INNOVATION DAY at IFAD '22



APPLYING FRONTIER TECHNOLOGIES TO SECURE LAND TENURE





INNOVATION DAY at IFAD '22



SIDE EVENT

APPLYING FRONTIER TECHNOLOGIES TO SECURE LAND TENURE

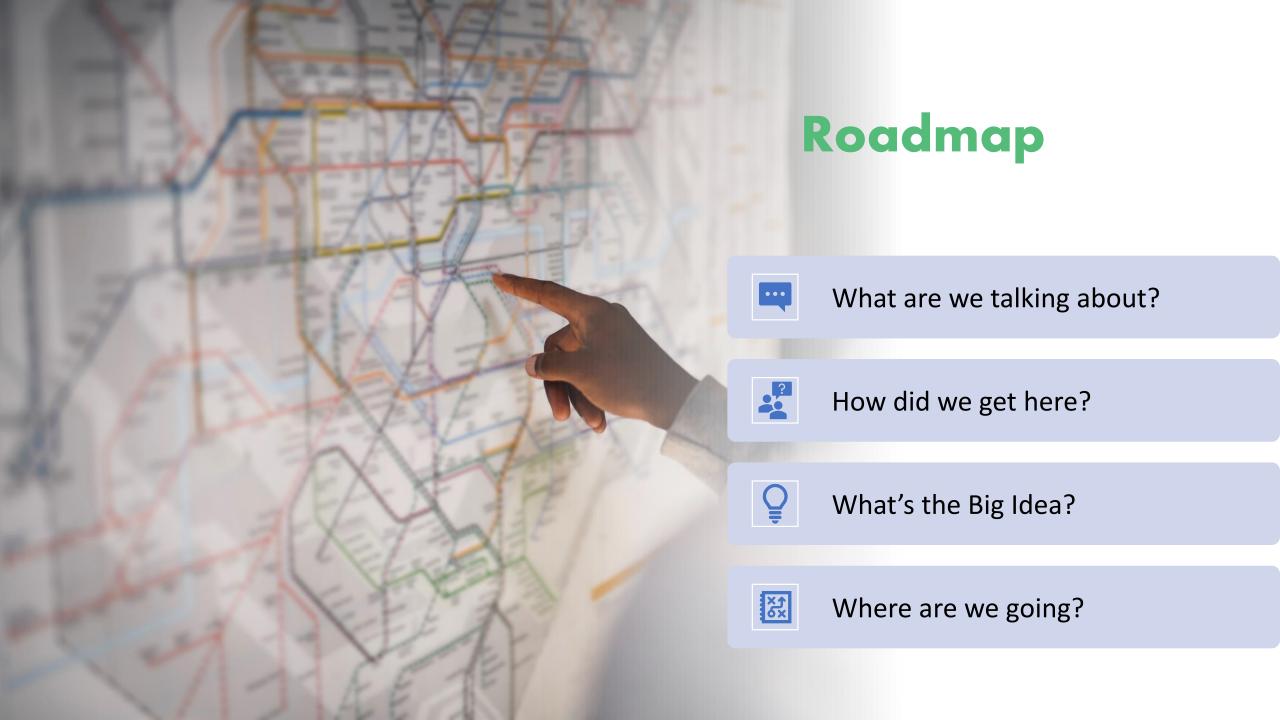
21 June | 10:00 - 11:30 CEST







Lessons learnt and future directions





Big idea 2: Is there an afterlife?



What are Frontier Technologies?

Potential to:

- Combat current global challenges
- Disrupt status quo
- Assist in global drive for sustainable development
- Widen existing inequalities or create new ones



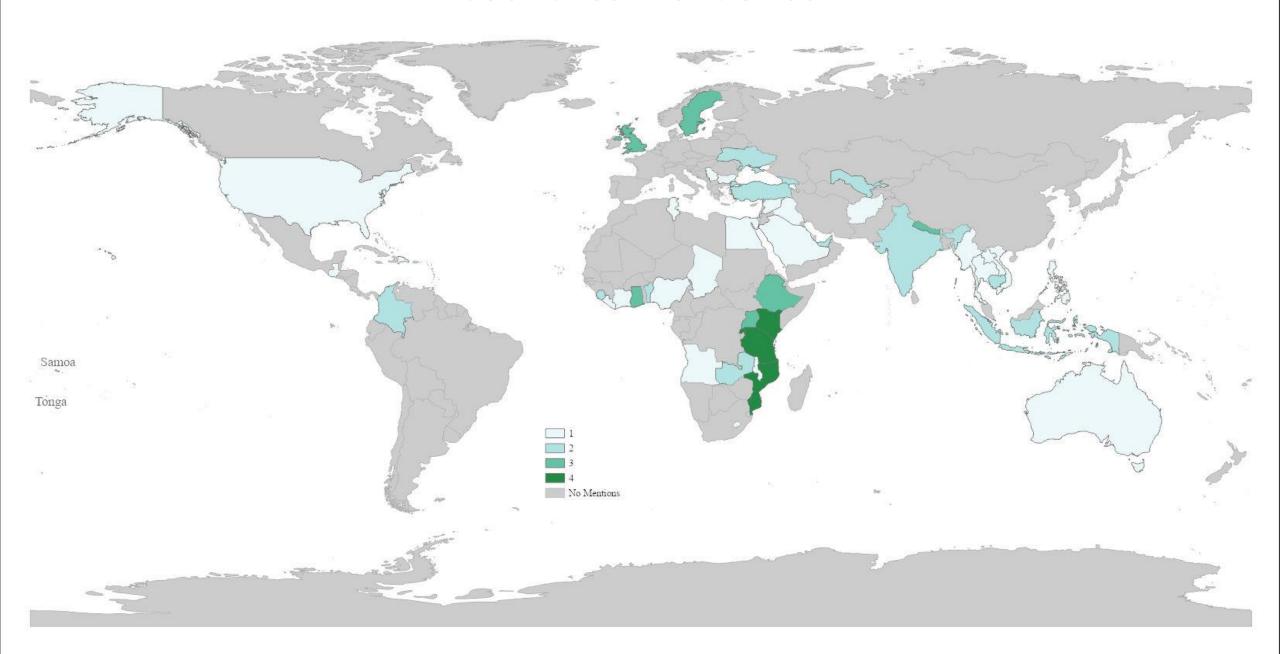






- 13 one-hour interviews with experts
 - Academia
 - International organisations
 - Solutions providers
- Transcribed interviews
- Summarised the highlights of each interview
- Pulled together the prominent themes.

Countries mentioned





Big idea 2: Is there an afterlife?



What's the Big Idea?

- 1. No Lone Rangers
- 2. Is there an afterlife?
- 3. It's not about the tech!



Where are we going?



Digital IDs



Image-based solutions



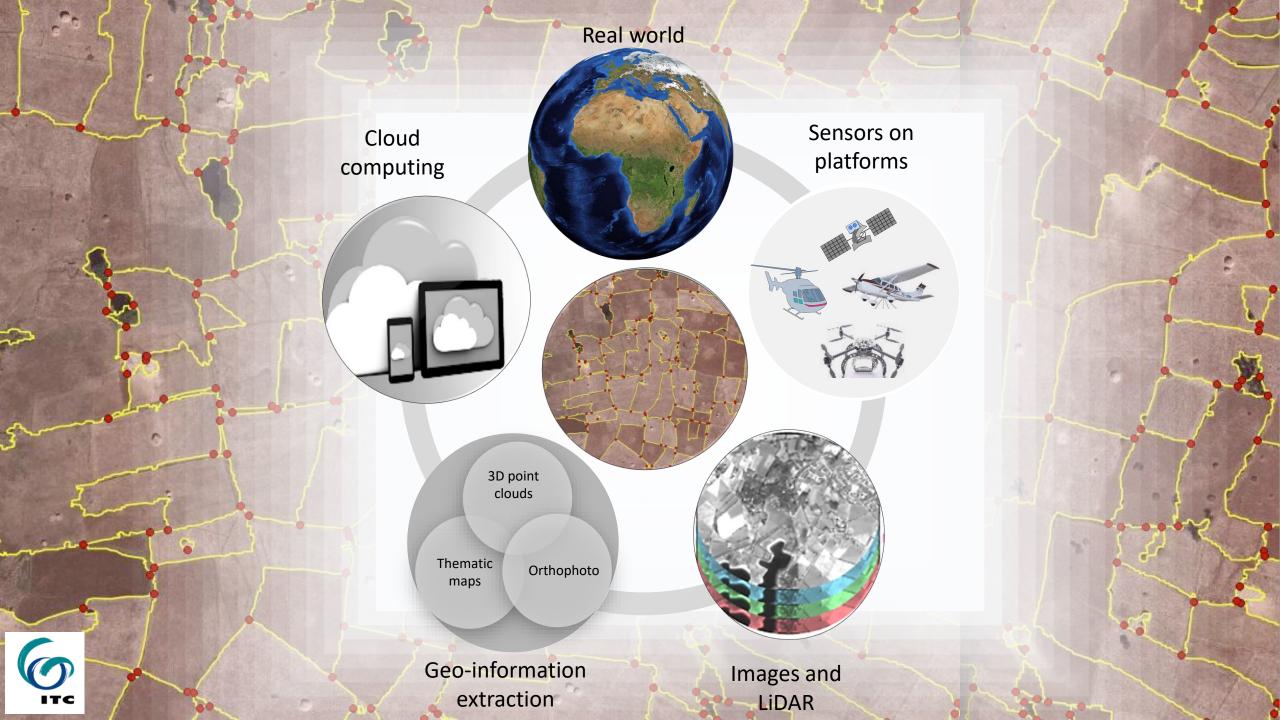
Big data mining



Machine learning









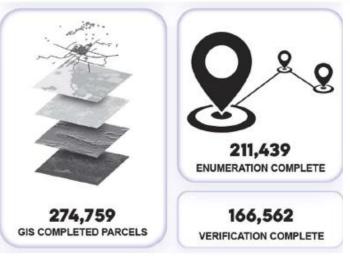
Combining GeoTechnology and participatory methods for securing tenure rights



ZAMBIA - NATIONAL LAND TITLING PROGRAMME PROGRESS AS OF END OF MAY 2022













INNOVATION DAY at IFAD '22



GOVERNMENT POLICIES THAT ACCELERATE INNOVATION: LESSONS FROM INNOVATORS IN ASIA AND AFRICA





About Us





A **Sustainable** and **Equitable** India



Promoting sustainable livelihoods and addressing environmental challenges through innovative business models and technologies



Create opportunities for **10 million** underserved people by **2030**

Verticals



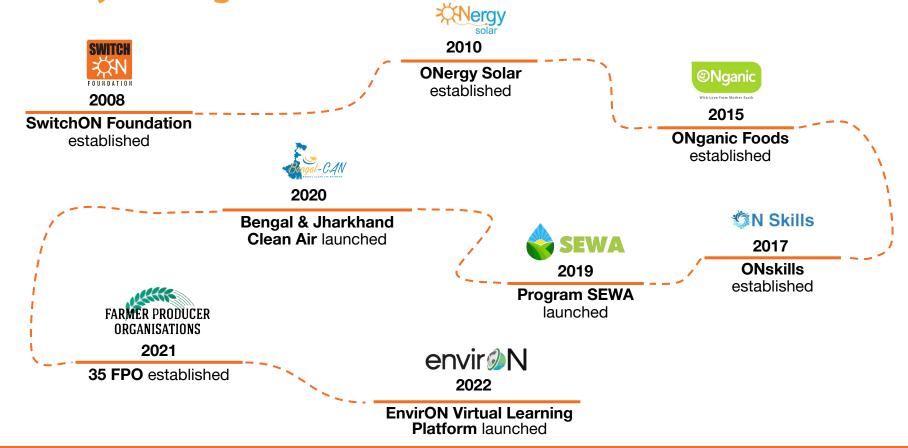








Our Journey







Awards





IFAD & CGIAR
Agrobiodiversity Innovation Challenge



























Theory of Change:



ACTION RESEARCH

Collect evidence &

Implement

Institution / Enterprise establishment

Design & rolling out

ECOSYSTEM Development

Scale up & Strengthen

ne...

DEVELOPING NETWORK

Replicate





Pilot project & study on Organic agriculture



Establishment of Farmers
Producer Organization(FPOs)



Provide Market linkage & Financial assistance

(Establishment of ONganic & connect with NABARD for financial support)



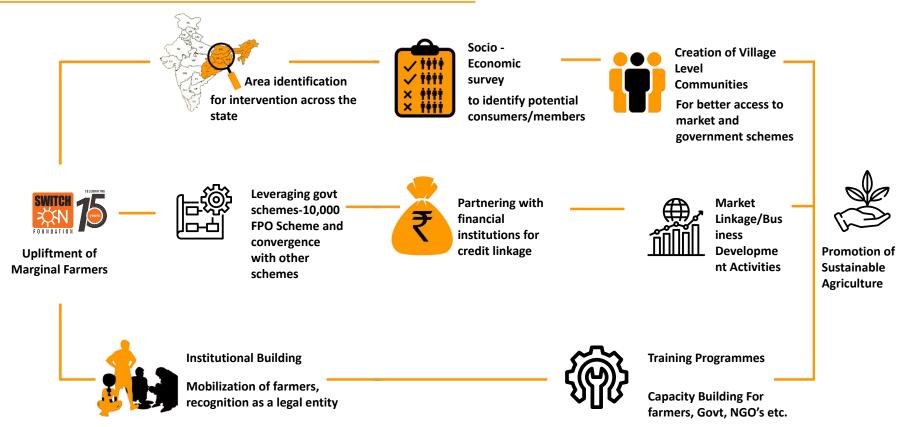
SEWA network formation





ECOSYSTEM APPROACH





Process for Setting up of Farmer Collectives



Phase |

Collectivisation

Identification of Producer Cluster
 Area

Phase II

Institutional Development and Capacity Building

- Bringing the farmers together into clusters to form FPOs
- Identification Climate Smart Agriculture Practices and Technologies

Phase III

Market, Credit and Scheme Linkage

- Providing Market Linkages and Value addition to the raw produce
- Ongoing handholding support



Central Sector Scheme of "Formation and Promotion of 10,000 Farmer Producer Organizations(FPOs)"



Features of the Scheme

SCALE BUDGET DURATION

10000 FPOs to be formed till 2023-24

Budgetary support of Rs 6866 cr

FPOs supported for 5 year period

Support to FPOs



EQUITY GRANT

Equity Grant in the form of matching grant up to Rs. 2000 per each farmer member of the FPO. The grant has a maximum ceiling of Rs. 15.00 lakhs.



FPO MANAGEMENT COST

For the first 3 years a grant of maximum of 18 lacs is provided.



WORKING CAPITAL SUPPORT

Credit Guarantee for taking WC Loan:

For turnover Upto 1 Cr: INR 85 Lakh

For turnover between 1 Cr-2Cr: INR 150 Lakh

me 15

Schemes promoted by the Government of India to increase Farmer Income through promotion of FPOs

"National Agricultural Market" - e-NAM

It is to facilitate online trading of agricultural commodities to enable farmers to realize better remunerative prices for their produce through improved access to market, access to large number of buyers for selling their produce to increase the income of their farmer members

Credit Guarantee Fund (CGF)

will provide suitable credit guarantee cover to accelerate flow of institutional credit to FPOs by minimizing the risk of financial institutions for granting loan to FPOs so as to improve their financial ability to execute better business plans leading increased profits

RKVY

Integrated Development of Food crops, Agriculture
Mechanization, Soil Health and Productivity, Development of
Rainfed Farming Systems, Integrated Pest Management,
Promoting extension services, Horticulture, Animal
Husbandry, Organic and Bio-fertilizers,

National Food Security Mission

area expansion and productivity enhancement, restoring soil fertility and productivity, Creating employment opportunities, enhancing farm level economy

Mission for Integrated Development of Horticulture (MIDH)

is a Centrally Sponsored Scheme for the holistic growth of the horticulture sector covering fruits, vegetables, root & tuber crops, mushrooms, spices, flowers, aromatic plants, coconut, cashew, cocoa and bamboo

Agriculture Infrastructure Fund

medium to long term debt financing facility for investment in viable projects for post-harvest management infrastructure and community farming assets through interest subvention and financial support/credit guarantee

Financial Support Scheme for Farm Mechanization (FSSM)

One Time Assistance to Small and Marginal Farmers for purchase of Small Farm Implements, Credit Linked Subsidy Scheme for Rural Entrepreneurs to set up Custom Hiring Centres (CHC) of Farm Machinery

Equity grant

matching Equity Grant from Government to strengthen financial base of FPOs and help them to get credit from financial institutions for their projects and working capital requirements for business development.

How these policies helped our program to develop FPOs

- 1. Effective capacity building to 35 FPOs to develop agriculture entrepreneurship skills so that they become economically viable and self-sustaining beyond the period of support from government.
- 2. Including small and marginal farmers as farmers groups to bring them under an FPO and to help them realize themselves as legal members of the FPO
- 3. FPO is supplying quality production inputs like seed, fertilizer, pesticides at reasonably lower wholesale rates
- 4. Through tie up with govt departments and other procurement institutions, FPO is earning profit as an organization and farmers are getting fair price for their produce
- 5. Members of the FPO are managing their activities together in the organization and are getting better access to technology, input, finance and market for faster enhancement of their income

Policy changes which could help us grow in the future

- The minimum support price (MSP) is an advisory price signal that is part of a larger set of agricultural policies in parts of India. This informal "support" price is recommended by the government and aims to safeguard the farmer to a minimum profit for the harvest while at the same time increasing food security in the country- trade policy is disconnected from MSP
- Policy changes required: On the production level- switching from the highly subsidized input price policy (power, water, fertilizers) and MSP/FRP policy for paddy, wheat, and sugarcane, to more income support policies linked to saving water, soil, and air quality
- Cultivable land and water for agriculture are limited and already under severe pressure- policy changes to safeguard groundwater and natural resources
- Free electricity and highly subsidized fertilizers, especially urea, are damaging groundwater levels, especially in the Green Revolution states



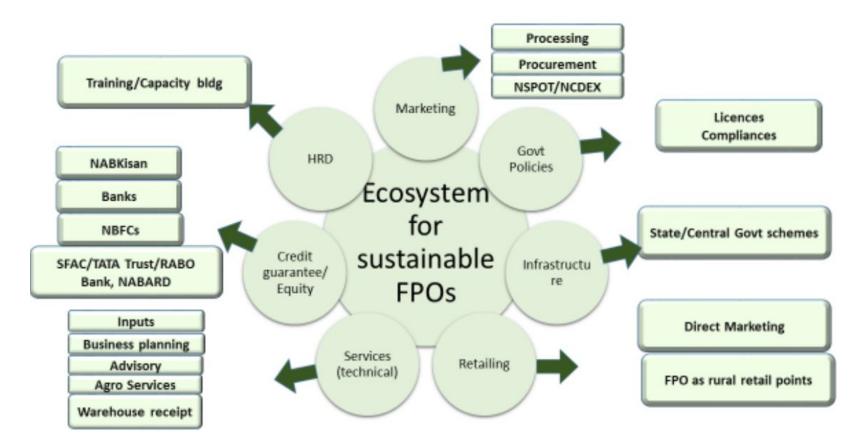
Annexures





Ecosystem requirement for Sustainable FPOs









Renewable Energy access

Initiatives

Promoting Distributed Renewable

Energy Technology for livelihoods(Solar Pumps, Post harvest solar appliances)



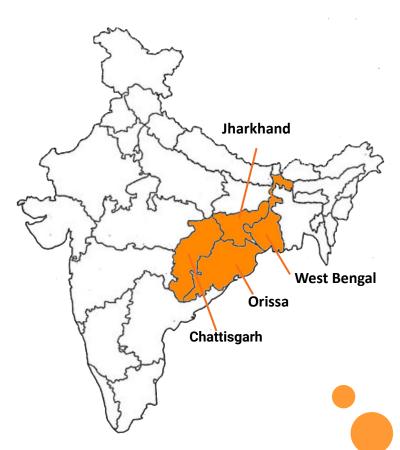




















Climate smart Agriculture

Initiatives

Promoting Farmer ProducerOrganisations for sustainable farming



















Initiatives

Imparting Govt/ CSR sponsored Green Employable Skills



















Environment & Climate Change

Initiatives

Promote Sustainable Urban Mobility& Clean Air Network

C Goldman Sachs







SwitchON's 3 Pronged Approach





Promoting Social Enterprise
Creation/ Rural
Entrepreneurship Building

- Promote market-driven impact through FPO formation
- Enabling marginal farmers to achieve self-sufficiency
- Training and capacity building in ushering sustainable agriculture practices
- Conservation of natural resources



Creating a Conducive Ecosystem

- Building purposive collaboration between multiple stakeholders
- Scale up intervention by facilitating knowledge and resource exchange.

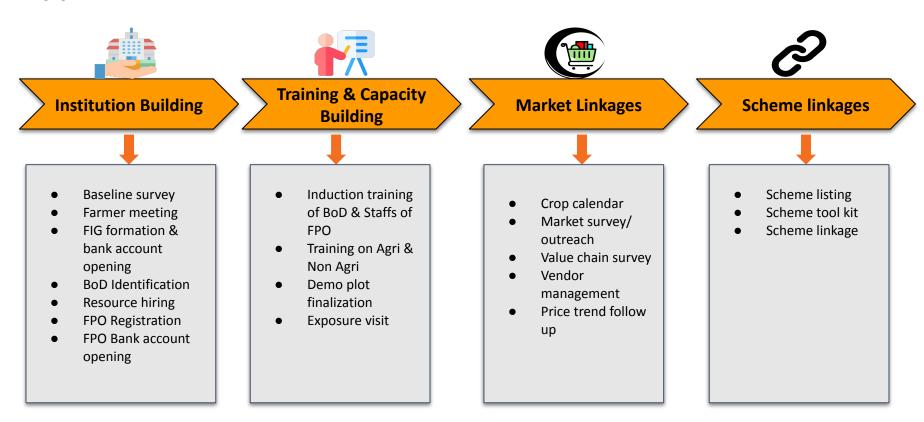


Network Building

- Create a network of partners (national and international) to have widespread impact
- Replicating our model of intervention through partner organizations

Approach & Process





Building an Ecosystem





Partner with Govt. agencies



Identify intervention area based on need analysis



Mobilize target group members



Training and capacity building



Impact Analysis of Intervention







Use Cases of Innovation as Enabler of Backward Integration of Value Chains Through Agribusiness Cluster and Inclusive Market Development

2SCALE Experience

Table of Contents

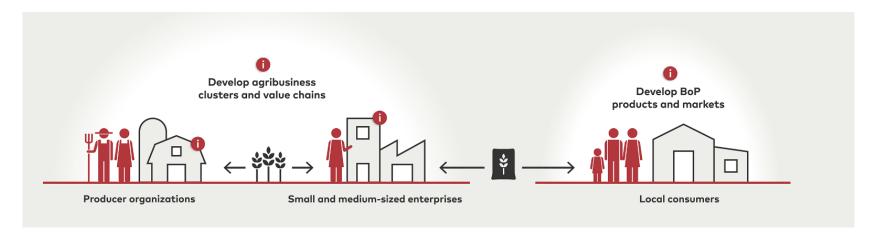
- 1. Introduction of 2SCALE Program
- 2. 2SCALE Innovation Categories
- 3. Two (2) Use Cases of Government Policies and Innovation Linkage
- 4. Towards a Sustainable Innovation for Development
- 5. Questions and Answers



Introducing 2SCALE

TOWARDS SUSTAINABLE CLUSTERS IN AGRIBUSINESS THROUGH LEARNING IN ENTREPRENEURSHIP







 Focuses on establishing inclusive agribusiness clusters built around business champions (entrepreneurial producer organizations or local SMEs that trade or process the produce of farmers)

Burkina Faso | Cote d'Ivoire
 | Egypt | Ethiopia | Ghana |
 Kenya | Mali | Niger | Nigeria
 | South Sudan

Implemented by:







Funded by:



2SCALE Innovation Categories





Input level

Production level

A. More efficient and eco-friendly use of water, energy and inputs for production. B. Better access to finance, financial resilience and ability to save. C. Less crop losses caused by climate change and extreme weather.

On-farm innovations

These categories are crucial to make sure the partnerships acquire sufficient **quantity** and **quality** produce from farmers

To reach our target of 375,000 hectares being eco-efficient



Processing level

D. Less food losses in postharvest handling, transport and storage. E. More
economic and
nutritional
value added
with less
waste, energy
and cleaner

F. Better farmer/market linkages, supply chain management, traceability and logistics. Less
packaging
waste in
distribution,
retail and
consumption.

Marketing level

Reach more
BoP
consumers at
last-mile with
nutritious food
products that
are

Off-farm (non-farm) innovations

These categories ensure that the produce **timely** reaches the markets without much **spoilage** and that it makes nutritious food available for **BoP consumers** in the region.

To reach our target of 50 off-farm innovations



Nigeria: Import Restriction Policy

Government Drive for Backward

- Integration
 Dairy Value chain
 largely nascent and
 fragmented
- Local demand estimated at 1.3m tons per annum (40% met by local production)
- Supply gap has always been bridged by imports
- Milk import restricted to only six (6) dealers
- Import-Restriction Policy aimed at encouraging backward integration of the dairy value chain

2SCALE & FC Wamco Partnership

Approach: Expand local sourcing of milk, using Inclusive agribusiness cluster and market development.

- Integrated pastoralists and Fulani milk producers (mostly women)
 - facilitated coordination among local actors
- capacitate milk producers on production best practices using technologies
- Invest in milk collection centers and supply chain logistics

2SCALE Innovation

mDairy – a Mobile and Web Application with SaaS business model which digitizes:

- farmers, aggregators and transporters registration
- extension advisory services
- milk recording at Milk Collection Points and Milk Collection Centers
- the linking of the records to the digital wallet of users and payment platform

MADE FOR YOU FROM 100% FRESH MILK **M**DAIRY Jeak Kaabo si mDairy! fi o ba pese die ninu alaye pataki fun mi, app yii Stramberru

From 400 litres per day to >40,000 litres/day at peak period | from 5,000,000cfu/ml to <250,000cfu/ml (bacteria count based microbiological evaluation) | first yoghurt drink made from 100% fresh milk to the Nigerian market

Replicated in a Kenyan dairy farmers cooperatives-owned company located in Kieni West, Nyeri County with registered membership of 12, 456 (5107 women)



Continental Green Recovery Action Plan

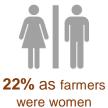
- Countries in Africa have domesticated the Action Plan with National Policies on Climate Change.
- Meteorological Agencies/Departments produce the Annual or Quarterly Seasonal Climate Prediction on all aspects of weather and climate,
- However, bureaucratic bottlenecks do not enable Government Agencies to act on the "Early Warning Systems" and provide the needed support to SHFs.

Implication

- Reliance on rainfed agriculture means farmers' vulnerability either from extreme of flood or extreme of drought
- Yields of smallholder farmers in sub-Saharan Africa remain the lowest in the world

Weather Forecast Service - Ignitia

- Implemented in the Sorghum, Maize, Rice and Onion Partnerships to support smallholder farmers in **Nigeria, Ghana** and **Mali**
- 2,536 farmers subscribed to receive daily weather forecasts sent by SMS for a period of 4 months.





89% of farmers reported accurate predictions



95% used weather forecast in decision making



72% of farmers reported increased yields





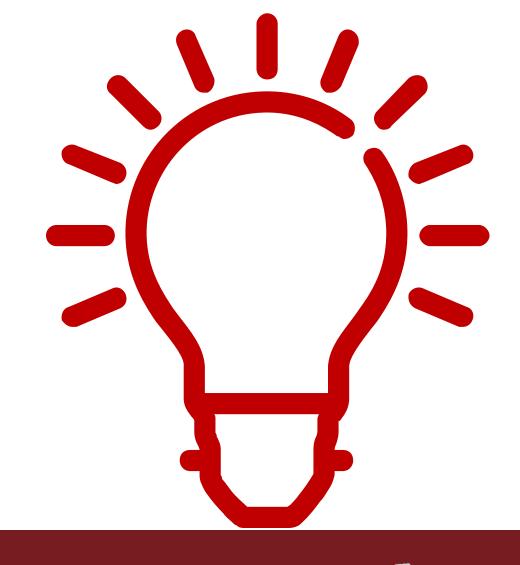
Towards a Sustainable Innovation for Development

CHALLENGES

- The focus on pilot and numbers as a measure of impact
- Low adoption rate caused by low literacy level and age-long beliefs
- Infrastructure deficits with attendant transact costs associated with scaling innovation
- Slow shift in subsidy policy transiting from consumption to the production
- The "freebie" culture and smallholders limited capacity to pay
- Even if SHFs are willing to pay, it is only a limited amount insufficient to recover costs in the first years

TOWARDS A SUSTAINABLE INNOVATION

- Real impact must shift from numbers achieved in pilots to numbers achieved in initial scaling
- 3-Phase Approach for Implementing Innovation (Co-creation and MVP, Pilot and Minimal Scaling)
- Government to accelerate transition of subsidy policy shift from consumption to production, e.g pay a part of initial cost of scaling
- Innovators to prioritize the integration commercial viability and sustainable business model as part of the design process and activities.
- Investment in infrastructure needed to reduce transactions cost associated with scaling innovation.

























Our problem statement

Farmers' day-to-day practices are impacted by the negative effects of climate change, yet they lack access to tailored knowledge on how to best adapt to these new challen

www.farmbetter.io/

Our solution



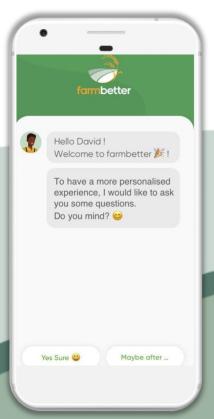
a mobile app that matches a farmer's location and situation with tailored and actionable knowledge for climate change adaptation, resilience building and improved livelihoods

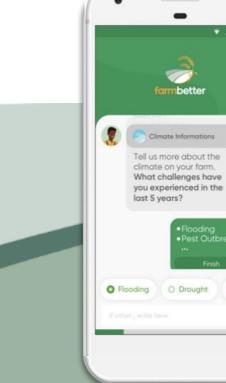


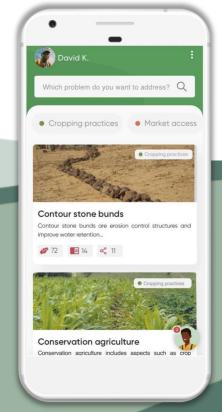
How It Works











Step 1:

Geo-reference farmer's location

Step 2:

Survey farmer's resilience

Step 3:

▼ . . 12:30

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Understand farmer's goals

Step 4:

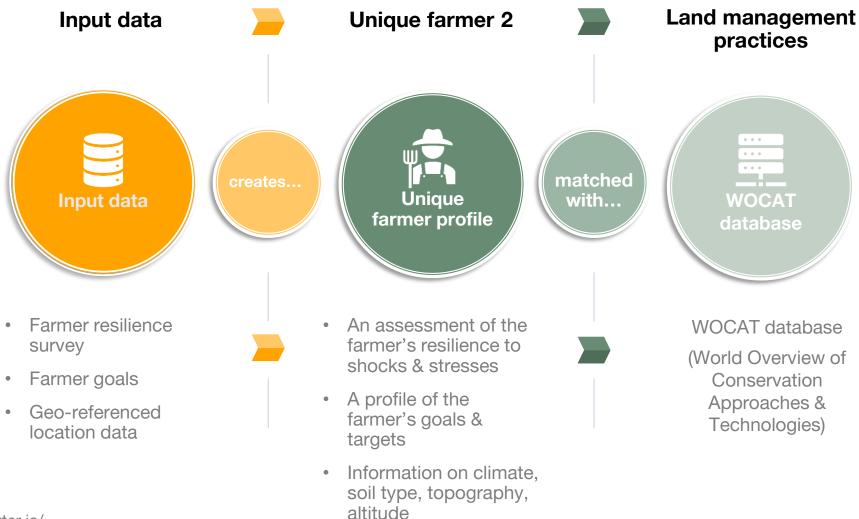
Match with farming solutions

www.farmbetter.io/

Data collected and used



5







Standing on the shoulder of giants: lots of research & data that was made available based on donor funding (e.g. WOCAT / FAO GAEZ databases)



Importance of funding of an extension system (public or not) as the basis for building capacities of farmers



Standards – from the internet and financial institutions to allowing for mobile payments.



Support programmes such as accelerators and direct funding in research & development projects

www.farmbetter.jo/





Complicated policies in each countries re: opening a business, a bank account and mobile payment account



Monopolies that lead to high costs for smaller players (e.g. Google/Apple's 15%-30% cut on app payments)



Intricacies of donor-funded processes – complicated applications & changing priorities as well as restricted activities to be funded



Lots of very small (10-20,000 USD) early-on support, but very limited amounts to go from MVP to revenue





Get in touch



benjamin@farmbetter.io



www.farmbetter.io



www.linkedin.com/company/farmbetter



www.facebook.com/farmbetter.io



www.twitter.com/farm_better

Our Team



Bringing together expertise in agriculture, climate adaptation and resilience, development and IT



John

(PhD & MSc) Co-CEO & Resilience expert



Daniele

(MSc)
Chief Technology
Officer



Samuel

(PhD & MA)
Head of Research
& Development



Ben

(MSc & MA)
Co-CEO & Lead
Marketing &
Fundraising



Sarah

(MSc) Director Fundraising



Sylvia

(MSc)
Director
Programme
Management

Our Partners & Awards



Partners

















CDE
CENTRE FOR DEVELOPMENT
AND ENVIRONMENT

Awards & Accelerators



funded by the European Union



DRIVING IMPACT INNOVATION







Schweizerische Eidgenossenschaft Confédération suisse Confederazione Svizzera Confederaziun svizra

Innosuisse – Agence suisse pour l'encouragement de l'innovation

Donors/Funders



Schweizerische Eidgenossenschaft Confédération suisse Confederazione Svizzera Confederaziun svizra

Swiss Agency for Development and Cooperation SDC



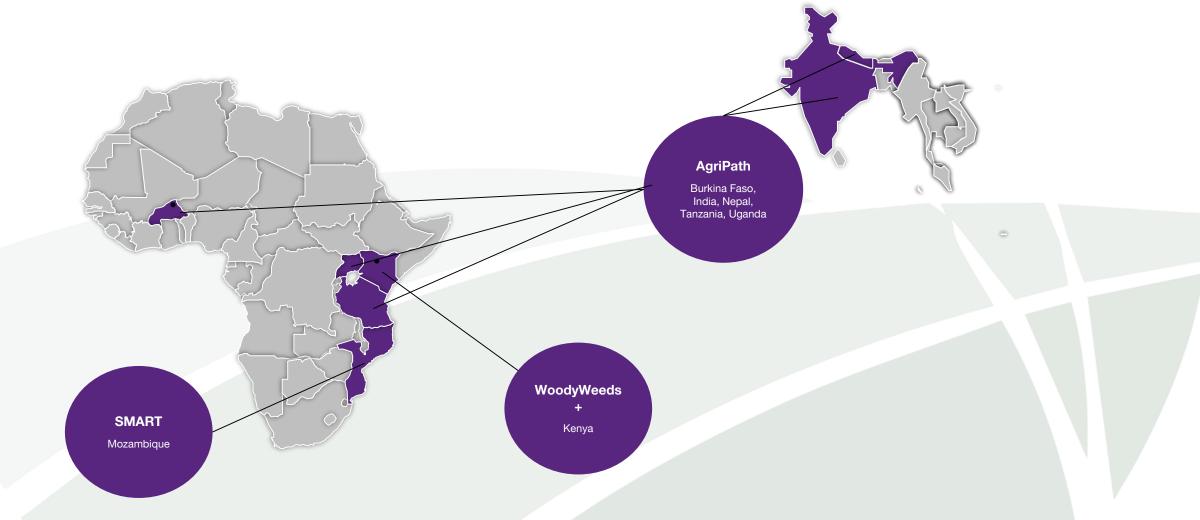
funded by the European Union

www.farmbetter.io/ Page 10

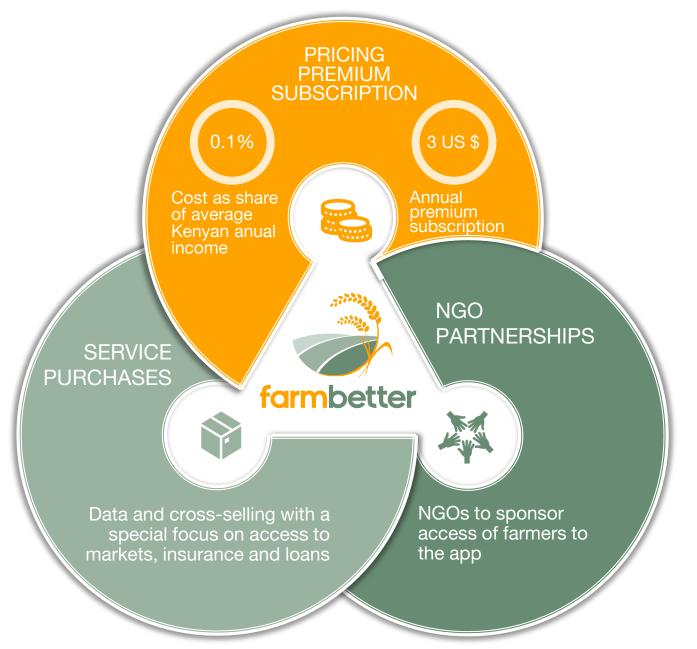
Where We Work



We're active in 7 countries on two continents as of 12/2021







Revenue Model

www.farmbetter.io/ Page 12

BALI DIRECT

Supporting small local businesses to access premium retail markets

Our Challenge

Build a profitable and progressive business that provides sustained support to local businesses



Our Approach

Create digital and physical retail stores for small local businesses

Provide them with essential services - grants, loans, technical assistance, market intelligence



A Bali Direct grant for Green Houses







A Bali Direct loan for Aluan virgin coconut oil







Profitable

Annual turnover 2021 > USD2 million/year

Average annual growth of 225% over 5 years



Our fulfilment centre







Progressive

+200 small local businesses and +4000 local products

Environment, e.g. short supply chains, glass recycling, biodegradable packaging

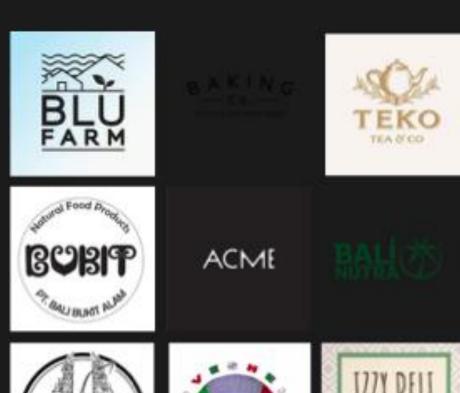
Nutrition, e.g. matched donations to the Bumi Sehat Foundation health centre

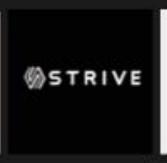
Gender, e.g. 75% of top management are women

Youth, e.g. average age of farmers <30 years



Sample of our local businesses







DaKimchi.

































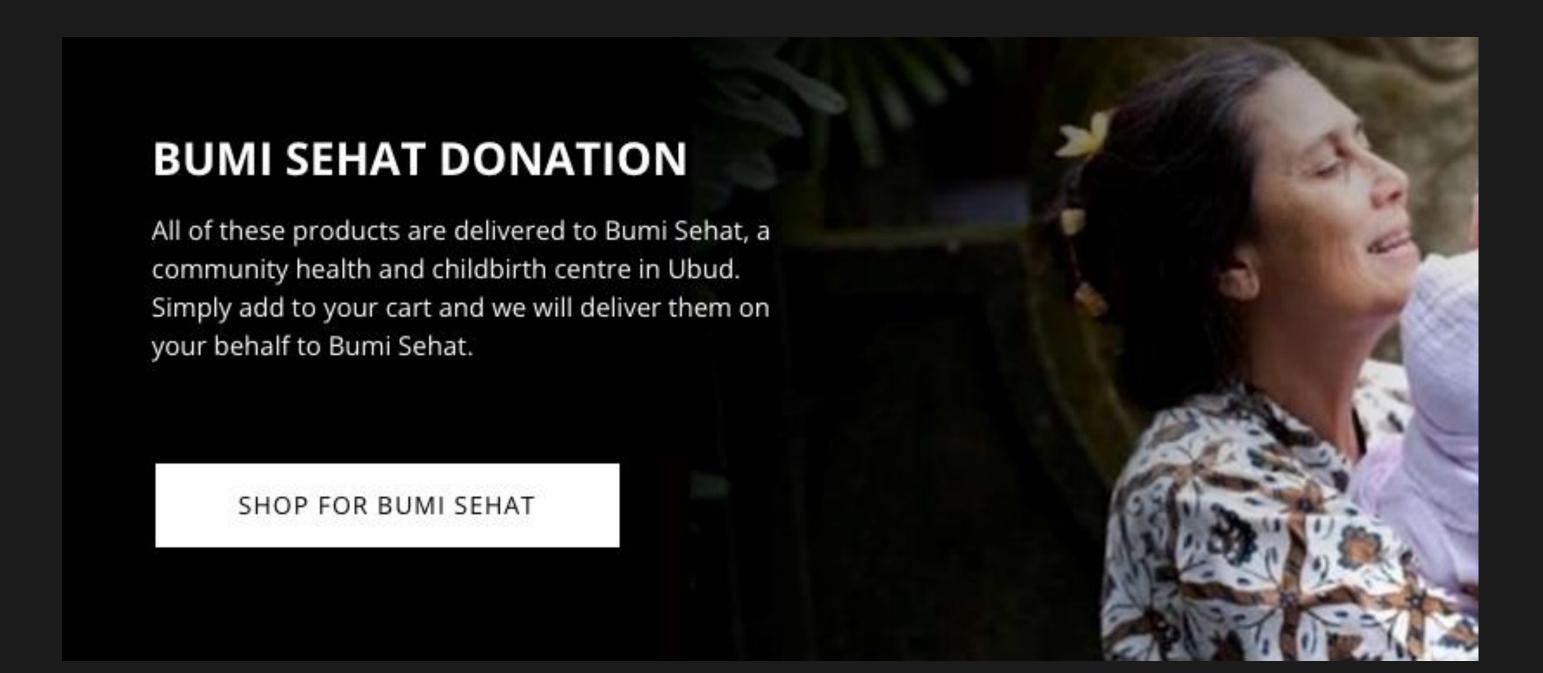






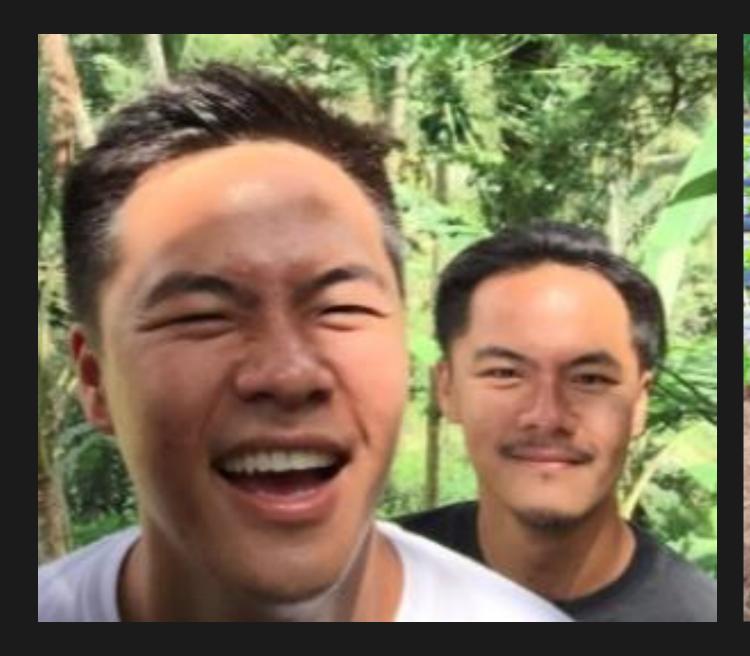


Bali Direct donates nutritious foods to Bumi Sehat





Bali Direct supports young returning farmers







Policies that hinder our business

Shortage of available risk capital

Complex food licencing process

Focus on modern and export markets

Competition from donor-subsidised businesses



Policies that help our business

Ease of establishing and operating small businesses

Accelerating digital infrastructure, economy and society







balidirectstore.com



INNOVATION DAY at IFAD '22



LEVERAGING ADVANCED ANALYTICS FOR TRANSFORMATIVE COUNTRY PROGRAMMES



SIDE EVENT

LEVERAGING ADVANCED ANALYTICS FOR TRANSFORMATIVE COUNTRY PROGRAMMES

21 June 2022 | 14:00 - 15:00 CEST







Alessandra Garbero Lead Regional Economist IFAD



Koen Peters
Head of Development for
Supply Chain Planning &
Optimization
WFP





Panagiotis Karfakis Economist FAO



Gerard Sylvester Investment Officer FAO



Sofia Kyriazi
Artificial Intelligence
Engineer
UNHCR



Bruno Arcanjo
Research Officer
Embedded and Intelligent
Systems Laboratory



Tetsuro Narita Senior Specialist Inter-American Development Bank



Harsh Anuj Knowledge Management Analyst World Bank

Artificial Intelligence & Machine Learning for Development Effectiveness (0) Findings from the Innovation Challenge Project: "Athena: Leveraging Artificial Intelligence and Big Data for IFAD2.0" 11011111 0 0 10100 01 ATHENA...>>>

Alessandra Garbero, Lead Economist, NEN

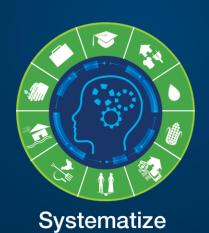


How can Artificial Intelligence (AI) and Machine Learning (ML) help development agencies such as IFAD?



- 1. Collect, repurpose and analyse large amounts of internal and external data
- 2. Uncover patterns and trends
- 3. Predict performance and impact outcomes
- 4. Guide future investments

Athena Project objectives



IFAD's portfolio

Enhance knowledge management



Predict performance and impact

Athena Machine learning Toolbox for Development effectiveness for IFAD & Clients

 Value Proposition: An integrated machine learning toolbox for enhanced data driven projects and country program strategies design

Portfolio systematization since 1980

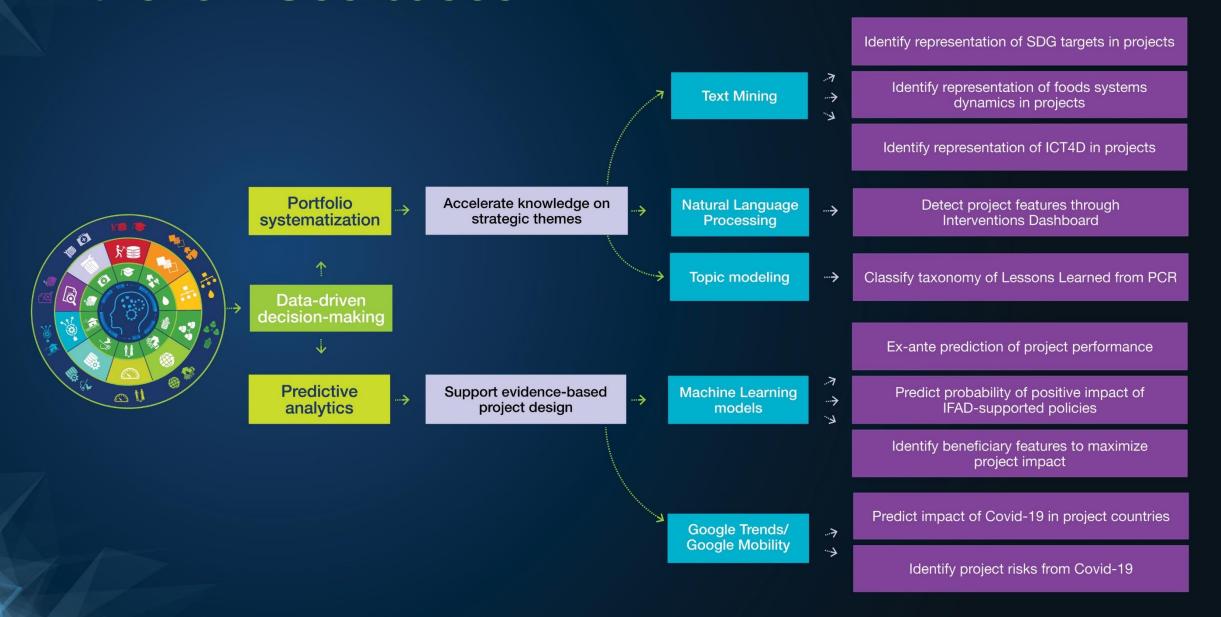
- Themes & Topics: trends analyses
- Project features: Al interventions-dashboard
- Lessons learned App



Predictive analytics

- Performance
- Impact
- Targeting optimization
- Covid-19 severity

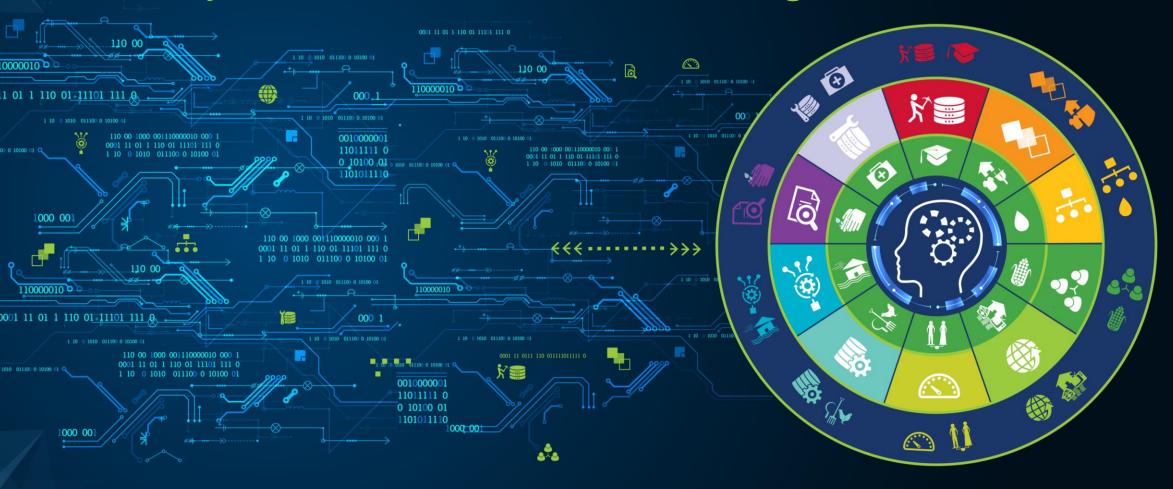
"Athena": Use cases



Data collected

- 894 investment projects considered for analysis (grants excluded)
- 856 projects with at least one report (PDR, MTR, PSR, PCR) 2302 documents in total
- 705 projects with disbursement data
- 562 projects with internal evaluation data
- 251 projects with external evaluation data
- 361 projects with COSTABs / 221 projects in training dataset
- 19 projects with impact assessments
- World Development Indicators for 120+ countries

Analysis of SDG Goals & Targets



How much do IFAD projects focus on Sustainable Development Goals?

This question cannot be answered by manual database consultation as there is no SDG classification in IFAD's records. We adopt the following strategy:

Taxonomy Development

ML models trained for understanding SDG Targets

those in vulnerable situations, and reduce their

extreme events and other economic, social and environmental shocks and disasters

exposure and vulnerability to climate-related

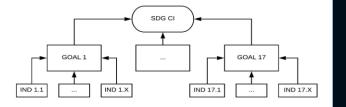
Trained ML models used for taxonomy detection in IFAD project documents

argentina 1100001279 design report.pdf

argentina 1100001364 design-report.pdf

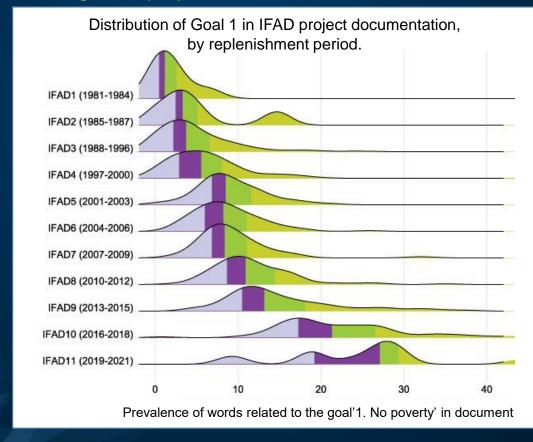
Indicators and a Monitoring Framework Launching a data revolution for the Sustainable Filter: All Targets 1.1 by 2030, eradicate extreme poverty for all albania 1100000347 interim-mid-term-review-report.pdf people everywhere, currently measured as people living on less than \$1.25 a day albania 1100001129 design-report.pdf albania 1100001129 interim-mid-term-review-report.pdf 1.2 by 2030, reduce at least by half the proportion albania_1100001129_supervision-report.pdf of men, women and children of all ages living in pa algeria 1100000276 completion-report.pdf poverty in all its dimensions according to national palgeria_1100001176_design-report.pdf algeria_1100001176_supervision-report.pdf 1.3 implement nationally appropriate social palgeria_1100001257_supervision-report.pdf protection systems and measures for all, including floors, and by 2030 achieve substantial algeria_11000001257_project design-report.pdf overage of the poor and the vulnerable angola_1100000492_design-report vol 1.pdf angola_1100000492_design-report vol 2.pdf 1.4 by 2030 ensure that all men and women, angola_1100000492_interim-mid-term-review-report.pdf particularly the poor and the vulnerable, have equal rights to economic resources, as well as angola_1100000492_supervision-report.pdf access to basic services, ownership, and control angola_1100001023_completion-report.pdf over land and other forms of property, inheritance, natural resources, appropriate new angola 1100001023 design-report.pdf technology, and financial services including angola 1100001023 supervision-report.pdf angola 1100001391 design-report.pdf argentina 1100000506 supervision-report.pd 1.5 by 2030 build the resilience of the poor and

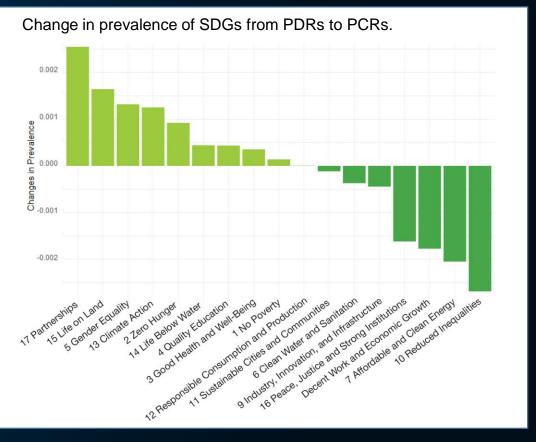
SDGs framework used to estimate **presence of goals and targets** in
IFAD projects



How much do IFAD projects focus on Sustainable Development Goals?

This question cannot be answered by manual database consultation as there is no SDG classification in IFAD's records. ML models were trained to understand SDG Targets and detect presence of goals and targets in project documentation.





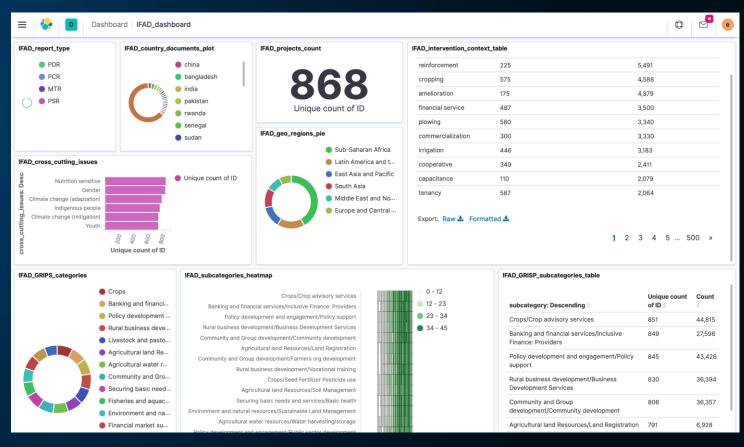
Detection of Project Features: interventions and outcomes



Can we use ML to identify interventions, outcomes and topics in project documents?

We applied an advanced ML model designed specifically for agriculture to examine project reports for interventions, outcomes and other features.

- Features extracted from pre-trained corpus of scientific publications (Ceres2030): interventions, outcomes, topics, plant products, animal products
- Features detected on project documentation from 866 IFAD projects
- Harmonization with new GRIPS categories
- Final product is a user-friendly dashboard for presenting results, tested by key IFAD stakeholders.



Lessons from Athena

- AI/ML → potential to leverage IFAD's existing resources to gain a deeper understanding of its operations and investments: automation, implementation efficiency & data generation
- AI/ML & Advanced Analytics to optimize development effectiveness
 - <u>Data driven decisions</u> and evidence based analytical solutions at each step of the project cycle (new data generation for targeting and planning)
 - Automatic knowledge generation & extraction (lessons learned app, intervention dashboard, strategic themes)
 - Effective knowledge management action plans, through <u>dissemination to users</u> in a user-friendly way via apps, online dashboards (summarization & classification of strategic information)
 - Aiding and <u>simplifying reporting</u> (for IFAD & Donors) → process automation & efficiency (NLP, classification)
 - <u>Inform designs</u> of new operations and country strategies (predictive analytics: impact & performance, feature extractions)
 - Targeting optimization ex-ante by proposing a menu of options for optimal assignment of projects interventions / menu of targeting rules → impactful and cost-effective operations (precision targeting, personalized treatment rules)
 - Supporting ICT4D strategies & action plans



Alessandra Garbero, Lead Economist, NEN a.garbero@ifad.org



Natural Language Processing and Machine Learning for Operations

Harsh Anuj

June 21st, 2022

Questions

- How can new operations learn from existing evaluative knowledge?
- 2. How can data science, particularly natural language processing (NLP) and machine learning, be used for this?
- 3. What are some prominent initiatives at the World Bank which have tried to do this?
- What key lessons have emerged from practice?



Quantity of text

In the last ten years, just for lending projects at the World Bank, there were:

06/21/2022

- 35,317 Implementation Status and Results Reports (ISR)
- **6,365** Project Papers (PJPR)
- 2,722 Implementation Completion and Results Reports (ICR)
- 2,402 Grant or Trust Fund Agreements
- 2,409 Project Appraisal Documents (PAD)
- **597** Program Documents (PGD)

Results Review (ICRR)

2,841 Implementation Completion and

258 Project Performance Assessment Report (PPAR)

√ 49,812 project documents

✓ 3,099 project evaluation documents

Note: between 01/01/2011 and 12/31/2020, based on document date. Source: documents.worldbank.org

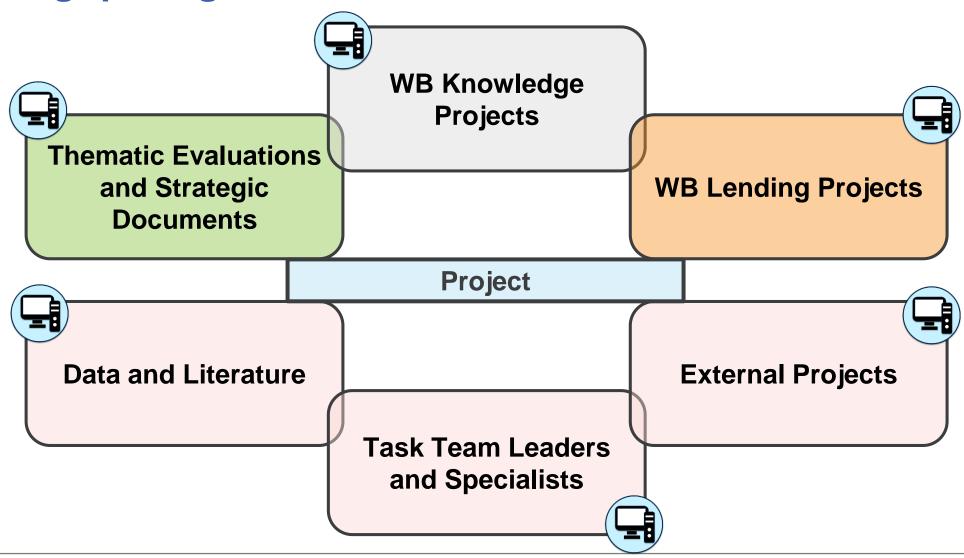




Enter text mining and machine learning

- Structured data on projects is not sufficient to understand what was supposed to and what actually took place in projects and why
- All the potentially relevant text cannot be processed by humans on project teams
- Thus, the quantity of text creates a trade-off between breadth and depth of analysis
- This trade-off can be minimized by using text analytics and machine learning

Knowledge packages





DeCODE taxonomy of delivery challenges



- Roles & Responsibilities
- Stakeholder Engagement
- Awareness & Comm. Strategy
- Bureaucratic Structure
- Inter & Intra- Governmental Relations



- · Change in Leadership or Administration
- · Opposition or Lack of Consensus
- Change in Priorities or Lack of Commitment



- Skilled Manpower
- Skill Transfer
- Staff Turnover
- Organizational Capacity



Governance & **Politics**

- Voice & Accountability
- Corruption & Patronage
- · Political Interference
- Electoral Cycles
- Rule of Law



Social & Cultural

- Gender
- Language
- Culture, Religion or Ethnicity



- Trade Barriers
- Financial Instability
- Market Deterioration
- Forex Volatility



- · Overambitious Objectives
- Time Allocation or Task Sequencing
- Stakeholder Selection
- Beneficiary Targeting



Legislation & Regulations

- · Lack of Regulation or Legislation
- Unsupportive Legal or **Regulatory Process**

Crime and Violence

Civil Unrest & Armed

Post-conflict Situation

Conflict &

Instability



Environment & Geography

- Geographic Access
- Ecosystem



- Private Sector Regulation
- Weak Private Sector
- Informal & Illegal Markets



Project Finance

- Procurement
- Financing Mechanism
- Budgeting
- Financial Management & Reporting
- Auditing



 Information & Communication Technology

06/21/2022

- Energy & Electricity
- Transportation



- Natural Disasters
- Man-made Disasters
- Epidemics



Project Data & Monitoring

- Indicators
- Data Availability & Baselines
- Reporting & Supervision

DeCODE = Delivery Challenges in Operations for Development Effectiveness





Conflict

Lessons

- Taxonomy development is an iterative process
 - it requires the use of machine learning,
 - practitioner and other experts' inputs,
 - and consensus building with other stakeholders
- Biases in documents can affect the value of tools based on them.
- User value is important: incentives for task team leaders to use such tools
- Synthesis of knowledge and evidence is a critical piece
 - IEG's Evaluation Insight Notes address this need, and leverage NLP and machine learning to produce evaluative syntheses



Thank You!

Contact us:

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Context: A Complex Environment to Operate...

HIGH & VOLATILE DEMAND

- Food security is deteriorating - Volume
- Sudden-onset disasters:
 earthquakes, cyclone,
 conflict escalation, etc.
 Speed & Agility



ACCESS

- **Conditions:** rainy seasons, lack of infrastructures, high insecurity locations, ...
- Long lead-times, extra costs



FUNDING

- Only around 60% of needs are funded
- **Drip-feed funding** only covering next 3-4 months
- Most donations are earmarked



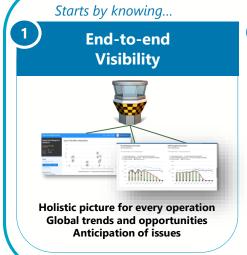
SCALE, CONNECTIVITY, ...

- Lots of data must be analyzed to get a holistic picture
- Not always with electricity, connectivity...

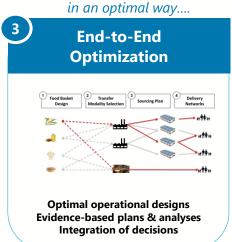


To deal with increased complexity & volumes, good operations intel is key to ensure effective, efficient and coordinated operations

Key elements of Supply Chain Planning applied to WFP.....











... Enabled by

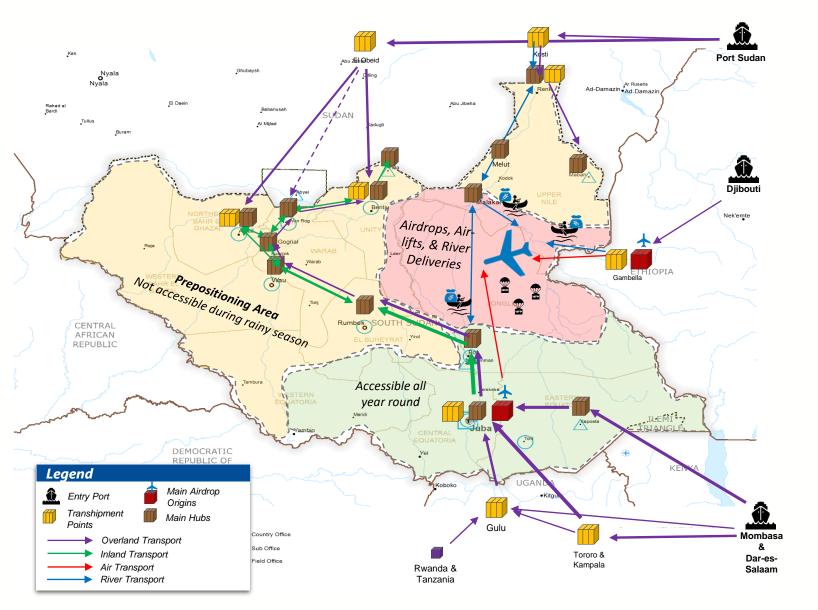
- Team with experts on SC planning & optimization
- Strong collaboration with private sector and academia
- Pragmatic approach with focus on problem solving

- State-of-the-art SC planning and optimization tools
- Evidence-based advanced analytics with end-to-end scope
- Global Planning Network

Global visibility & anticipation (COVID response)



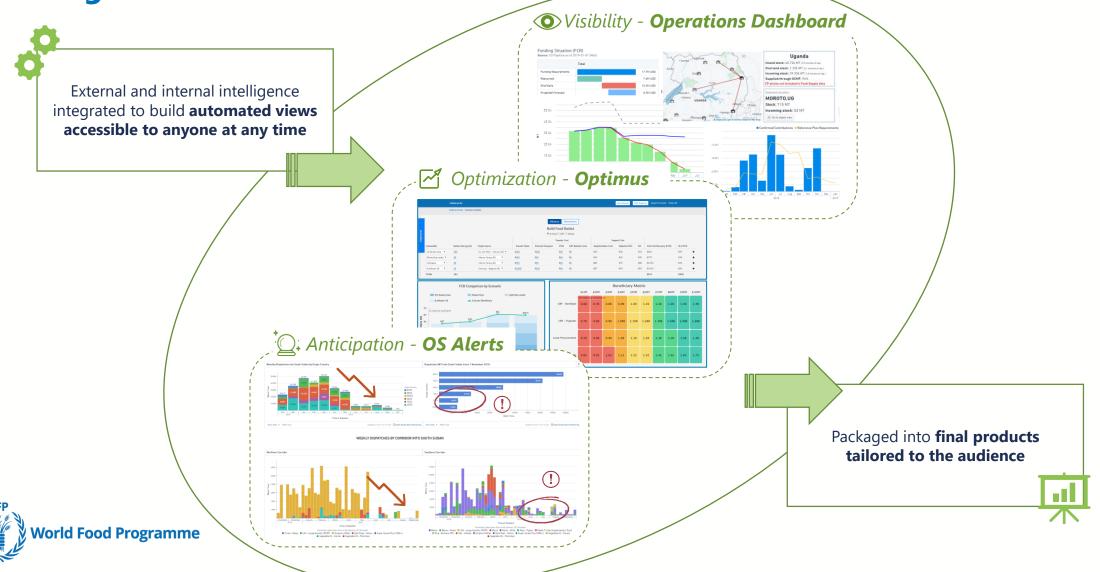
Planning and Optimization (South Sudan)



Redesigning the downstream delivery network to reduce costly airdrops

Determining and implementing an optimal corridor allocation

Several tools are being developed to make analytical insights accessible to the entire organization



Want to learn more?



INFORMS JOURNAL ON APPLIED ANALYTICS

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UN World Food Programme: Toward Zero Hunger with Analytics

Koen Peters, a,b Sérgio Silva, Tim Sergio Wolter, Luis Anjos, Nina van Ettekoven, Éric Combette, Anna Melchiori, Hein Fleuren, Dick den Hertog, Özlem Ergund



https://doi.org/10.1287/inte.2021.1097

https://www.youtube.com/watch?v=wdEcVj5LTGg



DATA

elusive or illusive?



DATA GOVERNANCE

an afterthought?



DATA to ACTION

the missing paradigm



FAO's Hand-in-Hand Initiative

https://www.fao.org/hand-in-hand/en



THANK YOU

Panagiotis Karfakis @fao.org

Gerard Sylvester @fao.org



www.fao.org



INNOVATION DAY at IFAD '22



INNOVATION, FOOD SYSTEMS AND SUSTAINABILITY





Innovation, Food Systems and Sustainable Diets

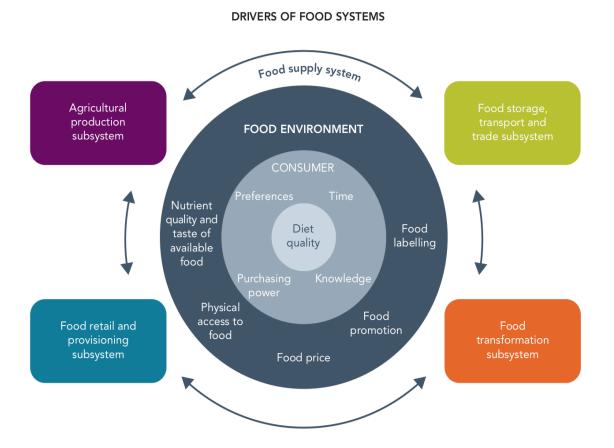
Nomindelger Bayasgalanbat – Senior Technical Specialist, Nutrition

21 June 20222

3

Agriculture, food systems and people's diets

Conceptual framework for the links between diet quality and food systems



Nutrition is linked to many factors that **go beyond food production**:

- the way the food is stored, processed, traded and prepared is fundamental too...
- the overall context natural, economic and socio-cultural context (for example, cultural habits and beliefs),
- But also food prices, markets, trade, etc.

→ need to look at the entire food system and make it nutrition-sensitive

Source: GNR 2017 and Global Panel on Agriculture and Food Systems for Nutrition

Nutrition- sensitive food system in IFAD



IFAD's approach to nutrition

- Healthy diets and better nutrition are at the heart of IFAD's work through its nutrition-sensitive investments → nutrition lens applied to rural development
- Nutrition-sensitive investments that address the underlying determinants of malnutrition
- IFAD has increased committed to have at least 60% nutrition-sensitive projects by 2024
- IFAD investments through partnership, collaboration and coordination to maximize impact and achieve the desired results

Nutrition Sensitive Activities in IFAD



Food Production Diversification

(horticultural production, animal production, indigenous foods, NTFP, NUS, biofortified crops)



Value Chain and Marketing

(labelling, processing, preservation & storage, equipment, technologies, trainings)



Nutrition Education and SBCC

(NE in extension services, at community level)



Gender Equality and Empowerment

(labour-saving technologies, income generating activities, decisions making over resources)



Water, hygiene and sanitation

(food handling, food safety, water quality, personal hygiene)



Policy Engagement

(Multisectoral planning & coordination; capacity building of governmental staff)

Diversifying, intensifying, integrating – choosing varieties













SBCC and Nutrition Education

- Nutritional value of foods
- Dietary needs of different age groups
- Locally acceptable & feasible food recipes
- Cooking methods for nutrient retention & bioavailability
- Addressing food taboos and food hygiene









Gender Equality and Empowerment



Improved cooking stoves – efficient fuel use, less smoke, reduce women workload



Improved processing

– reduce women
workload



Decision making over resources

Value Chain and Marketing

- Reducing post-harvest loss both in quantity and nutritional quality
- Introducing nutrient-preserving processing & preservation technologies
- Re-Formulation of products for better nutrition
- Nutrition education for different actors along the food value chain



Innovation in Nutrition-Sensitive Projects

Image-based Nutrition Monitoring and Diet Quality Assessment Platform



- developed with McGill University to facilitate nutrition monitoring & diet quality assessment
- image analysis, artificial intelligence, machine learning, databases to identify consumed food items & quantify relevant dietary metrics
- can replace the laborious method of nutrition surveys and can allow easier tracking of dietary changes.

Innovative approaches to SBCC and NE



In Guyana, for example, a radio serial and street theatre performances have proved helpful tools to convey messages on the importance of nutrition and good dietary practices



