

Final Evaluation of 'Omzet met Impact' Programme

Case study report

Biomass India

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Table 1: Average scores and number of observations **Fout! Bladwijzer niet gedefinieerd.**

Abbreviations

CSR	Corporate Social Responsibility
FPO	Farmer Producers Organisation
GVK	<i>Grameen Vikas Kendra Trust</i>
MVO	<i>Maatschappelijk Verantwoord Ondernemen</i> (Responsible Business Conduct)
OECD/DAC	Organisation for Economic Co-operation and Development/ Development Assistance Committee
Oml	Omzet met Impact (“Business with Impact”)
RBC	Responsible Business Conduct
RVO	<i>Rijksdienst voor Ondernemend Nederland</i> (Netherlands Enterprise Agency)
SDGs	Sustainable Development Goals
SIB scan	Sustainable and Inclusive Business scan
ToC	Theory of Change
ToR	Terms of Reference

1. Introduction

This report describes the main features, activities and results of the Biomass Valorisation project. This project is one of the 12 projects that are co-financed by MVO Nederland's 'Omzet met Impact' ('Business with Impact') programme. Implementation of this project started in India in 2019 (see Section 2). The report furthermore assesses the project in terms of its effectiveness and impact (Section 3), its relevance and sustainability (Section 4), as well as its additionality and leverage (Section 5). Conclusions are presented in Section 6.

This initiative aims to reduce the negative environmental, health and social impacts while generating sustainable new business and livelihoods. The aim of this project is to have established the first successful circular business model for paddy straw upcycling in India by 2020.

(MVO Nederland, n.d.)

2. Brief description of the project

The central aim of the Biomass Valorisation project is "By 2020, we will have established the first successful circular business model for paddy straw upcycling in India".¹ The open-air burning of agricultural residue causes serious environmental and public health hazards throughout India. Approximately 30% of the smog in New Delhi and surrounding area is caused by burning crop residue. This residual biomass (e.g., paddy straw and sugar cane) is potentially a valuable resource for high-end reuse and upcycling. Since farmers have currently no alternative market/customers for paddy straw residue, their only option is burning the straw.

A Sustainable and Inclusive Business scan (SIB scan) conducted in 2019 by MVO Nederland and the Dutch embassy in India, financed by RVO, shows that paddy straw makes a great resource for – among other things – sustainable paper, packaging and furniture panels. MVO Nederland brought together Dutch companies, multinationals and Indian partners that wanted to take on this challenge. In April 2019, they signed the Biomass India Agreement, setting out their ambition to market paddy straw products as soon as possible.²

Encouraging companies to use sustainable business models

Dutch and Indian companies have been using the technology to turn crop residues into packaging and other end-products. However, until recently there was a lack of collaboration within the production chain, wasting the potential of the widely available paddy straw. That is why MVO Nederland stepped in. By bringing Dutch and Indian companies and organisations together, an important step was taken towards a circular rice production chain.³

Resulting from a challenge on the INDUS Forum, sixteen Dutch and Indian parties are now working together on innovative projects for added value to biomass. In the presence of Dutch Prime Minister Rutte, they signed the Biomass for All Memorandum of Understanding in New Delhi, during the Dutch trade mission in May 2018. The first challenge that they will take on is that of upcycling agricultural waste, such as paddy straw, bamboo and sugar cane. This is now burned on the fields, causing air pollution and soil degradation. The collaborating companies and knowledge institutes combine their efforts and innovations to convert waste into high-quality products.

¹ Project Summary document

² <https://internationaal.mvonderland.nl/internationalwork/biomass-india-agreement/>

³ Ibid.

This initiative aims to reduce the negative environmental, health and social impacts while generating sustainable new business and livelihoods. The development and implementation of new biomass-based value chains requires a concerted and programmatic approach that can thoroughly and conclusively expedite solving the challenges at hand: Biomass for All.

To achieve the project goals, the initiative was organised around five business models, so-called tracks, with the highest success rate in Indian and international markets. The tracks focus on existing markets in which the demand for sustainable alternatives is growing.

The business models are:⁴

1. Paddy straw-based panels for the furniture and construction market - India & international markets
2. Paddy straw-based packaging materials for food and non-food packaging - India & international markets
3. Energy from paddy straw
4. Paddy straw-based compost for local farmers
5. Extraction of silica and lignin from paddy straw - for a variety of products (to be verified) – India & international markets.

According to the Project Summary document, the project is designed to contribute to the following SDGs:

- SDG 3 Good health and well-being
- SDG 9 Industry, innovation and infrastructure
- SDG 12 Responsible consumption and production
- SDG 17 Partnerships for the goals.

One interviewee from ECOR identified the following Responsible Business Conduct issues / challenges, these issues were also identified during the SIB-scan:

- Corruption (though did not face any demands)
- Labour Exploitation
- Child Labour.

Mitigation of these RBC challenges was to implement international standards. ECOR created a dedicated agreement with the Farmer Producers Organisation (FPO) which would be overseen by GVK; this agreement had conditions on the above-mentioned RBCs.

3. Effectiveness and impact

This section addresses the evaluation questions with respect to effectiveness and impact. General evaluation questions addressed in this chapter are:

1. Have the **activities** described in the proposal of the project been **carried out**?
2. Have the **goals and targets** described in the proposal been **reached**?
3. Were the **assumptions and trajectories** described in the ToC proven to be **correct**?

This section therefore assesses the Theory of Change/results chain (intended and realized results) and the (plausibility of) the underlying assumptions.

⁴ <https://internationaal.mvonderland.nl/internationalwork/biomass-india-agreement/>.

The company *Avance* assisted MVO Nederland in making a Theory of Change of the Biomass project in India (see Appendix 2). This ToC describes the pathway from waste to value in the paddy straw supply chain and lists the underlying assumptions of the project. Apart from the project-specific ToC developed for the Biomass India project, there is the general ToC of the Business with Impact programme, which illustrates that there is support to the implementation of the project – as well as of other projects in Pillar 1 – and to achieving results from activities within the pillars ‘Enabling Environment’ and ‘Due-diligence tools’.

The ToC for Biomass India lists the following activities:

- Guide the consortia in their implementation phase;
- Engage donors, governments, investors for feasibility study in the paper pulp factory and for the ECOR panel factory;
- Build innovative consortia;
- Match relevant Dutch and Indian companies in all the phases of the value chain supply/technology provider/market;
- Show business opportunities;
- Map the value chain in new circular products in India.

And the ToC specified the related outputs (i.e., results within the project’s sphere of *direct control*):

- Dutch and Indian businesses sign a “strategic alliance agreement” to cooperate, implement technology and accelerate circular production based on paddy straw.

These outputs are expected to result in two outcomes (i.e., results within the project’s sphere of *direct influence*):

- Indian and Dutch businesses create new value chains with impact; and
- Increased structural demand for recycled products

In the end, this is to result in impact:

- a private sector in India that is developed and contributes to economic growth/poverty reduction/improvement of farmers livelihood and environmental and health protection using waste to value in the paddy straw supply chain.

The ToC specifies three explicit assumptions:

- Demand for circular product will rise due to higher prices from energy demands
- Factories & brands willing to cooperate and disclose
- Funders will be found to invest on the feasibility

Three enablers and disablers are specified:

1. Sufficient co- funding attracted (incl. companies)
2. Transparency in the supply chain
3. Supply chain demand

And three KPI’s are defined:

1. # of companies committed
2. # of innovations and recycling technologies disclosed
3. agreement is signed

In the Project Summary document, the following desired results of Biomass Valorisation are identified:

- Produce several products such as panels/boards, packaging and paper for both the mainstream consumer and the corporate market. We will establish a range of new biomass-based production

chains, where the output – feedstock, semi-final and final products – will have guaranteed competitive pricing.

- These production chains in which agricultural waste in the form of residual biomass (such as paddy straw) is transformed into new products will maximise value addition, reducing air pollution, soil degradation and deforestation. By products and waste products of the respective production chains will serve as feedstock for additional value chains.
- Production takes place in India, under distinctive CSR conditions, and creates extra income for farmers and local rural communities (women in particular).
- Production avoids any negative environmental impact as much as possible.
- Be transparent about products and production conditions, following the UN Sustainable Development Goals. The aim is to ‘objectivate’ as much as possible, monitoring results in a measurable and quantifiable way. Communication will be open, proactive and secure.

3.1 Effectiveness

Relevant evaluation sub-questions in the ToR addressed in this section are:

1. How much **ownership** of the project lies with the SME’s and with MVO NL?
2. To what extent did the project result in **lasting trade/investment relations** between the Dutch SME’s and the local trade partners?
3. To what extent were **other stakeholders**, such as civil society, **meaningfully included** in the development and execution of the project?

This section also refers to the earlier-mentioned general questions:

1. Have the **activities** described in the proposal of the project been **carried out**?
2. Have the **goals and targets** described in the proposal been **reached**?
3. Were the **assumptions and trajectories** described in the ToC proven to be **correct**?

The project was a result of a mission organized in 2018. The role of MVO NL was important to facilitate, organize and create the matches. Some partners of the Biomass India MoU mentioned that they would also have found this opportunity by themselves (i.e., Paperwise). There seems to be progress along the results chain towards achieving the Biomass India project’s objectives, as all pre-defined activities have been implemented and expected output has been realized since 2018. It is likely that the realized output will contribute to the project’s outcomes.

A strategic agreement (Memory of Understanding/MoU) has been signed by Indian and Dutch firms. After signing the MoU, it is mainly up to the firms to make this opportunity a success. Organizations involved are 8 Dutch companies, 9 Indian companies and 11 other organizations.⁵

A feasibility study and field research among farmer communities in Andhra Pradesh and in partnership with GVK are completed. Based on the positive results, commercial-size production was planned at the beginning of 2021. However, since March 2021, not much has progressed, because of the second wave of the COVID-pandemic. The plan for this year is to start the ECOR Living Factory in Andhra Pradesh, and then in 2022 to set up more of such factories in other parts of India. It is too early to be able to say anything about the lasting trade results or investment relations. However, a good start was made and all interviewees see large potential to actually build a sustainable business around paddy straw waste.

⁵ MVO Nederland (2020), Voortgangsrapportage Omzet met Impact 2019, Utrecht: April 2020.

The local partner ECOR played an important role. The following activities are undertaken by ECOR:

- First trip of ECOR in India was in 2018
- ECOR sees itself as a technology provider. It only works with residue fibres that do not have current use, try to upcycle and increase its value. Thus, using technology as an enabler for circular economy.
- Currently, ECOR is at the stage of commercial implementation. However, this has been largely impacted by the second wave of the COVID-19 pandemic in 2021.
- The implementation is in Andhra Pradesh (Southern Indian State); crop residue is sourced from 10 villages, at the rate of three trucks per village, which is being supplied it to local paper mills.
- According to the feasibility study, local Farmer Producers Organisations (FPOs) are key. Local partner of the ECOR has entered into agreements with FPOs. GVK, the Indian partner, helps in consolidating the FPOs.

Panels made from bio residue are used in interior design, display booths, and furniture. This requires working with local producers, manufacturers, fabricators, to also ingrain the value of using something that is considered worthless. The panels made from paddy crop residue will be sold in India, as well as in the Netherlands. Ideally, 100% sales in India would be desirable. However, currently the market is not mature enough to absorb everything. Hence, the Dutch market is also part of the sales strategy.

According to the interviewees, at (early) outcome level the project already had effect on raising awareness of environmental problems and potential solutions. This can be seen through the attention paid to waste as value by FPOs. The assumptions as described in the ToC seem to be correct. However, it is too early to be able to confirm the described trajectories in the ToC from output to impact.

3.2 Impact

This section focuses on the project's impact.⁶ Impact refers to results within the project's sphere of indirect influence. The relevant evaluation sub-question in the ToR with respect to Pillar 1 is: "To what extent can project results be seen as (potential) contributions to the SDG's?"

The project is expected to contribute to the following SDGs:

- SDG 3 Good health and well-being
- SDG 9 Industry, innovation and infrastructure
- SDG 12 Responsible consumption and production
- SDG 17 Partnerships for the goals

Though it is early to measure impacts, positive changes are likely to be seen in extra income for farmers, building local supply chains, reduction in smog by avoiding crop residue burning, and reduction in felling of trees which are used for making panels.⁷

Potential impact by 2030⁸ as expressed by the interviewees includes:

- 50x processing hubs
- 11 metric tons of CO2 is prevented
- USD 1 billion market could be created for climate positive products
- 1 million farmers could increase farming income

⁶ The adjusted OECD/DAC definition of impact is "The extent to which the intervention has generated or is expected to generate significant positive or negative, intended or unintended, higher-level effects.", see OECD/DAC (2019).

⁷ ECOR's presentation at the Digital Trade Mission to India, 10 February 2021.

⁸ Ibid.

4. Relevance and sustainability

This section assesses the Biomass India project in terms of development relevance and sustainability of the benefits of the project.

4.1 Relevance

This project is of huge relevance to India, given the scale of pollution due to burning of crop residue. Though this is a chronic problem in Northern India, farmers in other parts of the country also resort to burning crop residue. Pollution, because of this and other sources such as vehicles and industries, is one of the largest causes of premature deaths in India. Many projects are underway, funded by various national and international, private and public organizations, to make productive uses of crop residue. According to the interviewees, the Oml programme has contributed to this attention from waste to value of agriculture and the related projects. This project, therefore, has significant potential social, environmental and economic benefits for the country.

New business models like circularity were not discussed in previous years, but have gained more attention in India during the last two years. New business models and the commercial opportunities related to these new models are now put more explicitly on the agenda of Indian companies and intermediaries.

4.2 Sustainability

OECD/DAC (2019) defines sustainability as the “extent to which the net benefits of the intervention continue, or are likely to continue.” This definition includes “an examination of the financial, economic, social, environmental, and institutional capacities of the systems needed to sustain net benefits over time.” This section will look at the different dimensions of sustainability and address the question: “to what extent is the Biomass project suitable for **upscaling?**”

Financial viability of a scaled business will determine the sustainability of the project in the real world. Theoretically, the project is sustainable. ECOR has scale-up plans as summarized in this case study. The pilot is not yet over, so it too premature to assess the practical viability and sustainability.

According to the interviewees, considerable amount of time, effort, and resources goes into finding the right partners, engaging with the stakeholders, getting necessary approvals from governments, setting up the project and the organisation. The INDUS Forum has helped to create matches between Dutch and Indian businesses, but does not consider the time and resources required to put together the entire ecosystem to make the project viable.

It became clear during the interviews that next to the initiation of partnerships and matchmaking, there is also need for seed funding and funding to start a pilot project. This is especially true for the smaller firms. Interviewees were positive about the supporting role provided by MVO Nederland and local parties. They were also positive about the support RVO provided to help the project to apply for additional funding.

5. Additionality and leverage

5.1 Additionality

ToR evaluation sub-questions addressed in this section are:

1. To what extent was **cooperation with RVO helpful** in the development and financing of actual projects?
2. To what extent would the SMEs that are part of these projects, have taken **similar** actions related to the identified RBC risks and sustainable business opportunities **without this programme**, and how dependent were the SMEs on MVO NL throughout the projects?

According to the Annual Plans (MVO Nederland 2018; 2020a), for the Biomass India project a total of 37,764 Euro was budgeted for 2019 and 74,068 Euro for 2020 (Table 1). External funding was received from RVO PSD Apps in 2019, 21,600 Euro.

Table 1: MVO NL Budget for the INDUS Forum

	2018	2019	2020
Personnel cost	€ 0	€ 4,870	€ 20,570
Various Out-of-pocket expenses	€ 0	€ 32,894	€ 53,498
Total	€ 0	€ 37,764	€ 74,068
External Finance PSD Apps	€ 0	€ 21,600	

Source: MVO Nederland (2018, 2020a). Annual Plans 2019 and 2020

CSR Risks are investigated for all companies that join the project. They have to state that they will comply with international CSR Guidelines (OESO, ILO, UNGP, etc.) by subscribing to the MVO Nederland Partner Manifesto.

The interviewees lent credit to INDUS Forum to involve ECOR in this project. ECOR would have done this even without the INDUS project; it would have looked for other sources of funding, other partners, or could have gone to another country. The project might have taken more time or may not have happened in India. Hence, it would be fair to credit INDUS to get ECOR to India. The opportunity provided by the Biomass India project was unique for the companies involved.

The interviewees from the Dutch embassy explained that the approach taken by the Netherlands in the Oml programme is very unique. Normally, sustainability is an important political issue that is often mentioned and discussed during meetings and it is made clear that the situation should be improved. The unique position Oml takes is that it also provides solutions. The practical approach taken by MVO NL was positively welcomed in India.

The interviewees all see potential in the Biomass project. However, one of the interviewees was not so positive about the process and the role all individual partners played. All individuals focussed too much on their own individual benefit instead of targeting the aims of the Biomass India project. An example is the research executed by the WUR. They earned a lot of money with that, while this research has been executed already for more or less the same materials. Also one of the partners applied for funding for himself instead of for the consortium. To prevent such situations, agreements related to these issues could be included in the signed agreement.

5.2 Leverage

Leverage of the project in terms of ‘the ability to influence behaviour beyond the applicant’ or ‘the influence of Dutch policy on various actors’ (see IOB 2019: 16, 25) can be seen as the extent to which behaviour of various actors in the project (or of actors beyond the project) is influenced. There is no doubt that the actions of the MVO Nederland staff involved in the project influenced the behaviour of other project stakeholders. But there are also examples of influence beyond the project areas.

The Biomass India project has certainly led to increased awareness that there is a business case for sustainability as mentioned by the interviewees. Thinking in a circular way was not common yet in India. The Biomass India project has shown that (Dutch) companies are interested in solving sustainability problems, in using specific waste as input for their product, this has for sure leveraged awareness for sustainability issues.

It was expected by some of the interviewees that the Dutch Embassy would present ECOR and the project at various networking opportunities, like they did during the trade mission. The Embassy in Delhi had also helped in connecting with the government in Andhra Pradesh. ECOR was not mentioned in various press releases related to air pollution; this might have been an oversight and not intentional.

6. Conclusions

The Biomass India project aims to reduce the negative environmental, health and social impacts while generating sustainable new business and livelihoods by developing and implementing a circular business model for paddy straw upcycling in India. The relevance of the project is clear. This project is absolutely necessary for India in view of the challenge of crop residue burning. The social, environmental, and economic benefits have the potential to far outweigh the financial investments. But to bring these projects from early phase to implementation and commercial success demand commitment of resources, efforts, time, and perseverance. Bringing all stakeholders and addressing self-interests takes time. Although the project achieved good results at output level, it is too early to see results at outcome level, apart from increased awareness for environmental pollution and potential solutions, as well as results on impact level and sustainability.

Products made from crop residue need mature markets, which are not (yet) a given in developing countries. Such business solutions could succeed only when the markets have the capacity to absorb alternative and sustainable products. The challenges for this project are plenty, COVID-19 has had its effect on the outcome results, but the potential and opportunity to succeed is large.

The results of this project contribute to awareness related to sustainability in general, but also to the potential of circular business models.

Due to COVID-19 and time limitations of the stakeholders, we were only able to interview a few stakeholders related to the Biomass project. consequently, this assessment is based on a limited number of interviews and available documents provided by MVO Nederland. A more balanced and objective assessment would be possible when other partners and value chain stakeholders are also interviewed.

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Appendix 1: Stakeholders interviewed

Name	Position	Organisation
Giulia Viero	Business Process and Data Analysis	ECOR Global
Sann Carrière	Circular Economy Business Development	ECOR Global
Peter van Rosmalen	Founder & Owner	Paperwise
Louise Pfältzer	Second Secretary Economic and Commercial Affairs (08/2018 – 08/2020)	Royal Netherlands Embassy, New Delhi
Leonie van der Stijl	Second Secretary Economic and Commercial Affairs (10/2016 – 10/2018)	Royal Netherlands Embassy, New Delhi
Koos van Eyk	Programme Manager Public Private Partnerships	NL Works
Michiel van Yperen	Transition Manager for circular product innovations in international value chains	MVO NL

Appendix 2: Project ToC

Project India (Biomass)

