インタビュー結果　サマリー

Vietnam | Rynan Technologies

組織の概要
- Rynan Technologiesは様々なステークホルダーと協力し、持続可能な農業ソリューションを推進をする農業ソリューションプロバイダー

持続可能な農業に関する対象組織の取り組み
- Rynan Technologiesは様々なステークホルダーと協力し、持続可能な農業ソリューションの提供を推進：
    - 政府（例： Dong Thap 省農業省と協力し、昆虫管理システムなどの技術を導入）、NGO（世界銀行、IFAD、WWFなど）、サステナビリティ部門を持つ企業（アーンスト・アンド・ヤング、VNPTなど）
    - ディストリビューター
    - 農家
- 自社でデバイスを製造し、農家にとって魅力的な製品になるよう、価格を競争力のある水準に設定
- プロモーションでは、農家を説得して自社製品を使用させるために、作物の収量と収入における潜在的な利益を示して営業を実施

持続可能な農業に関する課題

(1)農地に対する塩水浸入と給水量減少への対応
- 気候変動により塩水侵入および土壌塩化が増加
- また、近隣諸国のダム建設により、ベトナムへの淡水の供給が減少

(2)新技術を導入するための資金力と支援の欠如
- 導入のための支援が限られているため、農業技術の導入が少ない。
- 農民には技術を取得し、実施するための資金力がなく、ほとんどが政府やNGOからの支援に依存

(3) GHG削減よりも生産性を優先する農家
- 農家が最も重視するのは、収量や収入の増加など、最終的な生産高
- GHG排出を削減するよう農家を説得するには、金銭的なインセンティブを与えるか、コスト削減や所得向上を直接示す必要がある

(4) 農家の新たな技術へのスイッチングコスト
- 農家は、協同組合や直販業者よりも流通業者から購入する
    - これは、流通業者との契約・支払条件が、農作物の収穫後の後払いに設定されていることが多いから
- また、農家は安いものを使い、安い製品に慣れる傾向があるため、他の製品に変えることには抵抗がある

現地ニーズの高い技術/ソリューション
- 昆虫管理システム ：害虫・益虫の判断ソリューション
- AWD技術
- 省人化につながるスマート農業ソリューション

日本政府・企業への期待
- 日本のソリューション・プロバイダーは品質が高い
- 他方、ほとんどが割高であり、特に小規模農家は購入が難しい
- Rynanは双日の出資を受けており、さらに味の素と住友商事、サプライチェーンにおける農業生産支援プロジェクトを開始

Interview result for Vietnam | Company - Vendor

Rynan Technologies (1/2)

Organization information

- Rynan have worked with various stakeholders to promote sustainable agricultural solutions, including:
  - Government (e.g. Rynan work with Dong Thap Department of Agricultural to implement the technologies e.g insect management system)
  - NGOs (e.g. WB, IFAD, WWF)
  - Companies with sustainability department (e.g. Ernst & Young, VNPT)
  - Private distributors (will share list of names)
  - Farmers
- Rynan benchmark its price at a competitive level to make it attractive to farmers. Rynan also show the potential gain in crop yields and income to persuade the farmers to use their product.
- Unlike most other vendors, Rynan produces their devices in-house

1. Social issues of Sustainable agriculture in Vietnam

(1) Salt water intrusion and decreasing water supply

- Climate change has led to salt water intrusion and soil salination
- Nearby countries are building damps that reduce the supply of fresh water to Vietnam. Other man-made problems in the country also cause the lack of freshwater supply

(2) Lack of financial capacity and support to implement new technology

- There are many technologies, but limited support for implementation, which leads to low adoption of agricultural technology
- Farmers do not have financial capacity to acquire and implement the technologies and depend mostly on support from government and NGOs. There is also lack of coordination among different stakeholders.

(3) Productivity is a priority for farmers, rather than GHG reduction

- Farmers care most on bottom-line output, incl. increasing yields and income. To persuade farmers to reduce gas and carbon emission, there must be financial incentives or direct show of cost reduction/income gain
- Farmers rather buy from distributors than from cooperatives and direct saleperson due to preferential terms they have with the distributors, which allow them to pay later when they have crop yields
- Farmers tend to use cheap things and get used to using cheap products, so there is a lot of resistance to change to other products.

(4) Others

- There is a reduction in agricultural workforce who are willing to go on farm
- Moving toward organic fertilizers is very hard in Vietnam

Interview result for Vietnam | Company - Vendor

Rynan Technologies (2/2)

2. Demand for sustainable agriculture

- **Insect management system** to define which one is bad and which one is harmless/which one is good for the farming
- **Alternate wetting and drying technology**
- Demand for **robotic farming and robotic technology** to replace human manual efforts. For example, using drone to view real-time assessment across the crop/droughts.
- Demands will move forward adopted technology for farming, such as sensors, IOT devices to increase farming efficiency and to help farmers understand the farm better

3. Companies in sustainable agriculture

- Technology in agriculture is growing with double-digit rate. Local government and NGOs investment are also growing. However, farmers' ability to pay is not increasing
- MimosaTek is a long-time player
- Drone companies are mostly from China

4. Future prospect for Japanese cooperation

- Ajinomoto, Sumitomo have started implementing projects to support agriculture production in their supply chain
- Japanese solution providers have high quality, however they are mostly on the more expensive side (e.g. for smart water meters, some providers from Japan have cost 2-3 times higher than other vendors)

5. Possible solutions for cooperation

- Japanese trading companies have strong reputation and network in Vietnam. Solution vendors can collaborate with these companies, leverage their existing connections to broaden sales outreach

インタビュー結果　サマリー

Vietnam | Vietnam Dairy Products Joint Stock Company (Vinamilk)

組織の概要
- Vinamilkはベトナム最大の乳製品製造会社
- 2023年時点でベトナムに14の酪農場と14万頭の乳牛を有する

持続可能な農業に関する対象組織の取り組み
- Vinamilkの主な事業は牛の飼育と酪農生産で、50カ国以上に輸出
- 特に輸出市場からは、低炭素生産を求める圧力が高まっている
- 従って、2027年までにGHG排出量を15％削減し、2035年までにGHG排出量を55％削減し、2050年までにネットゼロを達成する目標を立てた
- 同社は、ソリューションとして、再生可能エネルギーの活用と、生産全体を通じてGHG排出量を最小限に抑えることに主眼を置いている
- Vinamilkは、カーボンニュートラルの認証を受けた工場と農場を2つ設立
- また、100%の農場が、バイオガス技術を使用し、牛の排泄物を資源に変えている
- また、現在下記のような技術・ソリューションを導入
    - ウシからのメタン排出を削減するための飼料の利用
    - 栄養プロファイルの調整
    - 農場のエネルギー効率の向上
- 現在の技術の適用や改良は、GHG排出削減において期待通りの効果が得られない可能性があるため、Vinamilkはより継続的により良いソリューションを探索している

現地ニーズの高い技術/ソリューション
- Vinamilkとしては、下記の技術・ソリューションを探索：
    - メタン排出を削減する飼料添加物
    - 再生可能エネルギー
    - エネルギー効率の高いシステム
    - 循環型経済に資するソリューション・技術
- 同時に、コスト競争力を維持することも望んでいる

日本政府・企業への期待
- 新しい技術・サービス・製品のインパクトが目に見えて明確であれば、日本企業との連携はウェルカムである
- 2021年末、Vinamilkとそのメンバー企業である Vilico は、ベトナムで肉牛を開発するための契約を双日と締結した
- このパートナーシップのために、ビナミルクは牛肉生産によるGHG排出量を削減するソリューションを探している
- プロジェクトは2025年開始予定で、ビナミルクが日本の業者と協力する初めてのケースとなる
- ビナミルクとビリコ、双日とベトナムにおける肉牛開発に関する契約を締結 (nongnghiep.vn)

Interview result for Vietnam | Company - User

Vietnam Dairy Products Joint Stock Company (Vinamilk) (1/2)

Organization information

- Vinamilk is the biggest dairy company in Vietnam.
- In 2023, Vinamilk has set out pathway to Net Zero by 2050 - to cut GHG emissions by 15% by 2027, 55% by 2035, and reach zero net by 2050. Their primary focus is on utilizing renewable energy and minimizing GHG emissions throughout production.
- Vinamilk has published annual sustainability report since 2012 (Sustainable Development – Vinamilk)
- In 2023, they have 14 dairy farms and 140K milk cow in VN. 100% of Vinamilk farms using Biogas technology, converting cow waste into resources. They have also set up 2 factories & farms certified as Carbon Neutral
- They have applied several technologies and improvements at all farms, such as

- Adjusting cow feed – nutrition profile to reduce methane emission
- Improve energy efficiency level in their farms

1. Social issues of Sustainable agriculture in Vietnam

- Vinamilk's main business is cow farming and dairy production, and they export to 50+ countries. There are increasing pressure, especially from export markets, for low carbon production.
- Vinamilk focus on scope 1 and scope 2 emissions:
    - Scope 1: Their key focus include methane emission reduction (e.g biogas, nutrition), following net zero pathway announced last year for dairy farms
    - Scope 2: They focus on reducing electricity used
- Current progress: on track to achieve emission reduction goals
- However, current technology application and improvement might not be effective in GHG emission reduction as they expect. Therefore, Vinamilk is looking for better solutions.

Interview result for Vietnam | Company - User

Vietnam Dairy Products Joint Stock Company (Vinamilk) (2/2)

2. Demand for sustainable agriculture

- Vinamilk is looking for technology solution to reduce GHG emission, such as:
  - Feed additive to reduce methane emissions
  - Renewable energy
  - Energy efficient systems
  - Circular economy practices
- At the same time they want to remain cost competitive

3. Companies in sustainable agriculture

- Vinamilk worked with different vendors to develop sustainable solutions. For example: they work with feed companies to adjust the feeds, and with farm equipment companies for energy-efficient system
- In late 2021, Vinamilk and its member company, Vilico has signed an agreement with Sojitz to develop beef cattle in Vietnam. For this partnership, Vinamilk is looking for solution to reduce GHG emissions from beef production. The project is planned to start next year (2025) and will be the first time Vinamilk working with Japanese vendors. See more: Vinamilk and Vilico signed an agreement with Sojitz to develop beef cattle in Vietnam (nongnghiep.vn)

4. Future prospect for Japanese cooperation

- There is strong potential for Japanese companies to work with Vinamilk, if the impact of new technology/services & product is visible and clear

5. Possible solutions for cooperation

- Mr. Nam can introduct NRI to Sojitz's team for collaboration opportunities
- Vinamilk will conduct pilot test for suitable technology/services at the first few farms before expanding to all farms

インタビュー結果　サマリー

BSIP (The Agricultural Instruments Standardization Agency)/Indonesian Center for Agricultural Land Resources Instrument Standardization (ICALRIS) of Ministry of Agriculture of Indonesia

組織の概要

- BSIP/ICALRIS が所属する総局は日本ASEANみどり協力プランのメンバーであり、JAIFのプログラムにも参加
- 持続可能な農業の実践には様々な機関が関わっている中で、BSIP/ICALRISは標準化に重点を置き、持続可能な農業が “farm to table ”で実践されることを目的に活動をしている

持続可能な農業に関する対象組織の取り組み

- MoA内の研究開発組織には64の研究所があり、34は農民の指導に重点を置き、30は商品、土地、バイオテクノロジー、ポストハーベスト、農業機械化、コメ、獣医などに関する研究開発を担当している
- 研究開発の方向性は、インドネシアの農業をいかに効率化するかということである
- 持続可能性、環境負荷低減の農業に関しては、農家への実際の裨益が必須であり、そのためには効率性の向上を併存させなくてはいけない

直近の具体的なプロジェクト

- MIRSA (mitigation in Irrigated Rice Systems in Asia) ： このプロジェクトはインドネシアでAWD技術を試験的に導入しており、国内での標準化を志向している
- INASOIL (information system） ： 土壌マップ、気象情報等を提供
- SIAP TANAM ：農家向けの情報提供プラットフォーム
- SISCrop 2.0 ： 立木作物情報システム
- 効率的な肥料使用やと低メタン栽培の推奨ガイドラインの提供
- 稲作農家とのネットワーク整備
- スマート土壌検知キットの提供

持続可能な農業に関する課題

- 主に農作物の生産性の低下により、544兆ルピアの経済的損失が発生する可能性がある
- またGHG排出の観点で、インドネシアでは、稲作からの排出が最も多い
    - 気候変動緩和策として計画されているのは、バイオガスの開発、有機物(有機廃棄物)管理の高度化、「有機農業村」の設置、低炭素排出米品種の促進など
- 政府の大目標は、食料安全保障と主権であり、政府は、生産性と持続可能性を並行して促進したいと考えている。
- どのような解決策も、生産性と持続可能性の両方に取り組むものが優先される。

- **日本への期待**
- 具体的に連携が期待される分野は下記である。下記に資する日本企業を紹介いただきたい。
    - 持続可能な農業慣行に関する標準化
    - GHG排出のサンプリングや排出量計算に関する標準化
    - MRV：GHGの測定、報告及び検証
    - 特定のGHG排出計数に関する改善技術開発
    - デジタルを活用したGHG排出量計算
    - 衛星データを活用したMRV
- BBPSIは農家に直接利益をもたらすコラボレーションを志向している。
    - 例えば、ある韓国企業はスラウェシの農家に彼らのソリューションを導入し、ステビアを栽培する支援をし、収穫後、その商品を購入
    - BBPSIはコラボレーションが一連のワークショップの運営のみという支援はもはや必要としていない。
    - 具体的な利益（例えば投資）につながることを期待している。

Meeting Memo with BBPSI (Agricultural Instrument Standard Application Center) of Ministry of Agriculture of Indonesia (1/2)

BBPSI PIC's opening remarks:

- MoA of Indonesia is currently drafting action plan for sustainable agriculture, this includes strategic priorities, key activities and implementation frameworks. The activity is being done together with other SEA member states. The directorate general (which BBPSI belongs to) is the member of ASEAN-Japan Midori Program, and also involve in JAIF's program.
- Implementation of sustainable agriculture practices involves many different institutions. BBPSI is focusing on standardization, ensuring sustainable agriculture practices are standardized from "farm to table"
- BBPSI expects to have a collaboration that can benefit directly the farmers. For instance, a Korean company had helped farmers in Southeast Sulawesi to deploy their solutions and grow Stevia. Once harvested, it then purchased the commodity. BBPSI expects the collaboration will lead to tangible benefits (e.g. investment), not only running series of workshops.

BBPSI Presentation - Example of Recent Initiatives and Expected Collaboration Areas:

- **Imperative of sustainable agriculture**: Sustainable agriculture is a critical issue. It could potentially create economic loss of IDR 544 trillion primarily due to decrease in crops productivity. In Indonesia, highest emission comes from rice cultivation. Mitigation actions being planned includes development of biogas, organic material management, development of "organic village", promotion of low emission rice varieties, etc. The big goal of the governments include food security and sovereignty. Govt wants to promote productivity and sustainability in parallel. Any solution should address both productivity and sustainability.
- **Example of collaborative project**: MIRSA (mitigation in Irrigated Rice Systems in Asia) Project is one of major projects implemented. This project is piloting AWD technology in Indonesia.
- **Recent initiatives**:
    - INASOIL (information system), accessible through awr.bsip.pertanian.go.id which includes soil map, agroclimate map, thematic map, residual map, stability land map
    - SIAP TANAM (information system for farmers)
    - SISCrop 2.0 (standing crop information system)
    - Issuance of fertilizer recommendation (guideline to farmers) and low methane cultivars
    - Consultation channel with rice farmers
    - Smart soil sensing kit
- **Expected collaboration areas with Japan** : develop standardization for environmentally-friendly agriculture zone/terrain; standardization for sampling, collection, measurement of GHG emission; standardization of MRV; specific emission factor; online emission calculator; MRV based on satellite.

Meeting Memo with BBPSI (Agricultural Instrument Standard Application Center) of Ministry of Agriculture of Indonesia (2/2)

R&D Organization:

- In the R&D organization within MoA, there are 64 institutes, 34 focus on guiding farmers, 30 responsible for R&D related to commodities, land, biotech, post harvest, agri-mechanization, rice, veterinary etc.
- Sustainable agriculture is a big issue. There is a law regulating the matter.
- The direction for the R&D is on how to make agriculture in Indonesia becomes more efficient. It aims to promote a low input agriculture.
- The activities include promoting the adoption of precision farming, implement crop calendar, and so on. In this regard, market intelligence is also needed (e.g. predict the trend of rice price).
- The R&D unit and standardization unit (BBPSI) works hand-in-hand. Standard for organic agriculture must follow national standard of Indonesia called "SNI". This national standard is based on international standards.

Introduction from each department under BBPSI:

- Horticulture Standardization Dept: Focus on standardization of practice from "farm-to-table" specific for Vegetables, Tropical fruits, Ornamental plants, Citrus and Subtropical fruits. This department promote the production of potato seeds based on Indonesian standards. These follow ASEAN standards. It also promote standards on how to develop seeds of other horticulture commodities. There are 6 commodities under this seed making standardization. It expect to promote export of those commodities.
- Estate Crops Dept: the goal is to develop Indonesian national standards for the following commodities coconut seed, arabica coffee seeds (West Java origin), clove seeds, sugarcane seeds.
- Livestock dept: develop standardization of production of DOC (day old chicken), DOD (day old duck), feed crops (indigofera species)
- Food crops: standardization in following commodities: rice, legume, cereals, maze, soybeans, casava, sweet potatoes and so on.

Others

- JAIF's project have already done. 3 topics of covered in this collaboration: soil analysis using satellite, satellite monitoring, monitoring of crop burning.
- Interested in the usage of cashew nut as material for livestock feed additives. This is a new topic for BBPSI.
- It is expected that collaboration leads to promotion of export. Export of mango from Indonesia to Japan is still prohibited due to certain requirement.

Next steps: BBPSI will create a matrix that comprises of selected key commodities from each department with key issues associated with those commodities. This will be shared with NRI SG, NRI SG can then assess the matrix and match this with the relevant technologies/solutions from certain Japanese companies for further action (piloting etc.). Further communication will be done via email.