the objective:
 - The narrow approach currently to capacity building for Implementing Partners poses a risk for longer term sustainability. At present, their potential longer-term value to Vital Signs is not being realised or developed. At the same time, the lack of attention to organisational weaknesses means that the gains achieved with the project may be subject to reversals in the future.
 - Second, the project currently lacks an explicit analysis of the wider system, on which to base a strategy to build capacity for sustained monitoring and guide its engagement. The project has not systematically mapped local organisations and analysed their potential roles (with respect to Vital Signs) and their current capacity.

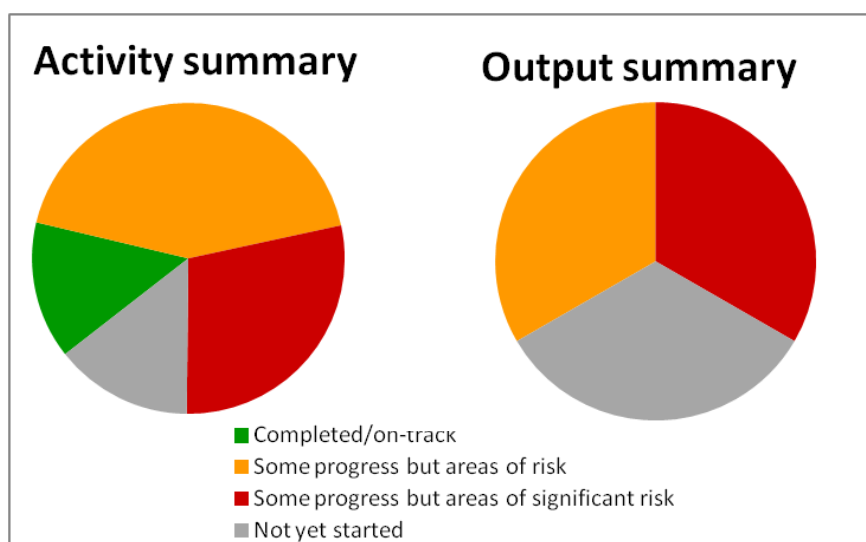
²³ ReSAKSS Working Paper No. 4, 2008, Strategic Analysis and Knowledge Support Systems (SAKSS) A Guidebook for Practitioners

5. Deliver integrated information products - Objective 3

Progress towards outputs

78. The summary assessment in the chart below reflects progress against the activities and outputs identified in Vital Signs’ results framework. A more detailed summary is provided in annex 4. While there are important elements of this objective that have not yet started, those elements that are underway are considered, overall, relatively high risk. This assessment reflects:

- The limited scope of the Regional Profile Reports, compared with what was planned at the proposal stage;
- The limited scope of training provided to Implementing Partners compared with plan;
- The lack of a formal dissemination strategy, addressing the range of Vital Signs potential outputs and clients; and
- The challenges that remain in producing the customised dashboards



Key issues for progress towards the objective

79. This section assesses the status of the project in relation to objective 3. The assessment is based not only on performance against the results framework but also on a broader consideration of the relevance and sufficiency of the actions taken or planned to date by Vital Signs. We adopt a broad definition of products, to include not only the outputs of analysis based on the data collected for Vital Signs but also the tools and frameworks developed by the project to guide that collection and analysis.

Quality of products

80. The technical quality of Vital Signs’ sampling frame, protocols and threads has been considered under objective 1 (Design). The discussion here is limited to the Atlases and the data platforms and visualisations (in development).
81. The Atlases are high quality documents. Informants, who were shown an Atlas, were universally impressed with their novel and comprehensive nature. There is no equivalent sourcebook available

in any of the countries targeted and the project’s success in compiling and packaging the available data from such a wide range of sources – the main purpose of the atlases – was recognised as a significant achievement. However, this generally favourable assessment is tempered by three concerns:

- First, the Atlases reflect the limitations in available data that Vital Signs is seeking to overcome; in that respect, they are not representative of the intended value of the Vital Signs system;
 - Second, the actual data underpinning the maps are not available in the hard copy, while access via the website has proved problematic (see below); as such, they are relatively static with limited utility for analysis;
 - Finally, impressive though they are, they nonetheless fall significantly short of the ambition expressed in the project proposal for the regional profiles²⁴. Furthermore this limitation has had significant implications for other project objectives.
82. Significant effort and resources going into the creation of the flexible data platforms to enable use of the data in multiple (unforeseen) ways and construction of dashboards to improve accessibility to results. The data platform providing access for project researchers has been completed but in other areas (notably visualizations), there has been some delay. In part, this is due to contracting challenges (see “Management and Implementation”); in part, due to the pace of data collection and uploads from the field, on which the work depends to a degree; and in part, because the work was put on hold in order to prioritise the migration of data into a single database, a task that has proved more complicated and time-consuming than expected. The deliverable date for the IT system has been pushed back 11 months (from April 2014 to March 2015) in consultation with the Foundation. At this stage, representatives of the team conducting the work are confident of delivering the necessary products by planned contract completion (March 2015), though some risk is attached to this.
83. Regarding quality specifically, the competence of the team contracted and the Scope of Works to which they are working provide high assurance about the likely quality of the planned outputs. Nevertheless, significant residual risk remains, primarily from the continuing uncertainty about what visualisations will be most effective and more broadly about whether the visualisations can ever, realistically, deliver the anticipated utility to the range of users envisaged.
- Regarding the former point, the team involved in developing the visualisations are aware of the importance of an iterative design process based on active engagement with target users. To date, there has been some work with possible end-users but the scope of these interactions has been limited and the feedback received mixed. As yet, the project has not established mechanisms to support iterative consultation and has not developed a systematic engagement plan. Proposed workshops that would have provided an opportunity to further test thinking have been delayed.
 - The latter point relates more to the nature of the policy making process than the technical demands *per se* of flexible data platforms and the dashboards. Dashboards can provide a useful way of presenting complex data but unless a user has a good grasp of the underlying relationships between the indicators shown and their objective function (or has good access to

²⁴ “Each Regional Profile Report will consider: a) governance and policy mechanisms; b) key stakeholders and institutional arrangements; c) current capacity for monitoring; and d) existing biophysical and socioeconomic data.” Vital Signs Project Proposal (page 16)

someone who has), then the value is likely to be more limited. The fact is that framing the questions to be addressed in the first place, interpreting results and translating these into different policy options all requires skill and expertise. The project is not working to a clear model about how these gaps will be bridged. Dashboards are likely to have merit, but as part of a package that addresses the full range of challenges. Scope for Vital Signs to play that role directly will become increasingly limited as the system expands. It requires local capability to provide consistent, tailored and responsive analysis and support.

Dissemination

84. We found very limited awareness of Vital Signs in all countries visited. While our sample purposively included informants who are external to the project, they nevertheless represented important and potentially influential stakeholders, drawn from senior civil servants, the public sector, academic institutions, the private sector and CSOs. A number expressed genuine surprise that they had not heard of the project.
85. In keeping with this finding, we also found very little familiarity with the Atlases. Notwithstanding their limitations, most respondents expressed great interest in them when shown. Unfortunately, relatively few have been printed, while planned access via the website has proved problematic in Africa due to bandwidth issues. The planned distribution via flash-drives also appears to have had problems. A decision was taken subsequently by the Gates Foundation not to provide additional funds for a further print-run of hard copies, for a mix of administrative reasons and questions regarding its priority. While it is true that from the perspective of Vital Signs' innovation, the Atlases may be viewed as irrelevant, as a 'calling card' for the project, to raise awareness and profile, they have potentially enormous value. Given the low levels of awareness about Vital Signs generally, there would be merit in revisiting decisions regarding Atlas production/distribution, while they still have some currency.
86. A similar story can be told for the tools developed by the project, such as the sampling frame and data collection protocols. During the course of fieldwork we met representatives from academia, the private sector, INGOs and regional intergovernmental bodies that are all engaged in work with potential linkages to Vital Signs and all of whom expressed interest in not only results but methods. For example, the Executive Director of the West African Science Service Centre on Climate Change and Adapted Land Use (WASCAL) informed us of a planned workshop in December 2014 for member countries to discuss harmonized data collection protocols and standards.
87. On the positive side, the project has established links with some important initiatives/processes in Tanzania; namely the SAGCOT development corridor and Ministry of Food and Agriculture's Agriculture Climate Resilience Plan. And in part, the limited awareness reflects the restricted role in dissemination afforded to Implementing Partners and the difficulty for overseas based staff in building local relationships and awareness. But more broadly, the project has not yet developed a structured approach to defining how the different strands of output – tools, data, analysis, visualizations – can be most effectively disseminated in a sustainable manner.

Significant outstanding risks

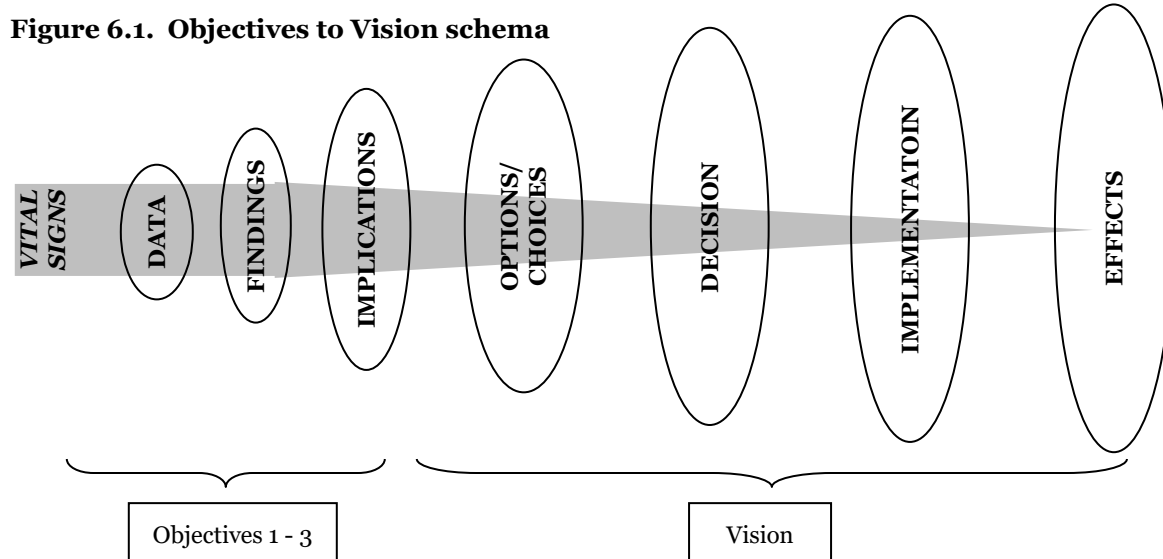
88. Two significant risks are evident from the above discussion. First, that an overly narrow concept of the Vital Signs' product may limit the value that is realised from the project's investment. Second, limited promotion and 'ground-readying' work to date risk delaying acceptance and uptake of the project's messages.

89. The overriding view has been that substantive engagement with target users must await the availability of ‘product’. The focus on an ‘end product’ has influenced the project approach in number of respects: much user engagement has been ‘back-ended’ in the project timeline (indeed, is still to happen); options to develop illustrative tools, using dummy data, were not pursued from the outset, attention has been concentrated on Vital Signs production while opportunities to mobilise intermediate users of Vital Signs data have not been explored.
90. For the evaluation, this approach raises a number of questions for the project strategy in the future:
- First, is the concept of ‘product’ clear? if this means proven relationships between the key environmental, agricultural and human well-being measures, this may not be available for another 10 years. In practice, Vital Signs has already produced outputs of potential interest to a range of users.
 - Is the current notion of an ‘end product’ produced by Vital Signs the most likely to maximise value? Value may be increased by developing a more diverse product concept for Vital Signs – where for example the project supports a range of analyses conducted in-country and in-region using its data and tools.
 - Third, is the concept of ‘target user’ clear? even if restricted to ‘policy-makers’, there are in practice a range of actors involved at different points in the policy making process, whose may make use of Vital Signs in different ways.
 - Fourth, is sufficient attention being paid to demand creation? Vital Signs data will in practice enter a contested field, potentially contradicting existing ‘truths’. In these circumstances, it may not be the preferred source (regardless of technical merit) without sufficient preparation and readying of the target audiences;
 - Finally, has there been sufficient market engagement? Product development typically entails significant market dialogue and testing to minimise the risk of ‘full production’ of a flawed concept; while there has been some engagement, this has not been a major strand of the project.
91. For the evaluation, there is merit in Vital Signs developing a more segmented dissemination strategy. In doing so, it could usefully look to approaches used in the field of advocacy – in which Vital Signs’ consortium organisations are almost certainly experienced – for insights regarding how to raise awareness of the potential value add of the project²⁵.

²⁵ There are a range of resources available to inform Vital Signs’ strategy: Start and Hovland (2004) *Tools for Policy Impact*, ODI in addition to a range of tools, provides a useful schema of the influencing options based on the extent to which any strategy is evidence or values based and whether it has an inside or outside track with policy makers. Keck and Sikkink (1999) *Transnational advocacy networks* provide useful typologies of both the tactics advocacy networks can use and the influence(s) they may aim to achieve. Teles and Schmitt (2011) *The Elusive Craft of Evaluating Advocacy*, Stanford Social Innovation Review, provide insights in adopting a portfolio approach, primarily for the evaluation of advocacy efforts, but relevant to advocacy strategies generally. Stachowiak (2013) *Pathways for change: 10 theories to inform advocacy and policy change efforts*, ORS Impact provides a summary reference of available theories of policy change and advocacy tactics.

6. Vision: Better decisions, more sustainable agricultural development in Africa

92. This section considers the progress and risks faced by Vital Signs in moving from objectives to vision. Given the stage of the project, this is necessarily more tentative. Figure 6.1 provides a schema of the project’s theory of change. The figure is necessarily stylised but serves to emphasise two important points from the evaluation’s perspective. First, the process of moving from objectives to vision involves significant challenges and hurdles. Second, the span of project influence declines relative to “other factors” as the process moves further away from project objectives.



Vital Signs is not unusual in this regard, but the issues are particularly acute given the length and complexity of the results chain that lies beyond the boundary of the project, and the long length of time between first data collection and first trend results (9 – 15 years). While outcomes will always be unpredictable in this setting, the project can nevertheless adopt approaches that are more suited to these conditions. We consider the project’s approach at the objective-to-vision level with respect to two fundamental challenges:

- How evidence informs decisions
- How decisions affect outcomes

How evidence informs decisions

93. The project has taken steps to position itself to inform decision-makers, by drawing on the personal networks of Technical Council members and through the establishment of the Oversight Council, composed of members who have influence regionally and globally. That said, whether the project is mobilising the full value of the Oversight Council in this regard is less clear.
94. More broadly, the approach to positioning the project has so far been largely opportunistic. This is not necessarily ‘wrong’ but because the activities are not situated in an explicit, policy influencing

strategy, they can appear somewhat *ad hoc* and give the sense that they are being pursued around the margins of other ‘priority’ activities.

95. For the evaluation, there are two important closely related issues to consider:

What decisions is Vital Signs likely to influence?

96. Some work has been done to examine the sort of decisions different actors might use Vital Signs for, to inform the data analysis and the form of results presentation provided by Vital Signs. However, this has been quite limited to date.

97. Importantly, the work to date has not explicitly set out what sort of questions will Vital Signs be able to answer and when. There is no timeline that aligns the expected evolution of Vital Signs data capabilities over time with the type of decisions likely to be addressable at different points. For the evaluation, it is important that the project acknowledges the potential tension – at least in the short-term – between the immediate and forward-looking nature of decision-makers’ interests and the capabilities of a longer-term monitoring system that is still in its early stages.

Is the approach well-suited to how evidence influences decisions?

98. To consider this question, we have drawn upon Weiss’ seven models of how evidence is used to inform policy decisions²⁶. At present, the project’s approach can be characterised as a hybrid between the “knowledge-driven” and “problem-solving” models (Box 6.1). The former is common

Box 6.1: Success conditions for Knowledge-driven and Problem-solving models of research use

Under the *Knowledge-driven model*, research identifies and shapes opportunities for public policy and decision-making; the direction is primarily from research → policy choice.

The conditions required for policy-making bodies to be receptive to research results can be summarised as:

- New knowledge that is compelling and authoritative,
- Findings that are readily converted into clear policy implications and decision choices;
- Consensus that the condition addressed is pressing and has been fully politicised and debated and the parameters of potential action agreed.

Under the *Problem-solving model*, specific questions are defined in advance and evidence sought or specially commissioned. In this case, the direction is still linear but the steps different: pending decision → missing knowledge identified → research → interpretation in the decision context → policy choice.

The success conditions under this model are:

- Well-defined decision situation;
- Policy actors with a clear idea of goals and acceptable alternatives;
- Policy actors who have responsibility and jurisdiction for the decision;
- An issue whose resolution depends at least in part on information (which can be defined clearly);
- Research findings that are clear-cut, powerful, timely and reduce uncertainty regarding choices;
- Research findings that do not run counter to strong political interests.

²⁶ Carol H Weiss, 1979, *The many meanings of research utilisation*, Public Administration Review, September/October.

in the physical and natural sciences, but less so in the social science sphere where land use policy is made. The latter is a common approach behind funding of research for development; indeed the tendency of research funders to search for this type of impact can, according to some authors, create the unhelpful impression that such impacts are the norm²⁷. There are success examples of the direct influence on decision-making implied by this model, but it is not common for all the necessary success conditions to be in place at once.

99. In practice, the project is far more likely to face a combination of Weiss' "Interactive" and "Political" models, along with periodic "tactical" use of its work²⁸. In the "Interactive" model, those developing policy seek information from a variety of sources. The process is not linear, from research to decision, but a disorderly set of interconnections and to-ing-and-fro-ing. Research is pooled along with other sources of information, seldom is the body of evidence conclusive and even rarer is it convergent. In this model, the use of research is only one part of a complicated process that also uses experience, political insight, pressure, social technologies, and judgment. It is applicable not only in face-to-face settings but also in the multiple ways in which intelligence is gathered through intermediaries and brought to bear on decision-making.
100. In the "Political" model, decision-makers' views are set and are unlikely to be receptive to new evidence. In such cases research becomes ammunition for any side that finds its conclusions supportive – which at times risks use of conclusions out of context. To the extent that the research is accurately interpreted, however, its use to reduce uncertainty for one group and support its position is legitimate and may actually increase the likelihood of it making a difference in the outcome.
101. These models suggest that policy-making is complex and political, outcomes are unpredictable and there are no 'hard arrows' linking research evidence to decisions. If these are a closer approximation to the reality of Vital Signs' vision (the project's theory of change) than the knowledge-driven and problem-solving examples, then what are the possible implications for the project's theory of action? The following observations are offered:
 - The precise mix between the models is likely to vary according to the political economy of each country; understanding that is an important part of building a strategy (Box 6.2);
 - While the process is complex, some aspects are simpler and more tractable – for example, different channels of influence affecting decision-making can be mapped, understood and prioritised, even if understanding is subject to change and adaptation;
 - In some settings, where there are multiple potential channels of influence affecting decision-making, a 'portfolio' approach to influence may be the most effective strategy over time. However, engagement may require sustained, on-going input to establish the necessary relationships;

²⁷ DFID, 2014, *What is the evidence on the impact of research on international development?* A DFID Literature Review

²⁸ Weiss also identifies a "Tactical model" whereby decision-makers associated themselves with research projects to show that they are "doing something" or to advance their own personal status, but with little interest in the results.

- Even in less open, contestable settings, reliance on a single main channel of influence may be risky, with greater vulnerability to changes in personnel, to tactical use of research and dismissal if politically unpalatable to the user;
- Given the vulnerability of evidence to political concerns, the ‘legitimacy’ of the information and messengers is likely to be an important factor in managing political risk;
- Ensuring information and results are broadly available, understood and usable is also likely to be an important means to manage political risk.

102. These observations are in no way offered as a blueprint. In practice, Vital Signs has yet to engage with the policy and institutional issues in its operating environment, at least in the systematic manner envisaged in the project proposal. They reinforce the message, however, that more careful consideration of these issues is needed to manage the risks inherent in trying to influence decision-making with evidence.

Box 6.2 Political economy and research-into-use

During interviews, we asked informants for their views on prospects for success of Vital Signs and the factors affecting it. One overall message that arose from the various responses is the importance of country context or political economy. The following reflections are offered in this context:

Ethiopia may be viewed as a developmental patrimonial state¹, where resource rents are centralised but the interests of the elite and broad-based development (as an enabler of state stability) are reasonably aligned. Certainly a number of respondents mentioned that Ethiopia (and Rwanda for that matter) were countries where Vital Signs could be effectively implemented, but in this setting, influence may depend on the quality of access to central policy-making bodies. The ‘interactive’ model may play out at a central, technocratic level but influence will ultimately depend on whether the evidence provided furthers the elites’ interests. Decisions may be less contestable and donors’ influence lower.

Tanzania maybe viewed as a neo-patrimonial state, where rents are more diffused and short-run and development depends on alignment with the interests of the particular groups and individuals that have captured different parts of the state at any given time. In this setting, different interest groups can use research to their advantage to access resources but achieving actual change is often difficult as the technocratic infrastructure is much weaker and interests also mediate implementation. Development partners may have more influence but again, implementation challenges may constrain this: one summary of Tanzania’s response to CAADP suggests that it has simply added new acronyms to the long list of policy documents and plans and to the list of investment commitments, exacerbating existing lack of prioritisation and no significant shift in the share of public expenditure allocated to the agriculture sector².

Ghana can also be viewed as neo-patrimonial, but with pluralistic democratic structures operating alongside. Some policies may still be designed more for external legitimacy, while decision-making reflects other priorities, but policy debates may involve a wider range of interest groups with more (democratic) legitimacy and developmental ambitions. Performance trends in the agricultural sector suggest scope for successful implementation, with the influence of development partners potentially high.

¹ This characterisation draws heavily on the recent CLEAR report *Demand for and supply of evaluations in selected sub-Saharan African countries* (2013).

² Poulton and Chinsinga, *The political economy of agricultural policy processes in Africa, with a focus on CAADP*, Future Agricultures Consortium London Policy Dialogue, September 2014

How decisions affect outcomes

103. It is outside the scope of our review to consider this issue in any detail. But it is included here as a critical element in Vital Signs Vision. A recurring theme from the variety of interviews we held was there is abundance of ‘good’ policy – often developed with donor assistance – but much less ‘good’ implementation. Indeed, page 1 of the June 2014 Malabo Declaration acknowledges “... *the challenges faced in the implementation of many [prior] Decisions and Declarations...that should demonstrate Africa’s ownership and leadership to the achievement of goals as enshrined in the 2003 Maputo commitments.*”
104. While implementation challenges also largely outside the scope of Vital Signs, an understanding of these in different settings will be important to inform strategy. For example, in some settings, it may be more effective to influence the World Bank or IFAD than the relevant Ministry in implementation terms. Similarly, the implications of decentralisation programs in different countries for decision-making and implementation may also shape the projects understanding of target audience.

Significant outstanding risks

105. The preceding chapters of the report identify significant risks to different aspects of the project. Collectively, they represent a significant threat to the achievement of the project’s vision.
106. More broadly, the evaluation highlights the risk that the Vital Signs model underestimates the complexity of the policy making process and the challenge of influencing policy with evidence. Recent work on knowledge and policy in development stress the complexity and variability of policy processes. These vary from country to country, issue to issue, and from time to time; are inherently ‘messy’ and political; and are driven by a multitude of factors, not just (and sometimes not at all) by knowledge. In these circumstances, influencing policy with evidence is difficult. A recent DFID review of the evidence on the impact of research in international development has confirmed the lack of capacity, incentives and systems to use research in developing country policy-making institutions.

7. Conclusions and recommendations

107. Vital Signs is an ambitious project. It is seeking to design, implement and establish an effective, efficient, policy relevant and ultimately sustainable monitoring system in multiple African countries and potentially globally. The combination of technical challenge – a co-located and integrated monitoring system covering agricultural, ecosystem and human welfare metrics – scale, scope and speed of implementation makes Vital Signs uniquely ambitious.

108. Furthermore, Vital Signs is working in a very challenging context. There is little evidence that most monitoring systems achieve their objectives, certainly in the simple, input-output-outcome manner often envisaged at design. Influencing policy is difficult. Policy-making is a complex, political process and the role of evidence is uncertain and conditioned by multiple factors. Appropriate policy may be a necessary condition but is not sufficient to achieve desired social, economic and environmental outcomes. There remains a significant ‘implementation gap’ in many countries – the difference between ambitions expressed in policy documents and experiences of citizens on the ground. Sustainable agricultural intensification is sought by many initiatives but as yet achieved by few.

109. Vital Signs has made real and significant progress in its first three years of operation, even though it has not met its original implementation targets. The targets were revised in consultation with the Foundation and any implied shortfall reflects unrealistic design expectations rather than project delivery failures *per se*. That said, the review has identified a number of risks, given its envisioned ambitions (Table 7.1).

Table 7.1 Strengths	Significant risks
Implementation	
<ul style="list-style-type: none"> • Strong leadership by the Executive Director • An implementation model that has been effective in mobilising and establishing demanding data collection systems in 2 (soon to be 3) countries 	<ul style="list-style-type: none"> • Insufficiently delegated/distributed model, not fit for purpose to meet demands as project proceeds • Implementation model ineffective in building ownership and commitment among key participants
Design	
<ul style="list-style-type: none"> • Near universal support for and interest in the project concept • Technical design has avoided a number of the mistakes of other monitoring systems and demonstrates a number of relative strengths 	<ul style="list-style-type: none"> • Integration of biophysical with socio-economic data at risk given weaknesses and constraints of tier 4 surveys (NB household) • Cost-efficiency of design remains unproven • Low prioritisation of institutional/policy aspects during implementation puts policy relevance at significant risk
Capacity building for sustained operation	
<ul style="list-style-type: none"> • Technical knowledge and skills of field teams of Implementing Partners significantly enhanced • Some capacity development among potential users evident as a result of relationship with Vital Signs 	<ul style="list-style-type: none"> • Narrow interpretation of capacity increases risk that implementation gains will be subject to future reversals • Narrow interpretation of the wider monitoring system increases risk that uptake and use are not sustained
Delivery of integrated products	
<ul style="list-style-type: none"> • Quality outputs already produced – esp. Atlases; • Innovative, ambitious use of IT to enhance accessibility • Some end-user involvement in product development 	<ul style="list-style-type: none"> • Overly narrow concept of the Vital Signs’ ‘product’ and delivery responsibilities may limit the value realised • Delays in substantive engagement with target users risks deferring acceptance and uptake of the project’s messages
Influence on decisions, more sustainable agricultural outcomes	

- Status of Technical Council members (personal networks) and influential members of Oversight Council
- Some good relationships already developed

- Underestimating the challenge of influencing policy with evidence limits project impact
- Inadequate acknowledgement of implementation challenges in target countries limits potential impact

110. All this suggests that, despite the progress made by Vital Signs over the first two years, it remains an inherently risky investment. There is a high risk that it will not achieve its objectives, vision of success, or most significant result unless the approach is modified in important respects. Nevertheless, given its potential value, it is worth investing some time and resources to reduce the level of risk, and real opportunities to do so. The following mitigation measures are recommended with this aim in mind.

Recommended mitigation measures

1. *Allocate resources from geographical expansion to refining the ‘proof of concept’*

This measure proposes no further expansion beyond Tanzania, Ghana and Uganda in the next phase to allow time to resolve existing challenges and address aspects of project design which to date have been under-resourced. The measure reflects the assumption that resources will continue to be constrained and therefore space needs to be created within the resource framework to allow rebalancing of effort and attention. This does not advocate a hard stop to activities; data collection and analysis will continue in those three regions and the project may need to respond positively to demand from other countries. However, important building blocks of the project concept are as yet under-developed. A period of focused consolidation would allow the project to:

- revise as necessary the sampling frame, protocols and threads in a controlled manner, based on a structured review of: the utility and quality of the biophysical and socio-economic data collected to date; experience from field-level implementation; feedback from intermediate/end users in the three countries; the planned cost-effectiveness analysis; and the concerns raised in this report (by both scientific and implementation reviews);
- review project management structures and systems (roles, responsibilities, authorities and resources) to ensure they are fit for purpose as the project looks to transition to a more locally embedded model over the course of phase 2. *Roles and Responsibilities Charting*²⁹ is one method that could assist in this regard.;
- address the institutional and policy dimensions of the project concept, which to date have been afforded markedly less time and resources.

²⁹ Role & Responsibility Charting (RACI), By Michael L Smith and James Erwin, 2005. The process involves identifying key processes, the decisions and activities associated with these and the different stakeholders involved. From this, a ‘RACI’ chart is developed, which establishes who Responsible for getting the work done, who is Accountable for the results (i.e. approves the completed work), who must be Consulted, and who must be Informed. The chart is a tool to help explore areas of ambiguity, overlap and gaps. The approach provides a framework to structure and distribute responsibility and authority; establish clearer lines of communication and reduce duplication of effort. Often this results in accountabilities for actions being moved down to the most appropriate level.

2. *Invest in understanding the policy, institutional, analysis and user environment at the national level, as the basis for a national engagement strategy*

Developing a deeper understanding at the national level is a key requirement for managing risks in the future. It is also essential as the project approach looks to transition from *ad hoc* pursuit of opportunities to a more systematic, strategic framework guiding the sustained engagement nationally. Some important elements of this are:

- undertake national policy and institutional profiles for Ghana, Tanzania and Uganda as originally planned (including sub-national profiles where appropriate, as for SAGCOT);
- identify and map the range of potential analysts and users (intermediate and final), including existing policy nodes, in each country; this should include unpacking and reviewing existing assumptions about roles and responsibilities for data collection, analysis, dissemination and delivery to users.
- explore and analyse the market for a range of potential Vital Signs products. Diversify the Vital Signs product concept to include raw and packaged data, intermediate products, one-off reports to address specific national/regional issues, etc.
- codify this learning in national engagement strategy documents, to set out Vital Signs' influencing strategy and provide management tools to assist implementation, guide national level engagement, and build legitimacy, reflection and learning.

3. *Identify and develop engagement(s) at a regional level*

While a sustainable engagement strategy at the national level is crucial, there are policy processes operating at the supra-national level (regional and Africa-wide) that offer important channels of influence. As established processes, they offer an important element of legitimacy in the eyes of both target users and also importantly potential Vital Signs donors. As a regional/global monitoring system, Vital Signs is also well-suited to engage with these.

Identifying the appropriate form and locus of regional engagement will require a regional/African process and product similar to, and overlapping with, the national policy and institutional profiles. Once identified, thought will be required to determine the most effective form of engagement and the resources needed to sustain the relationship in order to realise the potential benefits. Some ideas are set out below but it is important to stress the choice should be informed by analysis by Vital Signs of the mutual value and costs of any potential engagement:

- The CAADP process has more potential than most: as an African-owned commitment and process it has more potential that most to leverage value, where willingness exists on the part of national governments. Similarly, it is difficult to imagine widespread interest among donors if Vital Signs is perceived as disconnected from this process. The recent results framework and Malabo Declaration agreed for CAADP offers a number of potential entry points for Vital Signs;
- Under CAADP, there are engagement options that need further exploration: for example, FARA and the regional research networks, and ReSAKSS represent two possibilities for the project to explore.
- Notwithstanding the advantages of CAADP, there are other supra-national initiatives which offer potential. The Alliance for a Green Revolution in Africa (AGRA) is one such example; under its

policy and advocacy programme, AGRA supports work focused on “Building Capacity for Evidence-Based Policy Analysis and Advocacy”. Another is the Monitoring and Analysing Food and Agricultural Policies Programme (MAFAP), coordinated by UN’s Food and Agriculture Organisation (FAO), which has been working to establish country owned policy monitoring systems and build local capacity for policy dialogue and development.

- Opportunities also exist within the international system of agricultural research under the Consultative Group which has recently issued a new strategy and results framework. For example, Vital Signs might inform understanding about the effectiveness of the integrated systems research programmes, which in turn has the potential to influence, albeit indirectly, the direction of significant research resources.

4. *Develop the project’s approach to partnering at a programme and national level*

The project faces a mix of relatively simple and more complicated decisions with respect to its partnering approach. For those organisations that currently make up Vital Signs – the consortium members and Implementing Partners – the approach to date has been inadequate. This poses significant risks to the project for both ownership and longer-term commitment, as well as more immediate implementation risks.

For the wider group of potential partners, the decision is less clear cut. This is partly because the project has not yet conducted the sort of landscape review advocated under measures 2 and 3 (above); and partly because choices will depend on the project’s objectives and longer term vision for institutionalising Vital Signs, which has not yet been articulated. The preferred future model will affect the form and type of partnerships; providing clear recommendations is therefore problematic. Nevertheless the following observations can inform the project’s approach:

- Regardless of final form, Vital Signs in the future will need to mobilise existing capacity at a national and regional level. Setting up parallel systems is unlikely to be viable politically or financially;
- Not all partnerships will require the same level of engagement and support – some will be better viewed as an alliance, while in other cases, a straightforward contractor model will be appropriate. Determining the approach and best use of resources will require understanding of the (potential) role of a partner and their capabilities vis a vis Vital Signs’ objectives, and Vital Signs’ potential value to the partner. This sort of analysis should be included as part of measures 2 and 3 but maintained and updated to reflect changes in the partner landscape.
- Developing an explicit partnership strategy is not a solution but it is an important step in clarifying the project’s approach and ambitions with respect to partners.

To determine the most suitable models, Vital Signs can draw on extensive experience internationally to inform its approach to effective partnership working (e.g. Partnership Brokers Association³⁰); but it can also look to the experiences of its own consortium members and Implementing Partners, in operating partnerships. Importantly, time and resources will be required specifically to maintain partnerships. Collaborative working is not cost-free.

³⁰ <http://www.partnershipbrokers.org/>

5. *Broaden the skills base of Vital Signs staff at programme, regional and national level*

Vital Signs has been relatively efficient in its implementation and technical approach, given its focus on data collection. However, the above measures advocate a thorough understanding of: the policy and development context; the existing information and institutional landscape; the value of wide and genuine partnerships at all levels; and the investment required to create and maintain these. This will require additional and different skills and experience that complement available technical capabilities and help match project capability to the breadth of Vital Signs’ ambition.

The approach to bringing the necessary skills on board will require careful thought: whether any of these skills can be developed from existing HR capacity, or need to be recruited full-time on to the project, accessed on a consultancy basis or obtained through partnering arrangements. A possible starting point would be to build on a Roles and responsibilities charting exercise with a skills audit. The range of additional skills to be considered cover: policy and political economy analysis; social and economic expertise; partnership/relationship management; advocacy, dissemination and promotion; and programme management.

6. *Consider a more plural, networked model for Vital Signs in the longer-term.*

The project concept and design require Vital Signs to transition from an externally-driven project to an African-owned service. This is a key step in managing a range of risks to implementation, legitimacy and sustainability. The project plans to undertake a systematic scoping process to identify the viable option(s), but this has not yet been done. As such, the evaluation team was not able to examine the merits of proposed options and our recommendation in this area is necessarily more tentative. That said, the following observations reflect a number of learning points from our review and are therefore offered to inform thinking about the future institutional arrangements.

- One option identified at proposal is for the project to transfer to an existing African organisation, once sufficient capacity has been established. The project’s current view appears to be that there is no existing organisation with the necessary capacity³¹ while an organisation, where capacity could potentially be built, has not been identified. We make no comment on the merit of this view, but note the challenges associated with this option: first, while certainly not impossible, any substantial capacity building requirement is a significant undertaking; second, one-to-one alignment between an existing organisation’s mission and the goals of Vital Signs is not likely, and establishing a sound basis for the institutional transition of the project – either through direct transfer to an organisation or some form of joint venture – will be challenging; finally, given the range of skills needed by the project, and the multiple influence channels of potential interest to it, it is unlikely that a single organisation will span all the elements required to realise the full potential value of Vital Signs;
- An alternative option, identified at proposal, is to create a new African organisation. There is obvious merit in locating Vital Signs nearer to the ground in an African organisation and a clean slate approach addresses some of the challenges identified above. But building a legitimate body from scratch appears on the face of it a significant challenge that would take time. Building a body with legitimacy for Africa from outside Africa is even more of a challenge. Equally important, an intractable challenge experienced by the project to date has been finding the time

³¹ Although we are unclear as to how widely held/debated this conclusion is within the project.

and resources to sustain and build engagement at a national level across multiple stakeholders in multiple countries; there is a real risk that in creating a new organisation this major challenge is simply transferred rather than resolved.

- Given these observations, we see merit in the project conducting the systematic scoping exercise as proposed, to identify what exists and use that as a basis to develop the future model. It is easy to say “work with what is there” but much harder to do; however, rather than approaching the question with a like-for-like transition in mind, starting from existing capacities and limitations may lead the project to a very different model but one that is ultimately more sustainable³²;
- Building a more plural, networked approach, however, is challenging, and even with dedicated resources, there are limits to Vital Signs’ influence with existing programmes and organisations. For that reason, we see significant merit in the Gates Foundation using its convening power to help develop the vision for the future model. The Foundation funds many of the potential partners for Vital Signs and as such can play a key role in promoting the necessary collaboration; indeed the Foundation has a strong interest in devoting resources itself to leverage the additional value possible from its different investments.

³² To illustrate just one possible option: Vital Signs as a core methodology or set of methodologies, that a range of different national and regional partners implement and use with support, as part of a wider Vital Signs network, in a similar vein as the LSMS-ISA project.

Annex 1: Terms of Reference

TERMS OF REFERENCE

Review, Evaluation, and Recommendations for Vital Signs project, February 2012 – Present

The purpose of this scope of work is to conduct a review and evaluation of the Vital Signs project, funded by a grant from the Bill & Melinda Gates Foundation through a grant to Conservation International with two main sub-grantee organizations, the Earth Institute of Columbia University and the Council for Scientific and Industrial Research of South Africa. The set of activities are twofold: 1) conduct a process and management review of the project implementation, including performance against goals and 2) coordinate a group of experts tasked with providing a scientific review of the Vital Signs methods and synthesize the input of expert peer reviewers. The commission of expert peer reviewers (about 4) will be selected and asked to participate by the Gates Foundation. This scope of work includes facilitating and conducting project management for this committee of scientists and synthesizing their assessment, recommendations, and feedback. The activities are expected to begin by August 15 and to be conducted and deliverables produced within 10 weeks.

Activities:

1. Coordinate commission of experts who will provide a desk-based scientific review of the of the data collection protocols, sampling frame, country sampling designs, analysis threads and associated workflows. Facilitate the review process and contribute writing and editing assistance, where needed, to produce a written synthesis of feedback to be included in the final deliverable.
2. Review all project design, management, and reporting documentation (proposal, annual reports). Conduct a light review of the sampling frame, country sampling designs, analytical framework (“threads”) and associated workflows, and the publicly available outputs of the project, such as the methods manuals and the regional atlases. The scientific peer review of the project outputs will be completed by the expert peer review panel; the purpose of the consultant review is to understand the full scope of the program and to evaluate the outputs relative to established goals.
3. Conduct qualitative evaluation and produce analysis and recommendations for the domains detailed below. This is expected to include a visit to both implementation countries (Tanzania and Ghana), which will require at least one week in each place and potential travel to remote locations to observe data collection, working with the appropriate local counterpart. The domains and driving questions for analysis are listed below.

Deliverables:

1. Written assessment report and recommendations for the following audience: Gates Foundation, Vital Signs technical council, Vital Signs Oversight Council; including the scientific review section from the expert commission, synthesizing or assisting with the writing and editing of their review if necessary.
2. Presentation (may be virtual) to above audience summarizing the report’s findings and to answer questions.
3. Confidential appendix for the Gates Foundation, if necessary, communicating any sensitive information or recommendations that may surface.

Domains and driving questions for assessment:

- **Administration:** Process evaluation of the administration of the project. Is the Operations Manual adequate and is the host institution delivering adequately in the administration of the activities and operational requirements? Are there areas for improvement in the administration of the project? Are financial, grants, and contract management practices effective?
- **Implementation:** How efficient and effective is the implementation? What is the quality of adherence to protocols (selecting a random subset to observe), management efficiency and effectiveness, and organizational effectiveness of implementing partner? To the extent possibly, what is the nature and quality of the relationship between Vital Signs and implementing partners.
- **Performance relative to goals:** How well has Vital Signs been executed relative to the goals established in the proposal?
- **Policy engagement:** What is the level of influence and policy engagement at the country level? How well recognized is Vital Signs? How well are they promoting the uptake and use of the data? What is the value and benefit of Vital Signs relative to national needs, and to advancing the goal of sustainably increasing agricultural productivity for smallholder farmers in each country? What are the gaps in policy engagement and recommendations for filling them? Are resources adequate for policy engagement, and if not, what activities are missing?
- **Capacity building:** What are the key capacity gaps and for whom? How well is Vital Signs currently building capacity (for technical implementation, management, administration, leadership)? Are the resources sufficient for meeting capacity building needs? What recommendations emerge for achieving capacity impact?
- **Strategic partnerships:** How are the existing partnerships working? Are all of the partners delivering efficiently on commitments and what are the gaps? This includes – but is not limited to – the relationship among the three main partners in the technical council, partnerships with the implementing organizations, the wider scientific group of stakeholders, and policy partners on the ground. What additional strategic partnerships, particularly with African organizations, would significantly advance the Vital Signs objectives?
- [For the expert commission] **Scientific review of the protocols** (to be further detailed with expert group): What can be simplified and done more efficiently? What are the specific tradeoffs between scaling speed and depth of implementation in each place? What are the costs and benefits of simplifying vs scaling up more slowly? Is Vital Signs using everything that is being collected?

Consultant expertise desired:

- Experience in sub-Saharan Africa and with agricultural development programs
- Project planning and management
- Process and project evaluation, including administration and management effectiveness
- Familiarity and experience with agricultural systems science and ability to understand, synthesize and communicate scientific peer review
- Coordination and facilitation
- Qualitative methods

Annex 2: Evaluation matrix

Acronyms: AFD: Africa Field Director; CI: Conservation International; IP: Implementing Partner; OC: Oversight Council; OM: Operations Manual; TA: Target Audience; TC: Technical Council;

Area of enquiry / primary questions	Indicative content	Method / data sources
Management and implementation		
1.1 Are management structures effective and efficient?	Appropriateness of division of roles and responsibilities across partners for timely, informed decision-making; Appropriateness of resourcing levels for the management structure;	<u>Document review</u> : planning documents; grant agreements; budgets; etc. <u>Key informant interviews</u> : Primary Grantee (CI), TC partners, AFD, IPs.
1.2 Are the management systems (financial and process) efficient and effective?	Effectiveness of partnership working between TC members and between TC and IPs. Appropriateness and value of management systems for CI, TC members and IPs. Views on improvements? Adequacy and utility of the OM HI's experience of compliance with service standards by TC members and IPs	<u>Document review</u> : planning documents; grant agreements; OM; progress reports. <u>Administrative data</u> : Timeliness and accuracy of administrative and financial transactions; <u>Key informant interviews</u> : host institution (CI), TC partners, IPs; Consultants. <u>Good practice criteria for partnership working</u> : comparative tool
1.3 Are implementation arrangements efficient and effective?	Challenges and opportunities identified by IPs and TC in implementing the work programme Adequacy of the support that partners receive. Implementation experience of project consultancies Approach to monitoring, review, learning and risk management	<u>Key informant interviews</u> : CI, TC partners, IPs <u>Administrative data</u> : Comparative assessment of costs in Ghana and Tanzania <u>Document review</u> : protocols; CI cost and budget analysis; risk analyses; <u>Scientific review</u> : assessment of system parsimony <u>Comparator review</u> of implementation models in other 'networked' organisations
Design an integrated and efficient ecosystem services and biodiversity monitoring system to provide policy relevant information (Objective 1)		

Area of enquiry / primary questions	Indicative content	Method / data sources
2.1 What progress has been made against planned/ revised activities and outputs to date?	Assessment of progress against plan, challenges and implications for future assistance.	<u>Document review</u> : Project results framework; project progress reports <u>Key informant interviews</u> : Primary Grantee (CI), TC partners, IPs.
2.2 Is the technical design likely to deliver against expectations?	<i>Questions to be finalised in consultation with Technical Council members and Peer Reviewers</i>	<u>Scientific review</u> : technical assessment
2.3 Are the steps taken to ensure policy relevance sufficient?	Process for defining policy relevant content and targeting policy-makers / processes. Arrangements for on-going engagement with policy processes How capacity constraints are reflected in design	<u>Key informant interviews</u> : Primary Grantee (CI), TC partners, IPs; OC members; TAs <u>Document review</u> : Workshop reports; OC meeting minutes
2.4 Are risks to future success adequately controlled? (Activity to Output; Output to Outcome)	Utility of results framework: adequacy; gaps Clarity of project strategy and programme logic Possible steps to mitigate risks	<u>Key informant interviews</u> : Primary Grantee (CI), TC partners, IPs; OC members; TAs <u>Document review</u> : Strategy documents <u>Literature review</u> : good practice in research into use and policy influencing
Establish or empower local organisations with the capacity for sustained monitoring in 5 regions of Sub-Saharan Africa (Objective 2)		
3.1 What progress has been made against planned/ revised activities and outputs to date?	Assessment of progress against plan, challenges and implications for future assistance.	<u>Document review</u> : Project results framework; project progress reports <u>Key informant interviews</u> : Primary Grantee (CI), TC partners, IPs.
3.2 Are the right partners involved?	Understanding: the identification, appraisal and selection process;	<u>Key informant interviews</u> : Primary Grantee (CI), TC partners, IPs; TAs <u>Document review</u> : selection and due diligence

Area of enquiry / primary questions	Indicative content	Method / data sources
3.3 Is the approach to capacity building with IPs appropriate?	<p>Assessment of IP capacities, gaps identified and solutions developed</p> <p>Capacity building approaches used by the project</p> <p>Sufficiency of resources for the needs</p>	<p><u>Key informant interviews</u>: Primary Grantee (CI), TC partners, IPs.</p> <p><u>Document review</u>: Capacity building and training reports</p>
3.4 Is the approach to capacity building with TAs appropriate?	<p>Assessment of TA capacities, gaps identified and solutions developed</p> <p>Capacity building approaches used by the project</p> <p>Sufficiency of resources for the needs</p>	<p><u>Key informant interviews</u>: Primary Grantee (CI), TC partners, TAs.</p> <p><u>Document review</u>: Capacity building and training reports</p> <p><u>Comparison</u>: Other capacity building approaches and models of organisational capacity</p>
3.5 Is the approach to sustaining and expanding capacity adequate?	<p>Project model for ‘localising’ and maintaining the expertise for capacity building in the longer term?</p> <p>How affordability constraints have been handled</p>	<p><u>Key informant interviews</u>: Primary Grantee (CI), TC partners, IPs.</p> <p><u>Document review</u>: Capacity building and training reports</p>
3.6 Are risks to future success adequately controlled? (Activity to Output; Output to Outcome)	<p>Utility of results framework: adequacy; gaps</p> <p>Clarity of project strategy and programme logic</p> <p>Possible steps to mitigate risks</p>	<p><u>Key informant interviews</u>: TC partners, IPs; OC members; TAs</p> <p><u>Document review</u>: Strategy documents</p> <p><u>Literature review</u>: good practice in capacity assessment and development</p>
Deliver integrated information products for 5 regions of Sub-Saharan Africa (Objective 3)		
4.1 What progress has been made against planned/ revised activities and outputs to date?	<p>Assessment of progress against plan, challenges and implications for future assistance.</p>	<p><u>Document review</u>: Project results framework; project progress reports</p> <p><u>Key informant interviews</u>: Primary Grantee (CI), TC partners, IPs.</p>
4.2 What is the technical quality of outputs to date?	<p><i>Questions to be finalised in consultation with Technical Council members and Peer Reviewers</i></p>	<p><u>Scientific review</u>: technical assessment</p>

Area of enquiry / primary questions	Indicative content	Method / data sources
4.3 Is the approach to information dissemination sufficient?	Project's strategy to promoting uptake and use of data Views on and of awareness of project generated products Has the project engaged the right partners?	<u>Document review</u> : progress reports; promotional events and outputs; <u>Key informant interviews</u> : TC partners, IPs; OC members; TAs <u>Literature review</u> : good practice in research into use, policy influencing and leadership for development
4.4 Are risks to future success adequately controlled? (Activity to Output; Output to Outcome)	Utility of results framework: adequacy; gaps Clarity of project strategy and programme logic Possible steps to mitigate risks	<u>Key informant interviews</u> : TC partners, IPs; OC members; TAs <u>Document review</u> : Strategy documents <u>Literature review</u> : good practice in research into use, policy influencing, marketing and advocacy
Better decisions and more sustainable agricultural development in Africa (Vision)		
5.1 Is the project well-placed to inform policy-decisions in the future	Level of policy influence to date Model(s) of policy change used by the project Adaptation of its approach to different contexts	<u>Key informant interviews</u> : TC partners, IPs; OC members; TAs <u>Document review</u> : Strategy documents <u>Literature review</u> : learning from policy influencing literature
5.2 Is the longer-term, organisational model for Vital Signs service clear?	Vision for the transition from project to 'service' Vision for an 'embedded' service	<u>Key informant interviews</u> : TC partners, IPs; OC members; TAs <u>Document review</u> : Strategy documents
5.3 What are the Outcomes-to- Vision risks and how might they be mitigated?	Main assumptions and risks Are there missing steps and assumptions in programme logic How can the programme logic be strengthened? How can VS/BMGF address the key issues raised?	<u>Key informant interviews</u> : TC partners, IPs; OC members; TAs <u>Document review</u> : Strategy documents <u>Literature review</u> : good practice models of research into use, policy influencing, marketing and advocacy and leadership for development.

Annex 3: List of Interviewees

Relationship to project	Organization	Contact Name	Position
Grant Manager	BMGF	Kate Schneider	Associate Program Officer
Vital Signs Technical Council			
Project Staff employed by CI	Conservation International	Sandy Andelman,	Executive Director of Vital Signs
Sub-grantee partners	Earth Institute at Columbia University	Cheryl Palm,	Deputy Director of VS
Sub-grantee partners	CSIR South Africa	Bob Scholes	Deputy director of Vital Signs,
Vital Signs Staff			
Sub-grantee partners	Earth Institute at Columbia University	Mark Musumba	Postdoc/Scientist
Sub-grantee partners	Consultant to CSIR-SA	Tony Knowles	Postdoc/Scientist
Project Staff employed by CI	Conservation International	Sara Barbour,	senior coordinator
Project Staff employed by CI	Conservation International	Ravic Nijbroek,	scientist
Project Staff employed by CI	Conservation International	John de Wet	Finance
Global Oversight			
Oversight Council	Conservation International	Peter Seligmann	Chairman and CEO
Oversight Council	Earth Institute Columbia University	Pedro Sanchez	Director of Agriculture and Food Security Center
Oversight Council	Ministry of Lands and Forestry	Alfred Oteng-Yeboah	Ministry of Lands and Forestry, Ghana
Oversight Council	BMGF	Stanley Wood	Senior Program Officer Agricultural Development Program
Ghana partners and stakeholders			
Sub-grantee partners	CSIR Water Research Inst.	Dr. Joseph Addo Ampofo	Director
Sub-grantee partners	CSIR Water Research Inst.	Paul Fabalona	Accountant
Sub-grantee partners	CSIR Water Research Inst.	Dr. Anthony A. Duah	Country Director (VS)
Sub-grantee partners	CSIR Forestry Research Inst	Dr. Victor Agyeman	Director
Sub-grantee partners	CSIR Soil Research Inst.	Dr. J. O. Fening	Director
Sub-grantee partners	CSIR Sci. & Tech Policy Research Inst.	Dr. Nelson O. Opareh	Technical Manager (Socio Economic) (VS)
Sub-grantee partners	CSIR Water Research Inst.	Mr. Benson K. Owusu	Protocol Manager (Biomass) (VS)
Sub-grantee partners	CSIR Ghana	Anthony Duah	project leader/ implementer in Ghana

Relationship to project	Organization	Contact Name	Position
Ghana Stakeholder	Environmental Protection Agency	Mr. Carl Fiati	
Ghana Stakeholder	Ministry of Food & Agric	Mr. Addai Manu	Dep. Dir. Crop Services
Ghana Stakeholder	Min of Env, Science, Technology & Innovation	Dr. Yahuza M. Gomda	Director
Ghana Stakeholder	Meteorological Services Agency	Mr. Andrew Nkansah	Director
Ghana Stakeholder	Hydrological Services Dept	Mr. Sylvester Darko	Hydrologist
Ghana Stakeholder	Forum for agricultural research in Africa (FARA)	Dr. Yemi Akinbamiyo	Executive Director, Contact for CAADP
External a Stakeholder	FAO Representation in Ghana	Hannah Nyamekye	Assistant FAO Representative (Programme)
External Stakeholder	FAO Representation in Ghana	Benjamin M. Adjei	Programme Officer (Fisheries & Aquaculture)
External Stakeholder	FAO Representation in Ghana	Berhanu Bedane	Animal Production and Health Officer
External Stakeholder	Representation in Ghana	Marc Kwame OFFEI	- Programme officer (Crop; Agribusiness and Policy)
External Stakeholder	FAO regional office	James Tefft	Senior Policy Officer
External Stakeholder	IFPRI-Accra	Nazaire Houssou	Associate Research Fellow
External Stakeholder	IFPRI-Accra	Shashidhara Kolavalli	Senior Research Fellow
Ghana Stakeholder	University of Ghana-Botany	Dr Gabriel Ameka	Professor of Botany
Ghana Stakeholder	Savannah Accelerate Development Authority / SADA	Charles A. Abugre	Acting Chief Executive
Ghana Stakeholder	MOFA (Ministry of Food and Agriculture)	Daniel Ohemeng Boateng	
Development Partners / Programme	GIZ Deutsche Gesellschaft für Internationale Zusammenarbeit	Dr Paul Schuetz	Programme Manager Market Oriented Agricultural Programme (GIZ)
Ghana Stakeholder	Institute of Statistical, Social and Economic Research (W. Africa Hub for FAC)	Dr George T.-M. Kwadzo	West Africa Hub convener for FAC
Ghana Stakeholder	Alliance for a Green Revolution in Africa (AGRA)	Dr Kwasi Ampofo	Country Head of AGRA
Ghana Stakeholder	West African Science Service Center on Climate Change and Adapted Land Use	Dr. Larent Sédogo	Executive Director
Nairobi partners and stakeholders			
Project Staff employed by CI	Vital Signs	Dr Patrick Mutuo	VS Africa Field Director

Relationship to project	Organization	Contact Name	Position
Project Staff employed by CI	Vital Signs	Richard Ngamita	Informatics Manager
Project Staff employed by CI	Vital Signs	Amanda Obadha	Finance/Administrative Coordinator
External Stakeholder	Regional Strategic Analysis and Knowledge Support System (ReSAKSS-ECA)	Joseph Karugia	Coordinator
External Stakeholder	ICRAF/World Agro forestry Centre	Dr Keith Shepherd	Leader: Land Health Decisions Science Domain
External Stakeholder	Alliance for a Green Revolution in Africa (AGRA)	Bashir Jama	Director of the Soil Health Programme
External Stakeholder	Birdlife International/Critical Ecosystem Partnership Fund	Maaike Manten	Regional Manager Critical Ecosystem Partnership Fund
External Stakeholder Partner	Birdlife International	Paul Kariuki Ndan'gan'ga	Team Leader, Science and Information Management
External Stakeholder	IITA in Nairobi	Bernard Vanlauwe	Lead Central Africa Hub
Tanzania Partners and Stakeholders			
Sub-grantee partners	TFCG	Gervace C Patrick	Tanzania Field Director
Sub-grantee partners	TFCG	Charles Meshack	Chief Executive, TFCG
Sub-grantee partners	TFCG	Nike Doggart	Senior Science Officer
Sub-grantee partners	TFCG	John Kulwa	
Tanzania Stakeholders-Private Sector	Agro EcoEnergy	Per Carstedt	Managing Director
Tanzania Stakeholders	Ministry of Agriculture Environment Management Unit	Miss. Shakwaandande Natai	Head of Environment Management unit
Tanzania Stakeholders	Ministry of Water	Eng. Mbogo Futakamba	Deputy Permanent Secretary
Tanzania Stakeholders	Ministry of Water	Eng. Hamza Sadique	Director of Water Resources
Tanzania Stakeholders	Ministry of Water, WamiRuvu basin Office	Praxeda Kisoza Kalugendo	Basin Officer
Tanzania Stakeholders	National Food Security Office	Mr Karim Mtambo	Director of Food Security
Tanzania Stakeholders	Department of Statistical Methods, Standards and coordination	Hellen Mtove	NBS Officer
Tanzania Stakeholders	Head of Department of Statistical Methods, Standards and coordination	Ahmed Makbel	Former NBS
Tanzania Stakeholders	Ministry of Natural Resource and Tourism, Forestry and Beekeeping	Ms Monica Kayga	Assistant Director

Relationship to project	Organization	Contact Name	Position
	Division		
Tanzania Stakeholders	Prime Minister's Office,	Sanford Kway	Coordinator
Tanzania Stakeholders	Secretariat - SAGCOT Environmental Feeder Group Coastal East Africa Global Initiative	Christine Tam	
Tanzania Stakeholders	SAGCOT Centre Ltd	Jennifer Baarn	Deputy CEO
Tanzania Stakeholders	President's Office, Agricultural Development Division (ADD) of the Presidential Delivery Bureau (PDB)	Peniel Lyimo	Deputy CEO
Tanzania Stakeholders	Parliamentary Committee for Land, Natural Resource and Environment, Dodoma	Henry Kinyua	Director
Tanzania Stakeholders	Vice President's Office, Environment Division	Dr. Magdalena Mtenga	Acting Director of Environment
Tanzania Stakeholders	National Bureau of Statistics	Ms. Aldegunda Komba	Ag. Director of Statistics and Operations
Tanzania Stakeholders	National Bureau of Statistics	Dr. Albina Chuwa	Director General
Tanzania Stakeholders	Parliamentary Committee for Agriculture, Water & Livestock	Prof. David Mwakyusa	Chairperson
Tanzania Stakeholders	Ministry of Natural Resources and Tourism	Hussein Msuya	Bee keeping officer
Tanzania Stakeholders	Policy and Legislation Desk, Ministry of Natural Resources and Tourism	Bwoyo D. K	
Tanzania Stakeholders	Forest and Bee Keeping Department	Kahwa Deo	Extension officer
Tanzania Stakeholders	Ministry of Agriculture Food Security & Cooperatives	Mary Majule	Principal Agriculture Officer,
Tanzania Stakeholders	Environment Management Unit, Ministry of Agriculture Food Security & Cooperatives	Tulizo Malavanu	Agriculture Officer,
Tanzania Stakeholders	Environment Management Unit, Ministry of Agriculture Food Security & Cooperatives	Zamnabu Sheuya	Agriculture Officer,
Tanzania Stakeholders	Environment Management Unit, Ministry of Agriculture Food Security&	Jane Marwa	Environmental Engineer,

Relationship to project	Organization	Contact Name	Position
	Cooperatives		
Tanzania Stakeholders	Coordination and CAADP Focal Point	Margaret Ndaba	In charge of Development Assistance Ministry of Agriculture Food Security & Cooperatives
Tanzania Stakeholders	National Coordinator Forest and Bee keeping Department, Ministry of Natural Resources and Tourism	Leonard Lyimo	Officer
Tanzania Stakeholders	Crop Monitoring and Early Warning System	Halima Kwikwega	Principal Agricultural Officer
Tanzania Stakeholders	Sokoine University (i) Soil and Water Management Research Group (ii) Forest Department Morogoro	Prof. Henry Mahoo	Professor
Tanzania Stakeholders	Sokoine University	Prof. Siza Tumbo	Professor and Team leader
Tanzania Stakeholders	Sokoine University of Agriculture - Forest Department	Prof. Pantaleo Munishi	Professor
Tanzania Stakeholders	Parliamentary Committee for Agriculture Water and Livestock	Professor Peter Msolwa	Chairperson
Tanzania Stakeholders	University of Dar es Salaam (i) Water Resources Engineering Dpt(ii) Ecology/Botany Dpt	Dr. Joel Norbert	HoD
Tanzania Stakeholders	Eastern Arc Mountains Fund-Morogoro	Mr. Francis Sabuni	Executive Director
Tanzania Stakeholders	Agricultural Non State Actors Forum (ANSAF)	Audax Rukonge	Director
Tanzania Stakeholders	Tanzania Private Sector Foundation (TPSF)	Gabriel Landa	Director
Tanzania Stakeholders	MVIWATA (National Union for smallholder farmers in Tanzania - Morogoro)	Steven Ruvuga	Director
Tanzania Stakeholders	University of Dar es Salaam Ecology/Botany Dept	Dr Subira Munish Kongo	Lecturer Remote Sensing
Tanzania Stakeholders	Local Government TAMISEMI	Dr Lucy Ssendi	Principal Agribusiness Officer
Tanzania Stakeholders	AGRA	Mary Mgonja	Country Representative
Tanzania Stakeholders	NGO	Mr .Joseph Mwalugelo	Biophysical Manager

Relationship to project	Organization	Contact Name	Position
Development Partners/Programmes	IAGRI	Prof. Isaac Minde	Deputy Director
Development Partners/Programmes	IUCN – resource mobilization in the SAGCOT Area	Shah Abdallah	Country Programme Officer
Development Partners/Programmes	GIZ	Falk Negrazus	Advisor – Water Resources Management and Sanitation Programme
Consultants			
Consultants	Ushahidi	Nathaniel Manning	Director of Business and Strategy
Consultants	Ushahidi	Juliana Rotich	Executive Director
Consultants	Ushahidi	Lee Mungai	Project Staff
Consultants	Ushahidi	Celestine Kakai	Technical Project Manager Solutions Team
Consultants	Ushahidi	Gregory Omondi	Grants Writer
Consultants	Ushahidi	Sara-Jayne Terp	Director of Data Projects
Consultants	Nafundi	Yaw Anokwa	CEO
Consultants	Nafundi	Carl Hartung	CTO
Consultant	Independent/BMGF	Victor Kongo	Independent Researcher
Consultant	University of Maryland	Dr. Jyoteshwar Nagol	Research Assistant Professor
Other Stakeholders			
Conservation International	Conservation International	Jennifer Morris	Executive Vice President, Ecosystem Finance and Markets
Workshop: Tradeoff Models	Oregon State University	John Antle	Professor of Applied Economics
External stakeholder	CORAF/WECARD	Harold Roy Macaulley	Executive Director Contact for CAADP

Annex 4: Summary progress assessment against the results framework

Objective 1: Design an integrated, efficient and policy-relevant monitoring system

Activity	Assessment	Comments
<i>1.1 Four target regions for monitoring, in addition to southern Tanzania, are selected in collaboration with the BMGF</i>	Some progress, but with risks	Two target regions selected in addition to southern Tanzania (Ghana and Uganda) with discussions underway in Ethiopia. Prospects for inclusion of Mozambique unclear. Data collection underway in two regions (Ghana and Tanzania).
<i>1.2.1 Identify key direct beneficiaries and technical end-users to determine information needs and implement engagement processes</i>	Limited progress with significant risks	Limited identification of direct beneficiaries and end-users. Single half-day stakeholder workshops held in Tanzania (2012), Ghana (2012), Ethiopia (2013) and Uganda (2014). Significant risk of limited use and relevance in countries.
<i>1.2.2 Identify, evaluate and prioritise existing policies, processes, fora or initiatives that influence agricultural development and environmental conservation.</i>	Limited progress with significant risks	Planned Regional Profiles not completed. Significant risk of limited use and relevance in countries.
<i>1.3.1 Define scalable sampling design, data collection methods, and analytical framework for the integrated Monitoring System.</i>	Good progress, but with risks	Good progress on sampling design and data collection methods. Less progress on analytical framework. Not clear how data will be used.
<i>1.3.2 Define workflows for ‘threads’ from observations, to analytical outputs, to synthetic indicators, including methods and models for analysis of tradeoffs and synergies.</i>	Good progress, but with risks	Good progress on ‘threads’ but little progress on trade-off and synergies analysis.
<i>1.3.3 Develop set of peer-reviewed protocols and manuals for effective and efficient operation of the system</i>	Good progress, but with risks	Good progress on data-collection protocols. Peer reviewed by Oversight Council. But technical soundness depends on use of data which remains unclear. Some gaps (eg. groundwater).
<i>1.3.4 Develop a cost-benefit framework to enable tracking and analysis of tradeoffs among different information needs with respect to budgetary constraints.</i>	No reported progress	
<i>1.4.1 Design information and</i>	Some progress,	Some technical progress but considerable

<i>communication system for data collection, ingestion, storage, analysis, web portal and reporting.</i>	but with risks	uncertainty on outputs and reporting. See Objective 3
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Outputs	Assessment	Comments
<i>1.1 Engagement process with direct beneficiaries to determine information needs and policy options is completed, and national policy nodes are established.</i>	Limited progress with significant risks	Largely limited to single half-day stakeholder workshops held in four countries. National policy nodes not identified or established. Significant risk of limited use and relevance in countries.
<i>1.2 Full set of cost-effective protocols with manuals for data collection and analysis are completed and available online.</i>	Good progress, but with risks	Data collection protocols completed and available online. Some more detailed than others. Groundwater missing. Cost-effectiveness needs to be assessed. Dependent on expertise and training of enumerators. Limited progress on data analysis protocols. Analytical or policy justification for the data collected is unclear.
<i>1.3 Peer reviewed paper on Monitoring System design is published.</i>	Not produced to date	
<i>1.4 Methods and models for generating indicators and for analysis of tradeoffs and synergies are completed and available for use.</i>	Some progress, but with risks	Progress on decision support ‘threads’ but models, weighting and links between threads not always clear or referenced. Limited progress on trade-off and synergies analysis. Use and users remain largely undefined.

Objective 2: Establish or empower local organisations with the capacity for sustained monitoring in 5 regions of Sub-Saharan Africa

Activity	Assessment	Comments
<i>2.1.1. Create and implement transparent grant making and governance processes to ensure efficient transfer of funds for monitoring.</i>	Complete	Grant making processes have been established.
<i>2.1.2. Establish Technical Steering Committee and ad hoc expert groups, including membership and governing principles.</i>	Complete	The project level Technical Council and Oversight Council are established and functioning.
<i>2.2.1. Identify local implementing partner organizations in each region (NB: in some cases, new</i>	Complete	Implementing partners have been identified in three regions. Role of the implementing partners in the longer term not clear.

Activity	Assessment	Comments
<i>organizations may be needed).</i> .		
<i>2.2.2. Engage with national policy nodes or other key bodies to engage key local decision makers in development and use of Monitoring System.</i>	Some progress but with significant risk	One stakeholder event has taken place in each country participating in phase 1. No wider continuing engagement with key bodies and decision makers, nor development of any policy node. Limited early engagement increases risk for project's local relevance, utility and sustainability.
<i>2.2.3. Make grants to local partners and train project personnel in each country.</i>	Complete	Grants have been made to the local partners, and local teams trained (primarily in data collection methods).
<i>2.3.1. Order, ship, and deploy equipment and supplies.</i>	Some progress but with risks	Equipment and supplies have been shipped and used. There have been delays in obtaining and operationalising equipment such as water measuring stations, particularly in Ghana. Question marks over sufficiency and suitability of equipment for field teams to work effectively .
<i>2.3.2. Train IT personnel (link to output 1.3).</i>	Some progress but with risks	The VS Informatics manager has assisted with IT training and IT infrastructure development, although delayed. At present, the project is vulnerable to losing the manager (one year contract), with limited training of local staff in country in IT to provide continuing support for system development.

Outputs	Assessment	Comments
<i>2.1. Governance and grant making capacity to support monitoring is in place.</i>	Complete	The grant agreements and necessary governance and reporting arrangements for the sub grantees are in place.
<i>2.2. Institutional framework for data collection, beneficiary engagement, and dissemination of information to policymakers in each country is established.</i>	Some progress but with significant risks	There has been very little engagement with country or regional institutions. A short and longer term strategy for developing local capacity and engagement in using the monitoring data is a priority for Vital Signs, to ensure that the institutional framework is robust and sustainable.
<i>2.3. IT technical infrastructure (hardware, software, etc.) is in place to enable Monitoring System.</i>	On-track	The IT infrastructure is being developed by Ushahidi with the VS team in Africa and internationally. Infrastructure development has been delayed and any further delays will put this output at risk.

Objective 3: Deliver integrated information products

Activity	Assessment	Comments
3.1.1 Convene regional meetings to present dashboard and regional summaries to the policy nodes and to key decision makers and at key fora.	Some progress but with significant risks	Deep dive workshop to discuss visualisations held in Tanzania in June 2014, though limited involvement of stakeholders. Planned workshops elsewhere (and to discuss Atlases) not yet implemented.
3.2.1 Synthesize and analyze existing quantitative and geo-referenced (maps) data (biophysical, land-use, socioeconomic data....).	Completed	The regional profile report for Tanzania was produced and is available in print and via the VS web portals.
3.3.1 Train technical personnel at appropriate levels in implementing organizations in data collection, analysis, and data interpretation (see activity 2.2.3).	Some progress but with significant risks	Capacity for data collection built with competent, well trained teams in Implementing Partners. No local capacity development undertaken yet for data analysis or interpretation.
3.3.2 Implement full monitoring activities (collect, manage, archive, and analyze data) in target regions, including integration with other relevant monitoring efforts.	Some progress but with risks	<p>Data collection has taken longer but is now fully operational. The first stage data upload for protocols has been achieved (October 2014) which provides data to the project scientists to review and analyse.</p> <p>Aspects of data management, archiving, access and analysis for broader range of users still require work.</p> <p>To date, beyond LSMS, limited integration with other relevant monitoring efforts by ministries, universities or projects, with little or no follow up of initial workshops where opportunities were identified.</p>
3.3.3 Disseminate data and summary statistics, and basic interpretations, through the Web portal and portable media to direct beneficiaries, technical end users, and the public.	Some progress, but with some risks	<p>Project websites functional and Atlases, data collection protocols and sampling frame are available. Plans in place to provide all data platforms as open source, and linked to the website to enable access for all.</p> <p>As yet, however, dissemination of data and basic analysis/interpretation is untested. Main risks relate to the low poor awareness of the project, bandwidth challenges and preparedness of audiences to use data.</p>
3.4.1 Develop specifications and implement process to create dashboards and regional baseline	Some progress but with risks	Risks centre on possible delay in producing the visualisations as the finalisation of specifications and some of the proposed processes for testing

Activity	Assessment	Comments
<i>socio-agro-ecosystem reports</i>		them (e.g. workshops) have not been undertaken to time. Engagement stakeholders to enable iterative discussion on use and development of dash boards has been limited
<i>3.4.2 Distribute summary reports and provide access to dashboards.</i>	Not started	

Outputs	Assessment	Comments
<i>3.2 Regional Profile Reports are completed for 3 regions</i>	Some progress but with significant risks	Regional profile reports, as elaborated in the design document, not produced. The atlases very well received by stakeholders, indicating that they could be used more proactively and more widely distributed. Planned engagement with stakeholders post production of Atlases has not occurred.
<i>3.3. Annual data compendiums containing all data and summary statistics from the Monitoring System are available online and distributed in Africa on portable media devices (CD, USB flash drives, etc.).</i>	Not started	
<i>3.4 Customized dashboards and synthetic summary reports are produced and access provided to direct beneficiaries.</i>	Some progress, but with risks	Uncertainty regarding the precise form and delivery of proposed visualisations/dashboards. Engagement stakeholders to enable iterative discussion on use and development of dash boards has been limited

Annex 5: Scientific Review

Development of the Review

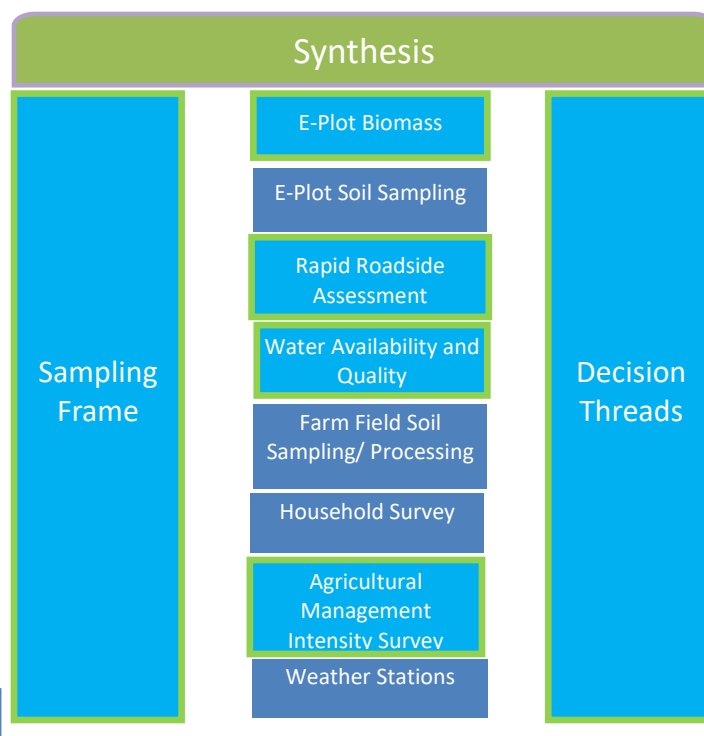
The scientific review of Vital Signs’ methods comprises part of the formative evaluation of the Vital Signs project, running in parallel to the implementation review. The process was designed by the Gates Foundation to answer questions about the efficiency of the Vital Signs methods, trade-offs between scaling speed and depth of implementation in each place, cost effectiveness, and data utilization.

This scientific review is taking place at the “prototyping” phase of Vital Signs where, as stated in the Sampling Frame, the project’s primary interest is in “*characterising the uncertainty and qualifying the sample effort [time, cost] required to attain various levels of accuracy and statistical power to detect change than in achieving a priori-defined level of accuracy. . .to determine what the utility level is in various contexts, and what it would cost to deliver an observation system that satisfies that level.*” As such, the lines of enquiry for the review were developed by the Gates Foundation in consultation with the project:

- What can be simplified and done more efficiently?
- What are the specific trade-offs between scaling speed and depth of implementation in each place?
- What are the costs and benefits of simplifying vs. scaling up more slowly?
- Is Vital Signs using everything that is being collected? *Figure 1: Vital Signs Methods Reviewed*

Based upon these questions, the IOD PARC team developed a preliminary framework for the review to help clarify and refine the scope of the examination and to finalise the review framework and tool. The sequence and timeline of the review were developed in close coordination with the Gates Foundation to ensure that the review was consistent with stakeholders’ interests.

The Gates Foundation selected four technical experts to review selected Vital Signs methods (see Figure 1). The reviewers, who participated on a voluntary (unpaid) basis, were asked to examine the protocols closest to their areas of expertise and to provide the time and rigour equivalent to the review of a scientific journal article. IOD PARC supported the review process by developing a review tool, coordinating with the reviewers to guide the process and synthesising the findings of the review, including suggestions for improvements.



Included in the review are: a selection of the standardized protocols that guide data collection; the sampling frame that guides where and how often measurements are taken; and the decision threads which indicate how the measurements will be brought together for analysis.¹ The methods are publically available and are an intermediary product of the project.²

Review Framework and Tool

The review framework (Appendix 1) designed by IOD PARC, comprised open-ended questions relating to the underlying logic and design, the utility and efficiency of the proposed data collection methods, and the feasibility and fitness of the methods for the operating environments in which Vital Signs operates. Using the tool, reviewers provided an overall rating (Table 1), reflecting their assessment of the credibility of the methods, explanatory remarks, and where applicable, suggestions of methodological refinements or alternate data sources. These ratings and comments provide the basis for IOD PARC’s synthesis.

Table 1: Explanation of Rating System for Scientific Peer Review

Rating system	Green	Amber	Red	White
Individual Protocols				
Rating for overall assessment of protocol components	Satisfactory	Some attention required	Unsatisfactory	Protocol not reviewed
Decision Threads				
Section 1: All threads	Credible	Some Concerns	Critical elements missing	Protocol not reviewed
Section 2: For individual threads	Satisfactory	Areas for attention	Unsatisfactory	Protocol not reviewed
Sampling Framework				
Components of sampling report	Satisfactory	Areas for attention	Unsatisfactory	Protocol not reviewed
Individual Reviewers	Individual reviewer ratings are signposted as Reviewer 1 (R1), Reviewer 2 (R2), and Reviewer 3 (R3)			

Limitations of the Review

As stated above, the main thrust of the Scientific Review was to provide insight into the validity, efficiency and usefulness of Vital Signs methods and data collection protocols. In practice, limitations prevented realisation of these objectives in full: reviewers were unable to verify the methods with actual data (given stage of project development); there is a lack of background information on how the methods

¹ The Sampling Frame broadly defines the statistical approach for the monitoring system, articulating the temporal frequency and spatial distribution for measurement. The review found that the ambition of the sampling framework is good and the nested integrated approach scientifically robust. This refers to the Sampling Frame’s use of hierarchical sampling where information is spatially and temporally co-located and where “information at the finer scale is geographically encompassed by the unit at the larger scale.”

² The protocols that have been reviewed are limited to those that are in the areas of expertise of the reviewers, and cover 4 of 8 of the protocols. Of these, two of the protocols were peer reviewed (covered by 2 of the reviewers), two of the protocols were reviewed by a single expert reviewer, the sampling framework and decision threads were reviewed by at least three of the reviewers.

were developed and will be used; and the review panel was able to cover only half (four out of the eight) of the data collection protocols. The following sections present the synthesis of findings for sampling frame, the individual protocols and decision threads. Detailed summaries of the reviewers’ responses are included as separate appendices to the report.

Synthesis of findings on the Sampling Frame

The Sampling Frame for the Vital Signs Global Monitoring System was finalized in January 2013 following a peer review carried out by colleagues from the World Agroforestry Centre (ICRAF), the World Bank, Alterra Wageningen, and the University of California Santa Barbara. IOD PARC has not seen the documentation relating to that review or how the Sampling Frame was adapted in response. The Sampling Frame has also been reviewed and endorsed by Vital Signs Oversight Council.

For this exercise, reviewers were asked to review the published methods and consult the Vital Signs website for additional information as necessary. The reviewers found that this information by itself provided insufficient background on the design rationale or the intended output on which to judge likely data utility, data validity, or the fitness for purpose of the scale and scope. In short, data quality is heavily dependent on purpose and intended use; the lack of detailed information about these limited what the reviewers could say about Vital Signs method. The findings below should be considered in light of this broader issue.

Reviewers used the following criteria to rate the different aspects of the sampling frame:

Rating on components of sampling report	Satisfactory	Areas for attention	Unsatisfactory
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Coherence of the Sampling Frame

1. Internal Coherence of the Sampling Framework: Is it a coherent, clear, and scientifically sound document?	Ratings		
	Reviewer 1 (R1)	Reviewer 2 (R2)	Reviewer 3 (R3)

Here the reviewers were asked to consider whether the sampling framework was logically constructed and holds together as a valid, scientifically sound document. The Sampling Frame broadly defines the statistical approach for the monitoring system, articulating the temporal frequency and spatial distribution for measurement.

With respect to how information at different scales is combined, the review found that feedback between the different tiers is sound, while the stratified clustered approach and more randomised approach within each area is scientifically sound.³ Purposeful sampling is also acceptable where trying to monitor change.

³ Vital Signs Sampling Frame, pg 10 “As the tier number increased from 1 to 4, so the fraction of the landscape physically sampled decreases, but the effort per unit sample increases.”

Intended application of the Sampling Frame

2. Is there clarity on how sampling framework will be used in generating an agreed index or in a wider model?	Ratings		
	R1	R2	R3

Reviewers considered how well the data collected through the sampling frame explained how it would be used and applied. The intended use of the sampling framework or how it might generate a wider model is not evident from the sampling frame. The sampling frame presents the conceptual model for collecting data across environmental, agricultural, and human spheres but it does not suggest how these data might be used. The review suggests that rather than combining all data sets into one master index, that they be kept transparent and disaggregated.

A critical aspect concerning the utility of the sampling frame is the budget associated with the individual processes. Certain aspects of the sampling, particularly at the Tier 4 level, could be costly. The review stresses the importance of assessing cost effectiveness once the sampling frame has been trialled.

Gaps in the Sampling Frame

3. Are there any gaps in the Sampling Frame? Recommendations?	Ratings		
	R1	R2	R3

Reviewers were asked to assess whether any data or critical steps are missing from the Sampling Frame. The review found that it is challenging to identify gaps if the intended outputs of the sampling frame are not clear. Nonetheless, it found that some aspects of the sampling frame were more detailed than others. The basis for greater detail in some areas than others may have an underlying practical or scientific rationale which is not described in the sampling frame.

Use, and potential limitations, of external datasets should be explicitly referenced. Data at the regional (Tier 1) level relies on both international datasets (e.g. river datasets from FAO), independent remotely sensed sources, and on national surveyed data. The uncertainties associated with each of these data systems, and how the disparate datasets will sit together will need to be highlighted. There is also a requirement that the sampling frame address uncertainties across the different parameters and at different scales.

The sampling frame states that it relies on standard methods. The review endorsed the use of standard methods where possible but found that these should be fully referenced. The review found that there may be missed opportunities to use standard methods. For example, for the sampling of wildlife, standard protocols used by the International Union for Conservation of Nature (IUCN) could be used; For soil sampling, there are published standards which could be followed, therefore reducing the risk of neglecting to monitor important datasets. For example, in the monitoring of the water environment, groundwater was missing.⁴

⁴ UNEP and UN WATER provides standard guidelines for testing water quality and availability: www.unwater.org; Also, Rapid Assessment of Drinking Water Quality, A Handbook or Implementation (2012) published by WHO and UNICEF sets out protocols which explicitly include the need to measure groundwater which is affected by corrosion of metals, nitrates from agriculture etc. http://www.wssinfo.org/fileadmin/user_upload/resources/RADWQHandbookv1final.pdf

Setting up a sampling frame using a wide range of protocols is an iterative process and the trade-offs and compromises reached between different sampling intensities should be carefully laid out.

Sampling Frame Summary

Although the frame is reasonably coherent and clear, fitness for purpose depends a great deal on the frame's ultimate use. It remains unclear from the document itself how the data feed into the various threads and whether those data are appropriate. The issue of how data will be used and what data will be used for is a paramount consideration at this stage.

Synthesis of findings on the Decision Support Threads

The Vital Signs Decision Support threads are designed to combine metrics, analytical outputs and indicators at multiple scales to derive information to inform policy or project management decisions. The decision threads combine data collected under Vital Signs and secondary data sources using models, indicators, and algorithms to generate a decision support index based on interactions between physical, biological and social processes.

Overall Coherence of the threads

Rating for all threads	Credible	Some Concerns	Critical elements missing
Do the threads hold together as a coherent, clear, and scientifically sound approach?	Ratings		
	R1	R2	R3

Reviewers were asked to consider the logic of the decision threads collectively and then to comment upon the utility and effectiveness of the individual threads (Table 2). The review found that the decision threads demonstrate an impressive effort and that the flow diagrams are useful to illustrate the different threads. However, the complexity of each thread, combined with a limited amount of information, has meant that a meaningful review of their coherence is difficult. The review reflected that each decision thread will require experts within the field to produce the data required to give a sensible index.

Even with tested algorithms, there may be questions around weighting within and between the threads if they are to be integrated. In order to be sound, the review considered that they should build upon existing indices that have been developed within each sector. If new models are being proposed by Vital Signs, these need to be rooted in a clear analysis of the deficiencies of existing models so that the refinements can be justified. The threads lack documentation showing why certain choices were made in the construction of the threads. The inclusion of the selected data sources and their weighting is not transparent.

To determine the decision threads' ability to detect change and how they should be prioritized to provide policy makers with useful information to support decision making, it is critical to have a sense of what kinds of decisions these data could help to inform. This is necessary to determine what change is being monitored and how the threads should be ordered or weighted.

Given the stated objective of Vital Signs to provide policy makers with useful information to support sustainable agricultural intensification, the review suggests it may be useful to narrow the focus to generate indices on issues that are of direct relevance and immediately recognizable to agricultural policy makers (or broader stakeholders once they are identified). The review suggests that rather than

integrating the threads into the inclusive wealth index, that there be consideration of indicators that are of direct relevance to decision makers.

Overall Analysis of the threads

Reviewers self-selected the individual threads they would review, providing ratings on the decision threads’ linking of measurements to analysis, use of information at different scales, provision of information to decision makers and how well it is supported by evidence. Reviewers provide comments on gaps in the decision threads and justified their ratings.

Generating information that can be used by decision makers and supporting the thread sufficiently with evidence is a challenge across many of the threads. The areas that were considered unsatisfactory by the reviewers corresponded with those that fell into their realm of expertise.

Table 2 provides an overall summary of the individual threads. The key points that emerge from this process, at the aggregate level, is that whilst there is a generally positive answer to the question around linking measurement with analysis, there is significant concern around whether this will lead to information that is usable by policy makers. This may be because there is a high degree of concern that the threads themselves are not supported by documentation of the process and rationale on which the threads are based. Appendix 2 provides a more detailed commentary on the individual threads.

Table 2: Ratings of individual threads

Rating for individual threads		Satisfactory		Areas for attention			Unsatisfactory			No comment			
# reviewers		a) Effectively links measurements with analysis			b) Draws in information at appropriate scales			c) Generates information that could be used by decision makers			d) Is the thread sufficiently supported by evidence and justified		
		Reviewer Ratings			Reviewer Ratings			Reviewer Ratings			Reviewer Ratings		
Thread		R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3
Thread for Climate Forcing	2												
Thread for Wood Fuel	2												
Thread for Livestock	3												
Thread for Water	2												
Thread for Resilience	2												
Thread for Biodiversity	2												
Thread for Food Security	2												
Thread for Poverty	2												
Thread for Soil Health	2												
Thread for Agricultural Intensification	2												
Thread for Nutrition	1												
Thread for Health	1												
Thread for Sustainability	3												

Synthesis of findings for the Protocols

Standardized, and well-documented scientific methods are critical to producing a reliable picture of the state and trends of a given area at a given time to feed into meta-analysis of results. Vital Signs has developed protocols to guide measurement across environmental, agricultural, and human systems. The protocols reviewed here were revised in March 2014 with a full list provided in Appendix 4.

The following represents the feedback provided by the experts on the specific methods described for measurement of these areas. Table 3 presents a summary for each of the protocols that have been reviewed.

Reviewers self-selected the protocols within their area of expertise which covered Water Availability and Quality, E-Plot Biomass, Rapid Roadside Assessments, and the Agricultural Management Intensity Survey (Table 3). The E-Plot Biomass and Rapid Roadside Assessment protocols were reviewed by two members of the expert panel. The overall ratings they provided, based upon the overall assessment of the protocols is provided below; ratings from multiple reviewers are provided. The E-Plot Soil Sampling and Processing, Household Survey, Farm Field Soil Sampling and Processing, and Weather Station protocols were not included in the review.

Table 3: Overall ratings of reviewed protocols

Rating for overall assessment of protocol components	Satisfactory	Some attention	Unsatisfactory	This protocol was not reviewed
Protocols Reviewed			Overall Rating 1	Overall Rating 2 (if applicable)
✓ Water Availability and Quality				
✓ E-Plot Biomass				
✓ Rapid Roadside Assessments				
✓ Agricultural Management Intensity Survey				

Overall, the protocols received amber ratings indicating that they require attention in order to be used effectively by Vital Signs and more widely. While they refer to use of international standards, a number of the protocols do not, in the opinion of the reviewers, fully reference these or explain variation from internationally recognized approaches where this is the case.

There are some concerns over the validity of the individual protocols that have been reviewed (details of each review are presented in Appendix 3). The critical points to note are:

- **It is challenging to determine whether the protocols should be simplified or enhanced without knowing how the data will be used:** Depending upon how the data is used, it may be necessary to have higher resolution data or to scale back on the data collected but this will have a direct relationship with what information is needed.
- **Enumerator error is a concern where a high level of expertise is required to collect data or where data collection processes are not clearly described:** The protocols will require, in line with Vital Signs processes, substantial and in-person training in order to use the protocols correctly to collect accurate information. Significant technical skills are required to carry out many of the data collection processes. Some of the protocols will require demonstration or additional diagrams to provide adequate guidance for the data collection methods described in the protocols.
- **Heterogeneity across landscapes (both biophysical and socioeconomic) must be considered and calibrated:** The protocols appear to be developed specifically for African woodlands It may be important to consider their suitability for other biophysical and socioeconomic settings.
- **Sampling 30 households per landscape could be problematic:** There is a concern that the relatively small sample size for a panel survey may not capture the variation across

households or provide a representative sample. This sample size provides case study level results unless they are tied to more representative sample sizes through analysis of larger datasets.

- **Measurements should consider end use for decision making:** For the measurements to be most effective, their level of detail should be guided by the intended use (or needs of the intended users) of the data. Collected data should consider the issues that are of interest, and indices that are immediately recognizable to decision makers.

Conclusions from Scientific Review

The review process overseen by IOD PARC can be seen as an important step in the wider, on-going validation of Vital Signs' approach. A number of broader points emerge from the review which are set out below:

- **Reviewers clearly recognized the need to understand better the interaction between the environment, agriculture, and human development.** The kind of data that Vital Signs is collecting, and the kind of analysis that Vital Signs aims to carry out is what is required in order to develop future models. However, it is difficult to whether the correct data is being collected when the kind of analysis you will be doing has not been defined.
- **Although efficiency and cost effectiveness of the data collection protocols has not been fully assessed, measuring data at the levels proposed by Vital Signs is likely to be expensive, and may not be feasible for many research operations.** There may be scope for modular measurements, or for simplifying processes, but these choices cannot be made in the absence of information about how the data will be used. There may be existing information, from national surveys or through other monitoring initiatives which could provide credible data. Efficiency may be improved by making better use of existing data sources (e.g. LSMS data). For instance, moving the Vital Signs E-Plots to LSMS enumeration areas would generate information about human systems in areas covered by the Vital Signs data collection areas. There are, of course, challenges associated with integrating data from diverse systems. When you rely on data from an external source, there is a risk that it is a) not measuring what you need and b) that the quality of the data cannot be verified. However, these have to be weighed against the costs of collecting Tier 4 data where there is a risk that when you are only able to collect data from a small sample which does not allow you to infer trends in the wider population.
- **Validation of data.** As yet the project has not set out clearly the approach to data quality controls and validation for each protocol. Data from the different data sources will require protocol-specific approaches to data validation. For some of the field work elements this will require field based refinement and calibration. Through these processes data collection is refined and improved to ensure fitness for use.
- **Capacity demands for data collection.** The level of accuracy required for certain aspects of data collection potentially requires a high level of capacity from enumerators. This has been highlighted for some of the protocols reviewed, and may hold general relevance. It should be noted that the reviewers neither had knowledge of the capacity of present enumerators or the capacity development provided to enumerators before going into the

field. Nevertheless, weighing capacity demands with issues of cost and feasibility is a key consideration for this phase of the project; the capacity requirements for current and future enumerators must be considered as this will have implications for data quality and costs.

- **Building public goods information.** There is a general sentiment, reflected in the review that what Vital Signs endeavours to do is new and exciting. The project has the potential to contribute significantly to the public good but to be effective in this regard, clear documentation of Vital Signs materials, methods, and broader evidence base is critical.

Background/explanatory documentation would usefully cover:

- **‘State of the Art’ evidence synthesis:** Highlighting where there are gaps and/or opportunities for future engagement and situating the project’s hypothesis/es or theory of change in this ‘baseline’ of current knowledge.
- **Rationale for design of Decision Threads:** How the individual decision threads are ‘put together’ and how the decisions to include/exclude data in each thread was taken.
- **Description of the weighting/synthesis of each thread:** How the components of each thread will be weighted and synthesised
- **Evidence of full synthesis model:** How the final multi-disciplinary data synthesis will take place including weightings of different data;
- **Basis for decision making:** Clear vision of how the evidence from the different threads and overall synthesis will be presented in an appropriate manner to different stakeholder group (linked to evidence of what is required, rather than a top down delivery approach).
- **Sampling of randomized plots:** Variation from the sampling of plots (e.g. to facilitate access of field teams) should be explained and justified.
- **Referencing of standard practice and alignment with other monitoring initiatives.** To provide well founded evidence, and so that Vital Signs methods can be repeated in future, use of standard practice should be clearly referenced and clear justification provided for variations. With respect to the latter point, highlighting where current practices do not provide adequate or acceptable data and how Vital Signs methods will address this, helps demonstrate the value add of the project.
- **Follow up formal review** In view of the limitations of the current review, there may be merit in conducting future targeted review(s) of Vital Signs’ scientific methods as the process develops. Review at the stage when field data are available and the decision threads are piloted would allow examination of the threads ‘in action’, and issues such as data quality, weightings and linkages across decision threads, risk management (sampling and non-sampling error mitigation), and how synthesis design feeds into an overall index or decision framework.