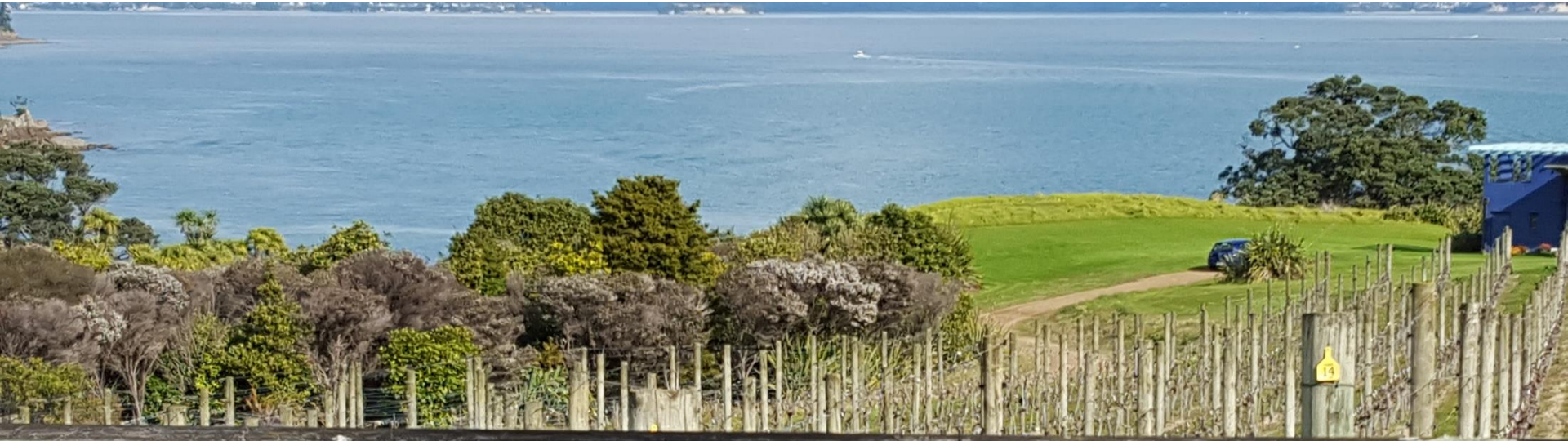**The Bertebos Conference 2018, Falkenberg, Sweden, 26-28 August 2018**

How to assess sustainable food and agriculture systems?

Nadia El-Hage Scialabba, Rome, Italy

What does an environmentally 'sustainable' field entail?
(e.g. CO_2 vs. biodiversity-friendly)

SUSTAINABILITY PILLAR: ENVIRONMENT

ENVIRONMENTAL INTEGRITY

ATMOSPHERE	Greenhouse Gases		Air Quality
WATER	Water Withdrawal		Water Quality
LAND	Soil Quality		Land Degradation
BIODIVERSITY	Ecosystem Diversity	Species Diversity	Genetic Diversity
MATERIALS AND ENERGY	Material Use	Energy Use	Waste Reduction & Disposal
ANIMAL WELFARE	AnimalHealth		Freedom from Stress

How far does socially 'sustainable' goes?
(e.g. workers safety vs. public health)

SUSTAINABILITY PILLAR: SOCIAL

SOCIAL WELL-BEING

DECENT LIVELIHOOD	Quality of Life	Capacity Development	Fair Access to Means of Production
FAIR TRADING PRACTICES	Responsible Buyers		Rights of Suppliers
LABOUR RIGHTS	Employment Relations	Forced Labour	Child Labour / Freedom of Association and Right to Bargaining
EQUITY	Non Discrimination	Gender Equality	Support to Vulnerable People
HUMAN SAFETY & HEALTH	Workplace Safety and Health Provisions		Public Health
CULTURAL DIVERSITY	Indigenous Knowledge		Food Sovereignty

What makes a food enterprise economically 'sustainable'?
(e.g. profitability vs. resilience)

SUSTAINABILITY PILLAR: ECONOMIC

ECONOMIC RESILIENCE

INVESTMENT	Internal Investment	Community Investment	Long-Ranging Investment	Profitability
VULNERABILITY	Stability of Production	Stability of Supply	Stability of Market	Liquidity	Risk Management
PRODUCT QUALITY & INFORMATION	Food Safety	Food Quality	Product Information
LOCAL ECONOMY	Value Creation	Local Procurement

How is 'sustainable' governance?
(e.g. rule of law vs. responsibility)

SUSTAINABILITY PILLAR: GOVERNANCE

GOOD GOVERNANCE

CORPORATE ETHICS	Mission Statement		Due Diligence	
ACCOUNTABILITY	Holistic Audits	Responsibility	Transparency	
PARTICIPATION	Stakeholder Dialogue	Grievance Procedures	Conflict Resolution	
RULE OF LAW	Legitimacy	Remedy, Restoration & Prevention	Civic Responsibility	Resource Appropriation
HOLISTIC MANAGEMENT	Sustainability Management Plan		Full-Cost Accounting	

THE JUNGLE OF SUSTAINABILITY CLAIMS

What is green?

- ✓ Climate neutral
- ✓ Energy-smart
- ✓ Bird-friendly (coffee)
- ✓ Dolphin-free (tuna)
- ✓ Forest stewardship
- ✓ Integrated production
- ✓ Green food
- ✓ Organic products

No scientific agreement on what is green (e.g. GHG)

- ✓ More than 3 000 global firms regularly issue reports on their social and environmental practices according to own codes or cross-industry codes
- ✓ ITC's Standards Map: 230 sustainability standards, codes of conduct, protocols

SAFA SUSTAINABILITY ASSESSMENT OF FOOD AND AGRICULTURE SYSTEMS

Sustainability requires universal thresholds
(e.g. legal requirements vs. sustainable thresholds)
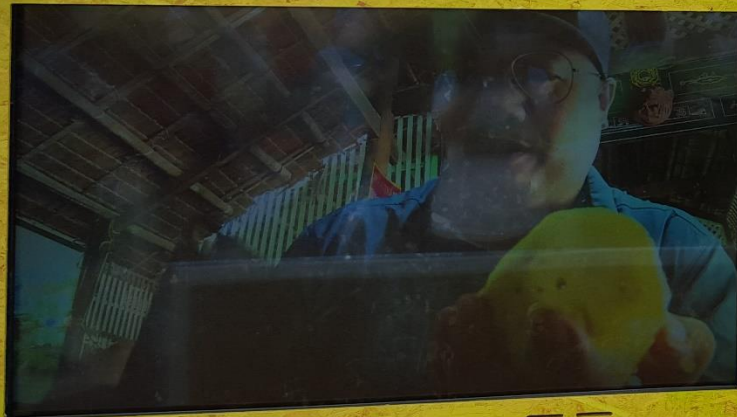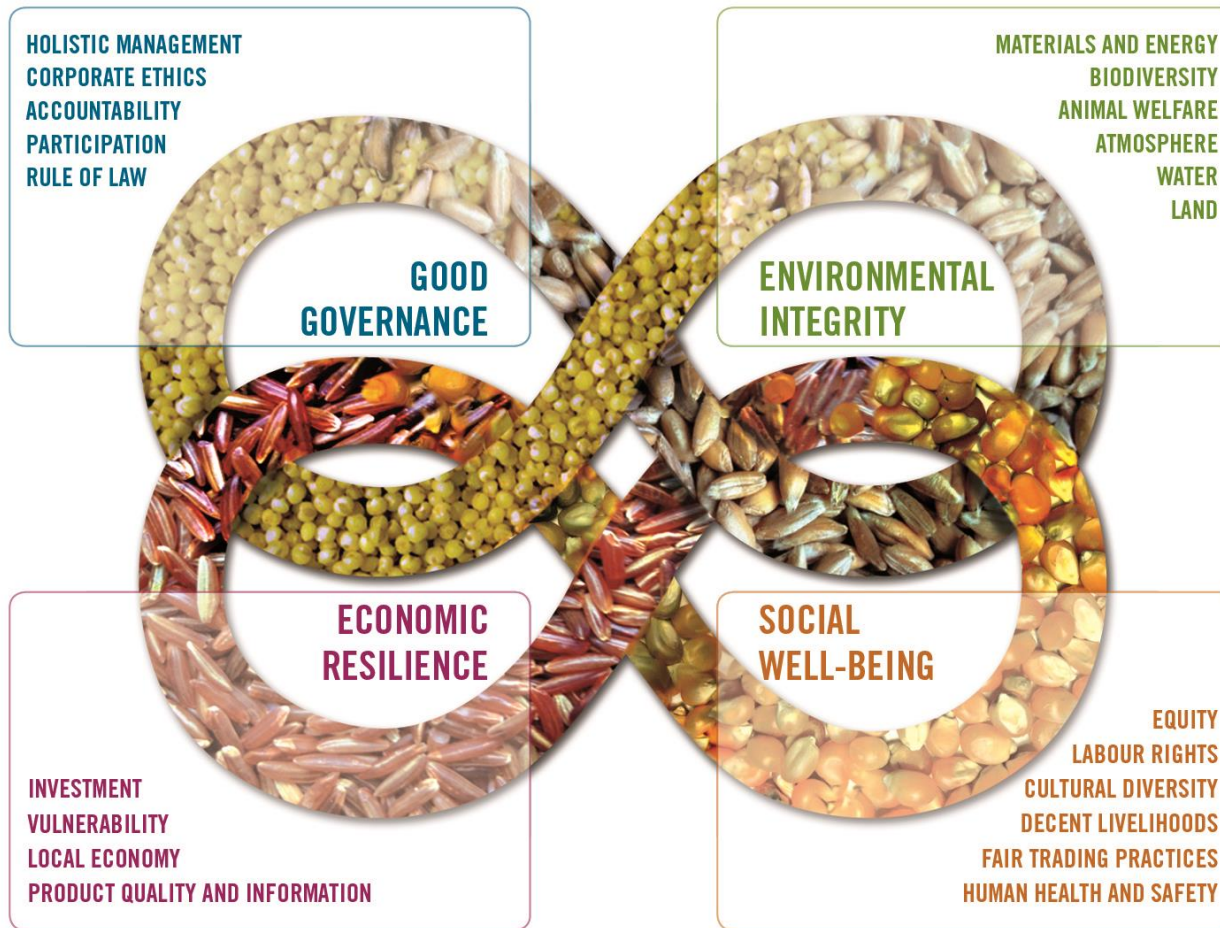
DIFFERENT TOOLS FOR DIFFERENT PURPOSES
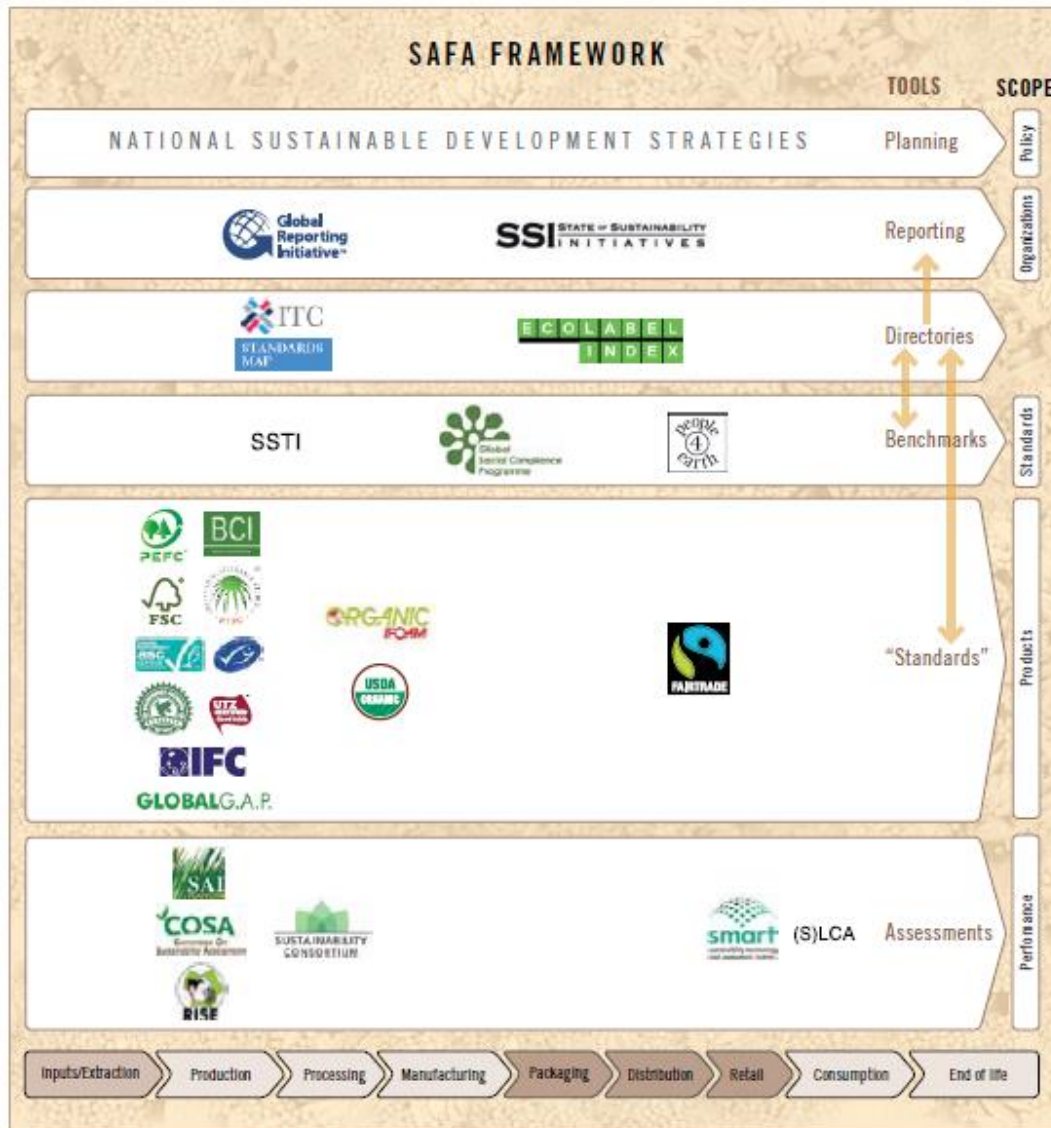
Sustainability tools differ in:
- ✓ coverage of supply chain
- ✓ coverage of sustainability dimensions and themes
- ✓ scope: impact assessment, reporting, certification, etc.

SAFA expands upon existing schemes to provide an umbrella-like framework for all purposes, with a sustainability threshold (since 2012)

SAFA's SUSTAINABILITY THEMES

HOLISTIC MANAGEMENT
CORPORATE ETHICS
ACCOUNTABILITY
PARTICIPATION
RULE OF LAW

GOOD GOVERNANCE

MATERIALS AND ENERGY
BIODIVERSITY
ANIMAL WELFARE
ATMOSPHERE
WATER
LAND

ENVIRONMENTAL INTEGRITY

ECONOMIC RESILIENCE

SOCIAL WELL-BEING

INVESTMENT
VULNERABILITY
LOCAL ECONOMY
PRODUCT QUALITY AND INFORMATION

EQUITY
LABOUR RIGHTS
CULTURAL DIVERSITY
DECENT LIVELIHOODS
FAIR TRADING PRACTICES
HUMAN HEALTH AND SAFETY

A multi-purpose framework for governments, businesses and NGOs

METRICS FOR AGRI-FOOD SUPPLY CHAINS

SAFA FRAMEWORK

THEMES (21)
Universal sustainability goals
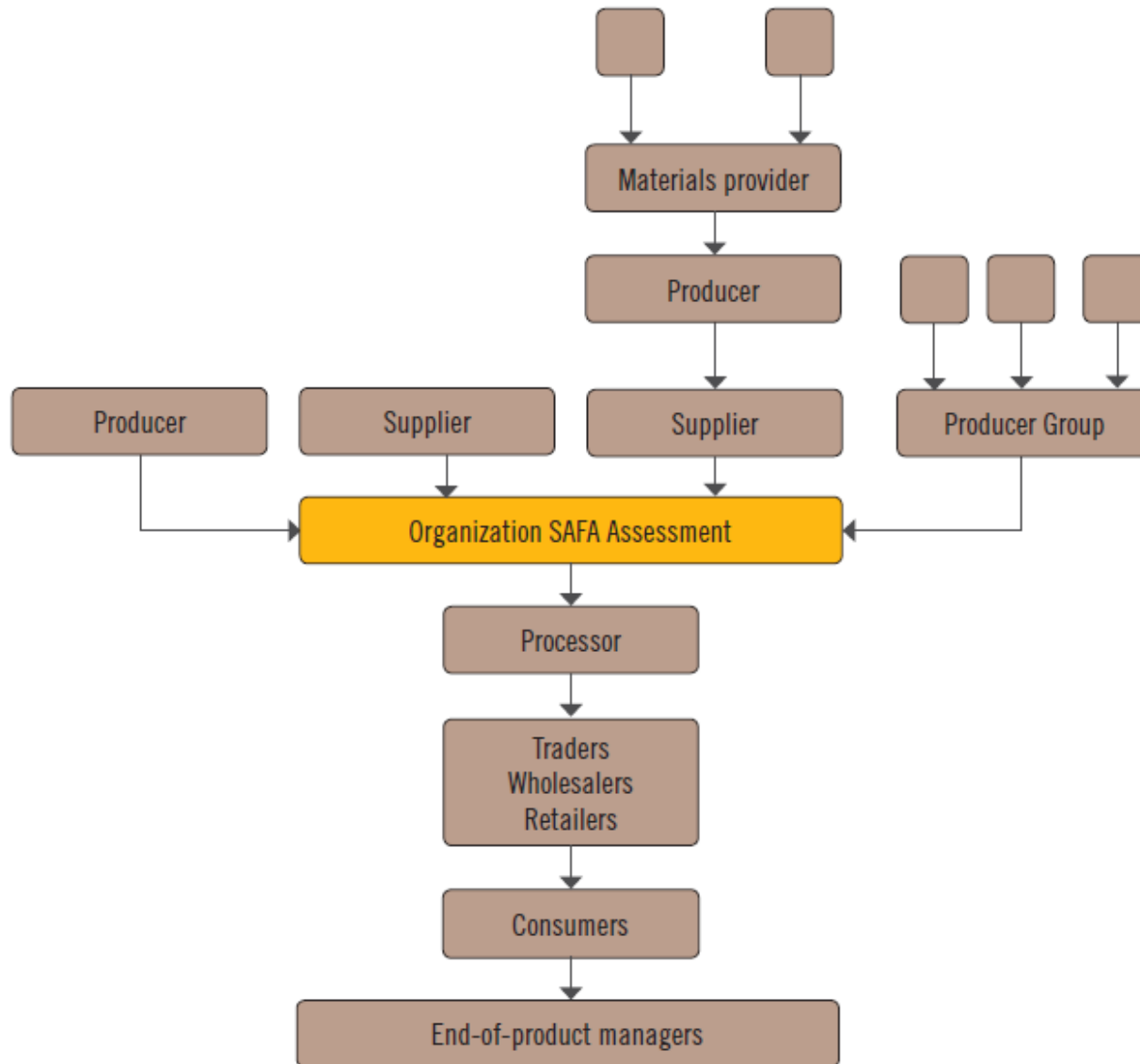
SUB-THEMES (58)
Sustainability objectives specific to supply chains

INDICATORS (116)
For crops, livestock, forestry, fisheries and aquaculture enterprises

SAFA STARTS BY DEFINING BOUNDARIES

The inclusion or exclusion of upstream or downstream phases along the supply chain does matter in term of assessment results! Therefore, defining boundaries is crucial.

Sustainability Dimension E: ENVIRONMENTAL INTEGRITY

Themes	Sub-Themes	Default Indicators
E1 Atmosphere	E 1.1 Greenhouse Gases	E 1.1.1 GHG Reduction Target
		E 1.1.2 GHG Mitigation Practices
		E 1.1.3 GHG Balance
	E 1.2 Air Quality	E 1.2.1 Air Pollution Reduction Target
		E 1.2.2 Air Pollution Prevention Practices
		E 1.2.3 Ambient Concentration of Air Pollutants
E2 Water	E 2.1 Water Withdrawal	E 2.1.1 Water Conservation Target
		E 2.1.2 Water Conservation Practices
		E 2.1.3 Ground and Surface Water Withdrawals
	E. 2.2 Water Quality	E 2.2.1 Clean Water Target
		E 2.2.2 Water Pollution Prevention Practices
		E 2.2.3 Concentration of Water Pollutants
		E 2.2.4 Wastewater Quality
E3 Land	E 3.1 Soil Quality	E 3.1.1 Soil Improvement Practices
		E 3.1.2 Soil Physical Structure
		E 3.1.3 Soil Chemical Quality
		E 3.1.4 Soil Biological Quality
		E 3.1.5 Soil Organic Matter
	E 3.2 Land Degradation	E 3.2.1 Land Conservation and Rehabilitation Plan
		E 3.2.2 Land Conservation and Rehabilitation Practices
		E 3.2.3 Net Loss/Gain of Productive Land
E4 Biodiversity	E 4. 1 Ecosystem Diversity	E 4.1.1 Landscape/Marine Habitat Conservation Plan
		E 4.1.2 Ecosystem Enhancing Practices
		E 4.1.3 Structural Diversity of Ecosystems
		E 4.1.4 Ecosystem Connectivity
		E 4.1.5 Land Use and Land Cover Change

Sustainability Dimension E: ENVIRONMENTAL INTEGRITY

| Themes	Sub-Themes	Default Indicators
E4 Biodiversity	E 4.2 Species Diversity	E 4.2.1 Species Conservation Target
		E 4.2.2 Species Conservation Practices
		E 4.2.3 Diversity and Abundance of Key Species
		E 4.2.4 Diversity of Production
	E. 4.3 Genetic Diversity	E 4.3.1 Wild Genetic Diversity Enhancing Practices
		E 4.3.2 Agro-biodiversity in-situ Conservation
		E 4.3.3 Locally Adapted Varieties and Breeds
		E 4.3.4 Genetic Diversity in Wild Species
		E 4.3.5 Saving of Seeds and Breeds
E5 Materials and Energy	E 5.1 Material Use	E 5.1.1 Material Consumption Practices
		E 5.1.2 Nutrient Balance
		E 5.1.3 Renewable and Recycled Materials
		E 5.1.4 Intensity of Material Use
	E 5.2 Energy Use	E 5.2.1 Renewable Energy Use Target
		E 5.2.2 Energy Saving Practices
		E 5.2.3 Energy Consumption
		E 5.2.4 Renewable Energy
	E 5.3 Waste Reduction and Disposal	E 5.3.1 Waste Reduction Target
		E 5.3.2 Waste Reduction Practices
		E 5.3.3 Waste Disposal
		E 5.3.4 Food Loss and Waste Reduction
E6 Animal Welfare	E 6.1 Animal Health	E 6.1.1 Animal Health Practices
		E 6.1.2 Animal Health
	E 6.2 Freedom from Stress	E 6.2.1 Humane Animal Handling Practices
		E 6.2.2 Appropriate Animal Husbandry
		E 6.2.3 Freedom from Stress

THRESHOLDS AND NO GOs

✓ SAFA offers 5 a scale rating for performance: Best (green) and Unacceptable (red) practices are defined, with the three middle ratings are defined by users, based on context

✓ 'Unacceptable' defines the threshold for each indicator, usually above legal requirements

✓ 'No go' practices influence overall rating and weighting of indicators at the Sub-Theme level

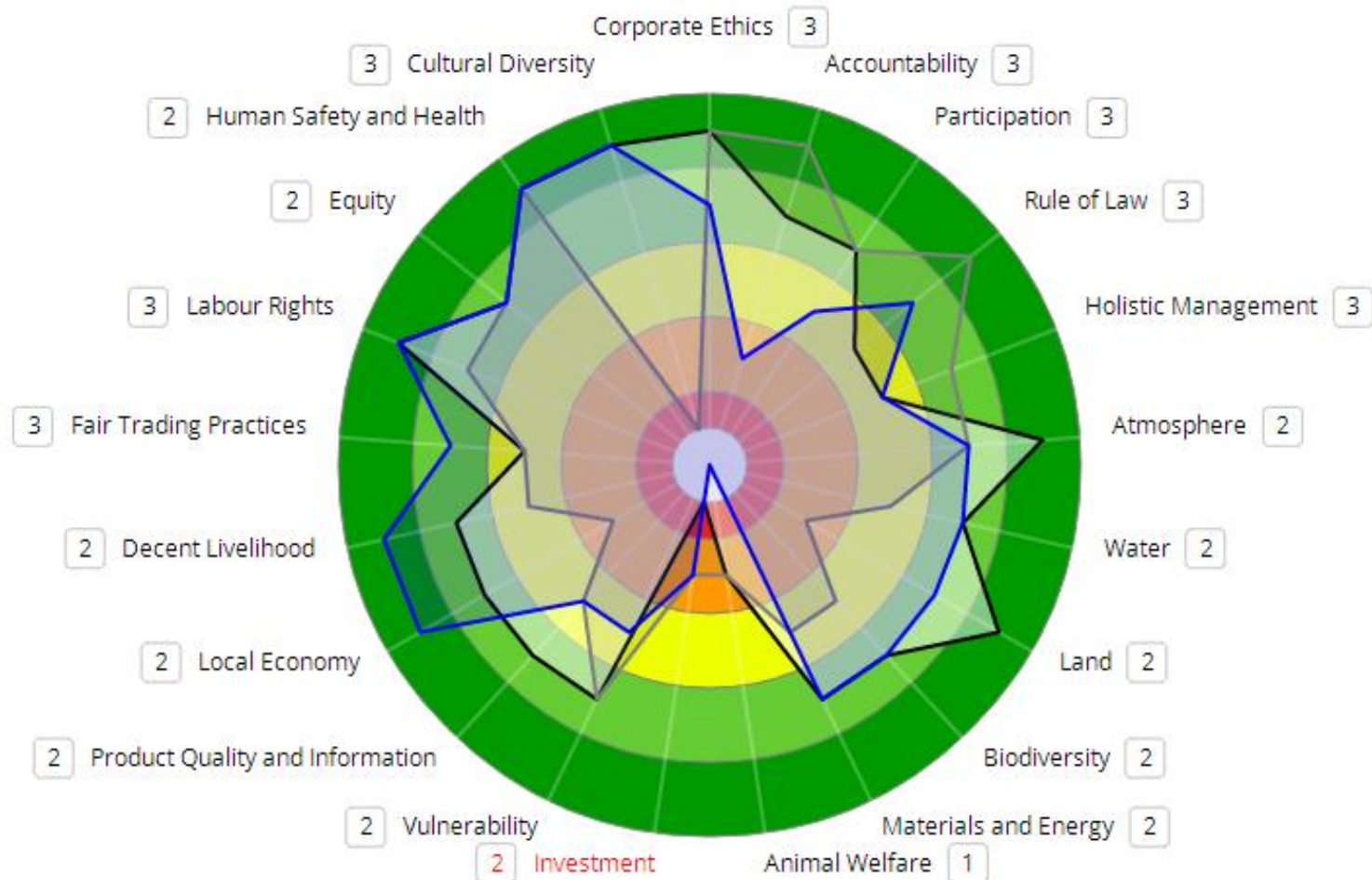| PERFORMANCE	PERCENTAGE SCORES
🟢 BEST	80-100 percent
🟢 GOOD	60-80 percent
🟡 MODERATE	40-60 percent
🟠 LIMITED	20-40 percent
🔴 UNACCEPTABLE	0-20 percent

A FARMING ENTERPRISE PERFORMANCE
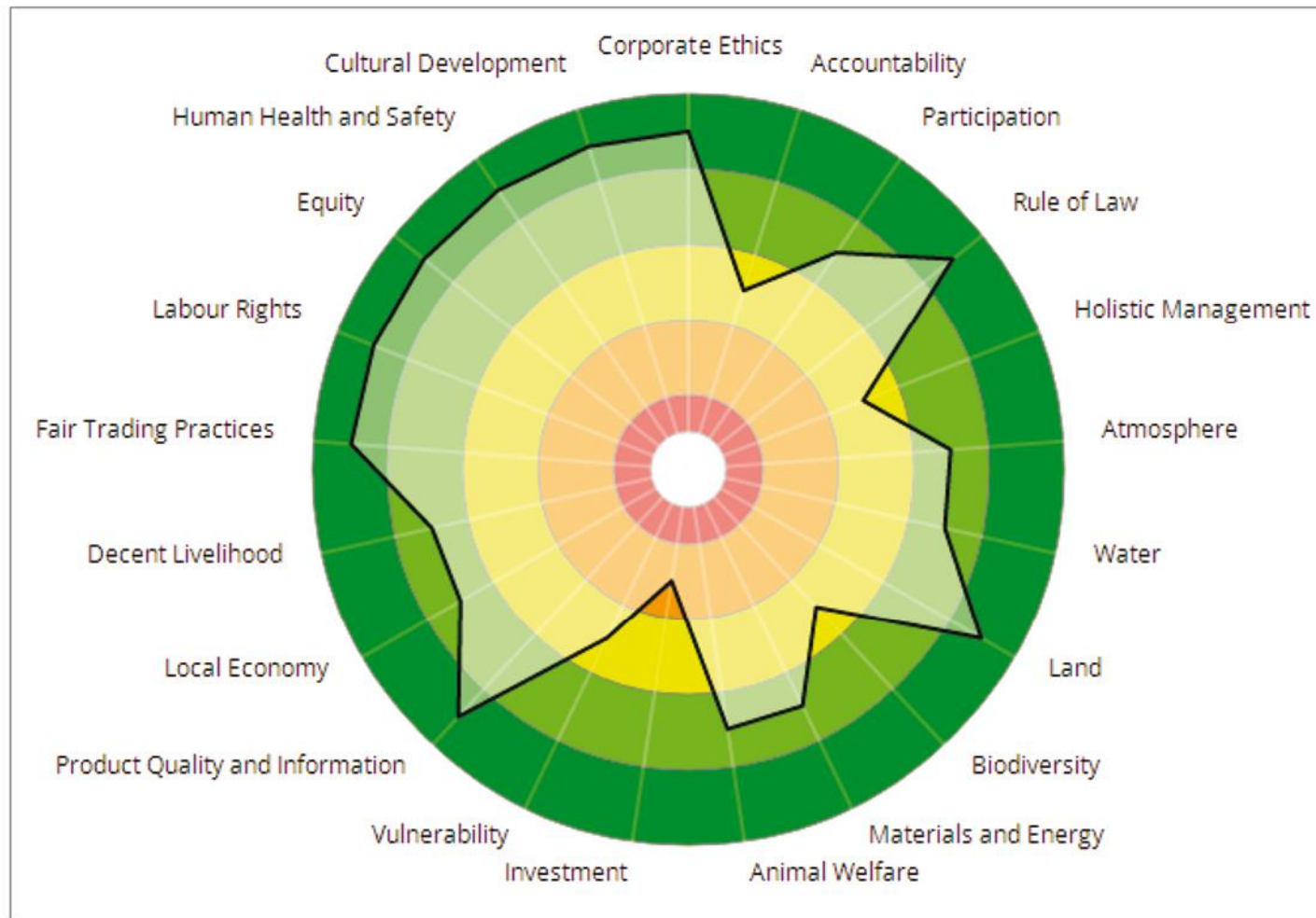
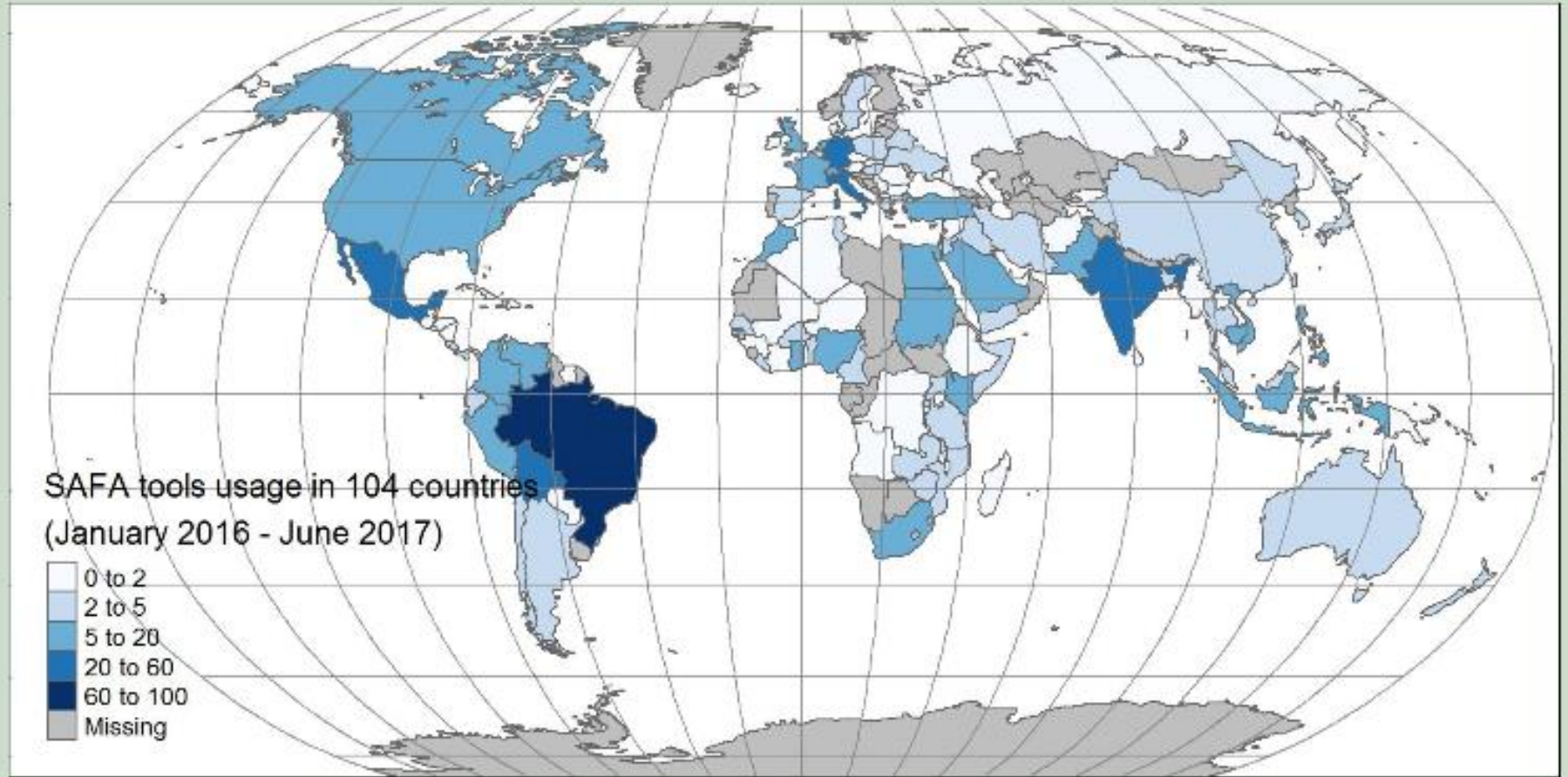
SAFA is NOT an index but an impact assessment tool

A VALUE-CHAIN PERFORMANCE

SAFA Tool overlays outcomes of production, processing and marketing

May 2017 review of SAFA users in 104 countries

SAFA tools usage in 104 countries (January 2016 - June 2017)

- 0 to 2
- 2 to 5
- 5 to 20
- 20 to 60
- 60 to 100
- Missing

✓ SAFA benchmarked 10 schemes sustainability schemes (e.g. FSC, Rainforest, SAI)

✓ SAFA Tool piloted in 23 settings in 19 countries across all continents (1/2 million)

✓ SAFA App tested in Colombia, Kenya and India with over 500 smallholders

SAFA SUSTAINABILITY ASSESSMENT OF FOOD AND AGRICULTURE SYSTEMS

Some examples of SAFA applications

EX-ANTE & EX-POST ASSESSMENTS

Ex-ante impact assessment of projects: Argentinean irrigation development project assessed the impact of different water use and management scenarios across Mendoza' municipalities, for participatory decision-making on priority actions that considered 5 watershed development scenarios (what trade-offs are best for all?)

Assessment of commodity supply chains: coffee operations from Kenya (growing and storage logistics) to Ireland (roasting and marketing)

Annual ex-ante & ex-post evaluation of food security: MAPA-led Integrated Production Project in Agriculture Systems (PISA) encompassing 1200 smallholders in 61 municipalities in South Brazil are assessed annually since 2014, to inform rural extension initiatives and communicate progress towards the SDGs
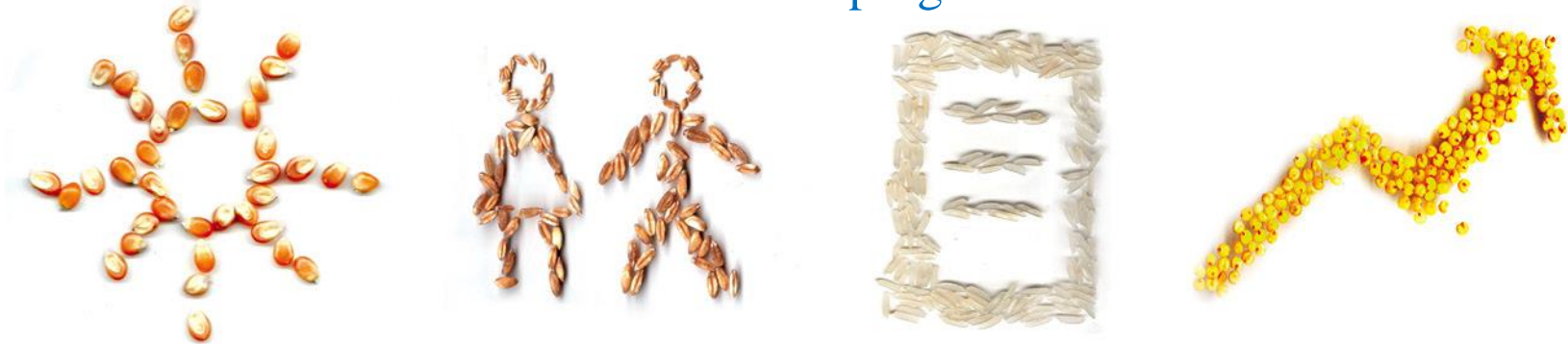
SAFA-INSPIRED TOOLS

Sustainable export credentials. Since 2012, funded by Ministry of Business, Innovation and Employment, the New Zealand Sustainability Dashboard developed on-line tools for sustainability assessment and reporting to ensure that overseas consumers can verify the sustainability credentials of NZ export products

Sustainable business claims. Launched in 2013 by the Swiss Sustainable Food Systems Society, SMART-Farm-Tool provides quick farm screening that is peer-reviewed following ISO 14040, for B2B communication of food companies

Friends of the Earth certification: since 2014, a multiproduct certification program, which standard is based on SAFA for sustainable farming products, including certified coffee, oils, rice, tomato, quinoa and dairy worldwide

SAFA-INSPIRED POLICY EVALUATION

Transnational Private Regulation: SAFA proposed in 2014 by European University Institute for the evaluation of rules and processes across jurisdictional boundaries. In 2016, the EU parliament approved the report of the EU Competition Policy (2015/2140(INI) which "calls on the Commission to develop progressively the EU competition framework to include in the monitoring of the food supply chain in Europe the SAFA indicators of FAO, including indicators under the headings of Fair Pricing and Transparent Contracts and Rights of Suppliers

Office of Technology Assessment at the German Bundestag: now analyzing the Sustainability of Farming Systems through the SAFA length, with a view to shaping future agricultural, environmental and research policies in Germany and Europe

MONITORING SDG IMPLEMENTATION?

SAFA themes highly converge with SDG targets!

SAFA Guidelines have inspired Canadian academics (Talukder & Hipel, 2016) to propose a methodological approach (based on hypothetical data in 5 selected countries) for constructing a Dashboard for SDG2 that could consider the 169 SDG targets as indicators - which performance is scored, weighted and aggregated into a simple Index (using Multi-Attribute Utility Theory techniques)
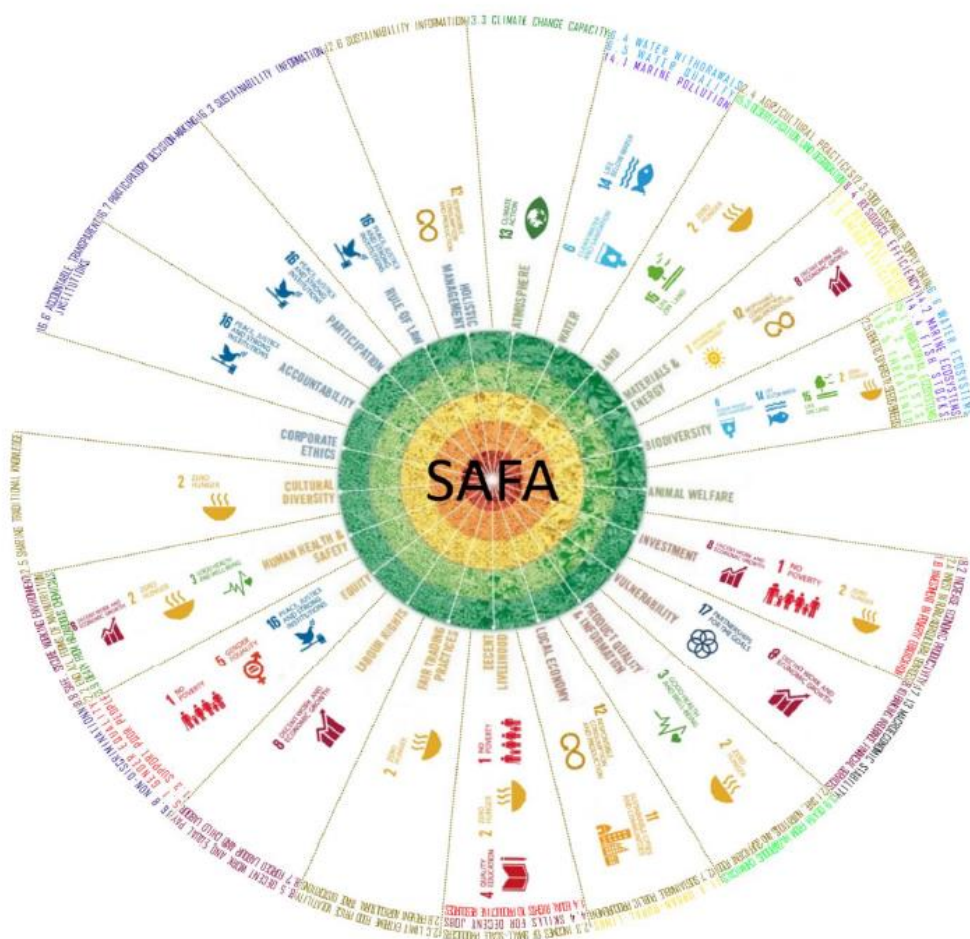
SAFA AS A UNIVERSAL REFERENCE

Products freely available from: www.fao.org/nr/sustainability

Thanks for your attention
(Nadia.elhage@outlook.com)