Certification Atlas Project: Collaborative Mapping Pilot Analyses Descriptions

Introduction

This document provides descriptions for the phase 4 pilots of the Certification Atlas project. The purpose of these pilots was to explore some geospatial analysis options that can be used to get more from VSS data. This is an effort to help develop GIS understanding and capacity, promote its use and think about options for the end-goal Certification Atlas. These pilots were conducted collaboratively (across ISEAL members) to also explore issues around data confidentiality and promote data sharing.

Descriptions

Child Labour Risk

Child Labour: Risk assessment, risk profiling or risk modelling

Lead organisation: Rainforest alliance/UTZ

Partners: Better Cotton Initiative

Instances of child labour are particularly challenging to identify and address through existing auditing processes due to being more discrete in nature. The credibility of standards can be quickly undermined if their ability to effectively detect and address instances of child labour in respective supply chains is insufficient, and standards recognize the need to improve existing risk assessment, monitoring and remediation systems. Comprehensive and strategic child labour monitoring and remediation systems are particularly needed to holistically address child labour in cocoa growing communities. Certainly, the resulted model, if applicable, would have the potential to be used (with additional adjustments according to the context) for India and in combination with other commodities.

Child labour risk assessment, monitoring and remediation systems in most cases are underpinned by regular or randomized audits and such systems could be substantiated by being more strategic. Collaborative GIS risk mapping can help to inform and prioritize audits at certificates in regions that have been identified to be of greater risk of child labour or where driving factors which generally underpin child labour issues are more prevalent (e.g. limited accessibility to schooling). Overlaying certificate locations on child labour risk maps to inform audit prioritization would mean that instances of child labour could be detected and addressed more efficiently and effectively.

- **Theme:** Child labour
- **Geography:** Ghana (3 regions, 7 districts)
- **Commodity:** Cocoa
- **Timeframe:** 7 months
- **Certificates:** 2017 certificates

Results for Ghana are overlaid with certificates locations for additional commodities like banana, dried and fresh fruit, oilseeds and oleaginous fruits. The developed model (with relevant adjustments) can be replicated for India, on the following commodities: banana, cane sugar, cocoa, coffee, cotton, dried and fresh fruit, herbal teas and spices, nuts, pulp, rice, tea and vegetables.

Through this project, demonstrate the added value of GIS tools in identifying, monitoring, and addressing child labour, to promote more systemic use in the future. It will also contribute to a deeper understanding of the gaps in existing data and substantiate best practices.

Link to 'Child Labour Risk' Story Map: https://arcg.is/0j1X1K

Deforestation

Deforestation Risk assessment, risk profiling or risk modelling

Lead organisation: Fairtrade International

Partners: Rainforest Alliance/UTZ

Agriculture is the biggest driver of deforestation which is why certification schemes need to address the topic in a holistic manner that goes beyond audit and assurance. The civil society expects certification schemes to proactively address the issue; and failure to do so can undermine the credibility of certification process. Some geographies and agricultural products might be more prone to deforestation and this information can be key to tackle the problem accordingly with local solutions rather than global ones. Publicly available sources of information and location of certificates can be used to generate risk analysis and enrich audit practices, targeted technical assistance strategies and the standards setting process.

Non-deforestation criteria in standards have been hard to assure during the audit. Auditors focus their efforts in a selected sample of farmers in producer organizations and often do not have a good idea what is going on throughout the production landscape. This can be remedied with easy to use global tree cover dynamics datasets (such as Global Forest Change) which provide a picture of the tree cover loss (deforestation) with relatively good accuracy and little effort. Combining this with certificates' location data certification schemes can assess magnitude of the problem in their certified areas. This information can help certification schemes target their audits, strengthen their standards and understand better the drivers and effects of deforestation.

FI and RA have identified the commodities Cocoa, coffee, bananas and tea as being the most prevalent certified crops and, therefore, propose to limit the scope of this research to these crops. The predominant geographic areas where these crops are certified are:

- **Cocoa:** West Africa with special emphasis in Ivory Coast, where most of the certificates of schemes are located.
- **Coffee:** Brazil, Colombia, Honduras, Nicaragua and Peru.
- **Bananas:** Colombia, Ecuador, Costa Rica and Dominican Republic.
- **Tea:** India, Sri Lanka and Kenya.

To date, the primarily publicly available, globally comprehensive source of information for loss of forest area is the Global Forest Change (GFC) dataset of the University of Maryland. This resource uses Landsat 30-meter imagery to estimate the forest cover in 2000 and the year since 2000 tree cover was lost thru 2016. It also provides an estimate of tree cover gain. Another source of data to evaluate is the (GLAD) alerts, which can help detect more recent tree

cover loss since 2016. Using the GIS to overlay these data with the location of certified operations and carry-out various spatial analyses we can generate information to address the following questions through a general landscape level analysis:

- Which certificates and crops are located in regions prone to deforestation and what have been the recent trends?
- To what degree are producer organizations contributing to the deforestation?
- How can producers, auditors and other stakeholders take better advantage of satellite technologies to help eliminate deforestation from the supply chain?
- As the data set is a panel we in to make an analysis of the last 5 years.

Through carrying-out this study we hope to contribute to the following outcomes:

- Certification schemes are able to better assess deforestation through identification of high risk areas and crops and through improved audit protocols and, in doing so, eliminate deforestation associated with agriculture.
- Certificate holders and auditors see greater value in geospatial data, and have a greater capacity the collect and utilize such data.
- Future certification efforts effectively target high deforestation risk landscapes where there is a greater opportunity to make a difference.

Link to 'Deforestation' Story Map: https://arcg.is/1CyLvm

Marine

Marine and fishery data mapping

Lead organisation: Marine Stewardship Council

Partners: Rainforest Alliance/UTZ

The importance of collecting, mapping and sharing geospatial data has been recognized by both the ISEAL Alliance and the MSC as a member organisation. At present there are limitations to benefiting from the full potential of such data at the level of MSC as an individual organisation as well as at the collaborative level of the ISEAL member organisations. The marine environment represents a crucial part of the global ecological and socio-economic system. Not including marine geospatial data into the ISEAL Certification Atlas would leave a considerable gap and thus reduce its impact regarding the collaborative potential among members as well as towards external audiences.

This project gives the opportunity to format and organize the geospatial data currently held by MSC in a systematic and standardized way. This will improve internal standard setting of data collection and storage, as well as stimulate geospatial literacy within the organisation. Integrating marine geospatial data into the ISEAL Certification Atlas will bridge the gap between the terrestrial and marine environment, helping us look at potential links between these environments as well as with socio-economic factors. The visual combination of terrestrial and marine certification data has the potential to stimulate ideas and data sharing among ISEAL members, lead to new collaborations and analyses, and provide a more complete picture of certification on a global scale

At the first stage of the project, we will focus on mapping the MSC geospatial data (applying the CAWG draft standard for collecting and managing certificate location data). This will inform recommended edits to the draft

working document. Data cleaning and standardization will be central. Once standardized data is compiled, the focus of the project will be exploring approaches for visualization of the data to stimulate ideas and discussions (internal and external) on how to improve data collection, formatting and mapping. This will inform policies for collecting, managing, sharing and publishing the data as well as analysis opportunities. This will ultimately allow us to carry out analyses for various purposes, linking MSC marine to the terrestrial geospatial data held by other members and integrating socio-economic as well as other environmental or legal data layers.

We aim to integrate marine geospatial data on a global scale, comprising location of certified fishing organisations, fishing areas and spatial information on fished stocks. We will include additional geospatial data currently held by MSC, which include a variety of target species and gear, and has been collected over several years. We will explore combining the MSC data with publicly available data on a global scale such as bathymetry (seafloor topography), Large Marine Ecosystems, Marine Protected Areas, Economic Exclusive Areas and UN FAO areas. This product will then be the focal point for discussion with CAWG members, marine specialists, and GIS experts to explore:

- How to derive insights from the interaction of data layers complied,
- Propose improved approaches for visualization of marine data in combination with other members' data, mostly on land, and
- Frame requirements (e.g., key questions, data layers, geographies, themes, etc.) for future analyses.

Geographies: Global marine environments
Thematic Areas: Spatial patterns of certified fisheries in relation to the marine environment in terms of environmental features, fish stock distribution as well as legal and economic sea zones.
Commodities: Fish and seafood
Timeframe: (so far) recent years

This project will define procedures and policies for collecting, managing and integrating marine geospatial data into the ISEAL Certification Atlas. Additionally, the project will deliver a draft global data layer for marine certificate locations. We also hope to enhance new ideas, discussion and collaboration with other ISEAL members, in particular for linking marine with terrestrial data and including socio-economic factors into the evaluation of MSC impacts. The import of external geospatial data layers (environmental, legal and socio-economic) into the Atlas will be of benefit to all participating members.

A more long-term outcome is the ongoing annual update of MSC data and integration into a comprehensive Certification Atlas, displaying global certification information in an appealing way that engages stakeholders and the broad public.

Link to 'Marine' Story Map: https://arcg.is/01H1X1

Water Scarcity

Water resource mapping and performance assessment

Lead organisation: Better Cotton Initiative

Partners: Fairtrade International, Rainforest Alliance/UTZ

There is a need for standard systems to broaden the scope in tackling water-related issues, by moving towards a holistic water resources management approach (i.e. water stewardship) that includes climate change. To use water more sustainably, producers must understand the water resources of their production areas to build an effective water resource management strategy. Mapping certified production locations and understanding water resources is

a critical first step by enabling producers to understand their local water environment. It informs them of where the water used for their production originates, where it flows beyond the farm's borders, and of the main water issues (water quantity and quality aspects) in the catchment, or aquifer.

There is a need for standard systems to:

- Use water resource data sets to assess water-related risks for agricultural production,
- Strengthen monitoring and evaluation, and remediation systems that can more effectively and efficiently assess water use performance data in relation to water stressed regions.
- Establish parameters for comparison of certified and non-certified production areas to enable prioritization.
- Overlaying producer certificate locations with secondary data on water resources, water stress and climate change can help producers' water stewardship planning and allow for water-related stressors to be understood and addressed more effectively through M&E and remediation systems now and in the future.
- Develop tools that support partners and producers in the process of mapping certificate location and Geo-spatial mapping as a tool can help with:
- Using existing water themed spatial data sets (e.g., aquifers and watersheds) in relation to certified production locations will help actors understand key water related dynamics and associated risks. Such maps would be a powerful tool for farmers and partners to use as a first step to building effective water stewardship plans.
- Strengthening monitoring and evaluation systems by making better use of performance data. This can be achieved through overlaying water use data with secondary data layers on water stress in order to strengthen reporting, and to help identify and focus programmatic interventions toward more water stressed producer regions.
- Incorporating prediction on how the climate is expected to change in the future (http://futureclimates.conservation.org/) can help producers make decisions today to prepare for future water-related issues.

2 types of geo-spatial analysis are being proposed:

1. Mapping of water bodies and resources overlaid with producer coordinates to help producers with water stewardship planning (producer focused)
2. Assessment of performance by overlaying irrigated water use performance data with water stress maps to help identify and focus interventions on areas with higher levels of water stress (M&E focused)

Geographies: India, China, Mozambique, Pakistan, Tajikistan.
Thematic area: Water Stewardship
Commodity: Cotton
Timeframe: 7 months

Study goals:

- Development of GIS-based tools and outputs to assist partners and producers map and understand their water resources and associated risks
- Establishment of a testable index on producer certificate locations, water use performance data in relation to water stress to strengthen M&E reporting and improve targeted interventions in areas of higher water stress.
- The cotton sector is better addressing water risk through taking advantage of the spatial context of cotton production areas and leveraging the power of GIS.

Link to 'Water Scarcity' Story Map: https://arcg.is/1HLvKD