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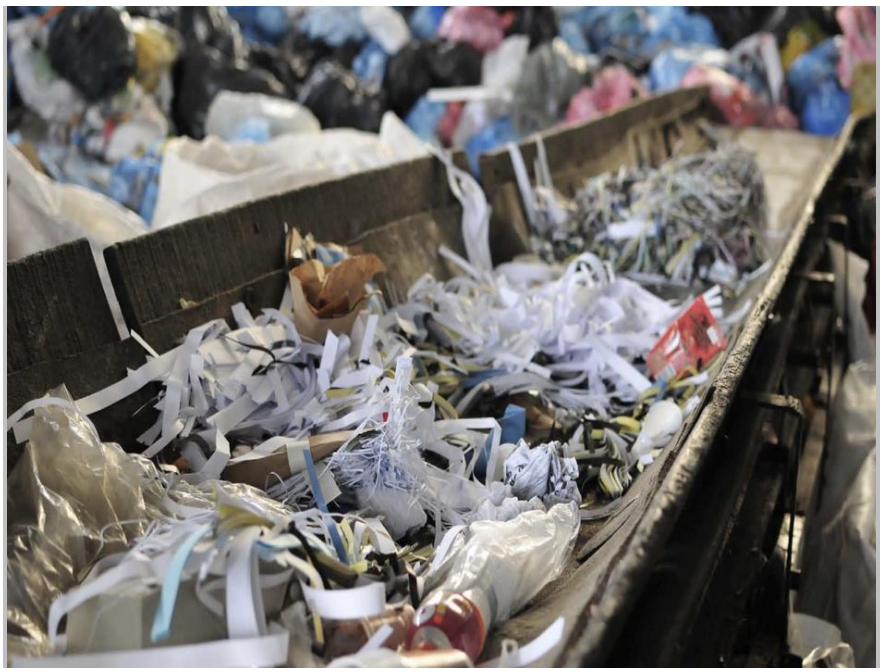
Final Report

Socially Inclusive Waste Recycling

Closed waste loops with picker cooperatives in Brazil



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The REPIC Platform is a mandate issued by the:
Swiss State Secretariat for Economic Affairs SECO
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1. Summary

To tackle the problem of poorly developed waste collection systems and precarious working conditions of waste pickers in developing and emerging countries, Swiss head-quartered sustainability consultancy BSD Consulting, in partnership with specialized consultancy HM Sustainability (HMS) and the multinational companies Johnson & Johnson (J&J) and Kimberly-Clark (K-C), founded IWRC, the Inclusive Waste Recycling Consortium. The consortiums' founding principle is to utilize a fast-moving implementation model to formalize the informal waste sector, injecting professional health and wellbeing concepts, business acumen and co-creating emerging technologies and best practices.

Through BSD consulting's network, BSD Consulting has reached out to new industry partners in Brazil in order to replicate the project and to increase the volume of waste recuperated in Brazil via socially responsible value chains, namely HP and its recycling partner Sinctronics. In 2010, Brazil launched a new national Policy on Solid Waste[1] with the objective to reduce and eliminate waste streams that usually end up in landfills with significant environmental and social impacts for the local population. Ten years after the publication of the policy, the progress on ground is very limited and most of the waste is either collected and brought to landfills or collected by waste pickers that live in very insecure situations and poor working conditions.

As local implementing partner, BSD Consulting has been responsible, in cooperation with HMS and Social Accountability International (SAI) to develop two waste streams – packaging and e-waste – for the IWRC-member companies, which allow them to recover waste and reintroduce material in a closed loop in to their production chain. The main differential to common circular economy streams in this case is the fact that the waste stream is including by end of April 2020 a total of 7 cooperatives of waste pickers which benefit from the business model and have been able to significantly increase their income. Furthermore, the project has provided them major improvements regarding working conditions, based on the introduction of Social Fingerprint, a methodology that targets continuous improvement in the social management of the organizations.

By end of the project period, both waste streams guaranteed the supply of 60-80 tons of paper waste per month and 8-10 tons of e-waste which were reintroduced in the productive chains of Johnson & Johnson and HP in Brazil. More than 350 waste workers and their families have benefited from increased economic stability of the cooperatives they work and have seen improvements of the working conditions at their facilities. With the support of Repic, the consortium was able to standardize its approach and has now attracted new potential clients in the area of plastics which want to source through this socially inclusive eco-system that has been created. The project has received REPIC-funding for an 18-month period starting in February 2018, which was extend until end of April, 2020, in order to allow completion of its milestones.

The Repic-support was fundamental for BSD and the project partners to consolidate and standardize the programme approach and open the way to a next phase of scaling the solution which already called interest of new private sector partners. The project partners have decided to dramatically increase the volume by engaging up to 30 cooperatives in the coming years and guarantee transaction of 100.000 tons yearly.

As a next important step, besides the upscaling of the volumes and materials via digital platform, the program will seek formal approval of the certifications of the waste streams with the Brazilian regulatory bodies, in order to allow the companies to use the volumes sourced in this socially inclusive system to comply with their recycling goals. First contacts with governmental bodies have been made and the program was considered as an outstanding solution, given that fact that the social issues are addressed, and the companies are obliged to reuse the recovered material in circular production models.

[1] Law nº 12.305 (Política Nacional de Resíduos Sólidos), and Decreto nº 7.404, which rules implementation and installs the Committee on Reverse Logistics.

2. Sumário

Para resolver o problema de sistemas de coleta de resíduos e condições precárias de trabalho dos catadores em países emergentes e em desenvolvimento, a consultoria BSD Consulting, em parceria com a consultoria especializada HM Sustainability (HMS) e as empresas multinacionais Johnson & Johnson (J&J) e Kimberly-Clark (K-C) fundaram o IWRC, o Consórcio Inclusivo de Reciclagem de Resíduos. O princípio base do consórcio é utilizar um modelo de implementação rápida para formalizar o setor informal de resíduos, aplicando conceitos avançados de saúde e bem-estar, visão de negócios e co-criando tecnologias emergentes e melhores práticas.

Por meio da sua rede, a BSD Consulting também alcançou novos parceiros no setor no Brasil (nomeadamente HP e seu parceiro de reciclagem Sinctronics), para replicar o projeto e aumentar o volume de resíduos recuperados no Brasil por meio de cadeias de valor socialmente responsáveis. Em 2010, o Brasil lançou uma nova Política Nacional de Resíduos Sólidos com o objetivo de reduzir e eliminar os fluxos de resíduos que normalmente acabam em aterros com impactos ambientais e sociais significativos para a população local. Dez anos após a publicação da política, o progresso no terreno é muito limitado e a maior parte dos resíduos é recolhida e levada para aterros ou recolhida por catadores que vivem em situações muito inseguras e com más condições de trabalho.

Como parceira local de implementação, a BSD Consulting tem sido responsável, em cooperação com a HMS e a Social Accountability International (SAI), pelo desenvolvimento de dois fluxos de resíduos - embalagens e lixo eletrônico - para as empresas membros da IWRC, que lhes permitem recuperar resíduos e reintroduzir material, através de um ciclo fechado em sua cadeia de produção. A principal diferencia comparada com os modelos comuns de economia circular, é o fato de que esse fluxo de resíduos inclui no final de abril 2020 um total de 7 cooperativas de catadores que se beneficiam do modelo de negócios e têm conseguido aumentar significativamente suas receitas. Além disso, o projeto proporcionou-lhes grandes melhorias no que diz respeito às condições de trabalho, com base na introdução do Social Fingerprint, uma metodologia que visa melhoria contínua na gestão social das organizações.

A essa altura do projeto, ambos os fluxos de resíduos garantem o fornecimento de 60-80 toneladas de resíduos de papel por mês e 8-10 toneladas de lixo eletrônico que são reintroduzidos nas cadeias produtivas da Johnson & Johnson e da HP no Brasil. Mais de 350 catadores e suas famílias se beneficiaram da maior estabilidade econômica das cooperativas nos quais trabalham e viram melhorias nas condições de trabalho em suas instalações. Com o apoio da REPIC, o consórcio conseguiu padronizar sua abordagem e atraiu novos clientes em potencial na área de plásticos que desejam obter recursos através desse ecossistema socialmente inclusivo que foi criado. O projeto recebeu recursos da REPIC em fevereiro de 2018 para um período de 18 meses, mas o prazo foi estendido até final de Abril 2020, para permitir completar os milestones.

O apoio da Repic foi fundamental para que a BSD e os parceiros do projeto consolidassem e padronizassem a abordagem do programa e abrissem o caminho para uma próxima fase de escalonamento da solução que já chamou o interesse de novos parceiros do setor privado. Os parceiros do projeto decidiram aumentar drasticamente o volume ao envolver até 30 cooperativas nos próximos anos e garantir uma transação de 10.000 toneladas anuais.

Como próximo passo importante, além do aprimoramento dos volumes e materiais via plataforma digital, o programa buscará a aprovação formal das certificações dos fluxos de resíduos junto aos órgãos reguladores brasileiros, a fim de permitir que as empresas utilizem os volumes originados neste sistema socialmente inclusivo para cumprir suas metas de reciclagem. Primeiros contatos com órgãos governamentais foram feitos e o programa foi considerado como uma excelente solução, dado que as questões sociais são abordadas e as empresas são obrigadas a reutilizar o material recuperado em modelos de produção circular.

3. Starting Point

When the project with REPIC-funding has been initiated in early 2018, BSD Consulting had already a first experience through a pilot project initiated in cooperation with J&J called “Phoenix”. Phoenix is the name for the first trial of a commercial inclusive waste recycling stream, using the packaging of *BAND-AID* as a vehicle to include two cooperatives of waste pickers in the supply chain, certifying their cooperatives with the SA8000 standard and including their paper and cardboard waste in the production chain for paper boxes for the consumer goods. The project included around 80 workers in 2 cooperatives in the city of São José dos Campos.

An evaluation of the Phoenix project indicated that sales, market recognition and salaries of the cooperative members had increased within one to two years after the start of the project. Also, accidents and health risks have been reduced and working conditions have been created that made the cooperatives more attractive to young workers. Furthermore, the project implemented by BSD Consulting and HM Sustainability had won recognition on global level within J&J and the idea emerged to replicate the model in a fast-moving manner with other cooperatives.

At the time of the funding proposal to REPIC, a new partner, HP, joined IWRC, which has been founded in early 2017 by J&J and Kimberly-Clark. HP showed interest in working with a similar model in the e-waste stream in Brazil. With this, the need for more efficiency in the replication of the model and the need for a sustainable business model were urging for new investments in the coordination work and the tool development.

While IWRC was providing the necessary coordination platform for new partner companies that will invest resources in pilot projects in new regions, the main challenge in Brazil was to scale the solution and include more cooperatives into the program. Also, the inclusion of a new material stream, e-waste, was challenging and needed major investments in creating an economic model for this kind of waste.

With the help of the REPIC-funding, BSD and the project partners were able to set-up the necessary framework to include new waste stream and replicate the model to a total of 5 cooperatives working in São José dos Campos and Cotia, both in the state of São Paulo. By April 2020, the range of engaged cooperatives could be extended to a total of 7 cooperatives, with the entrance of Coopamare, a waste picker cooperative in São Paulo city, and the network Reciclamp in Campinas.

Figure 1: Supply chain flow chart of project Phoenix which inserts recycled paper waste into the production of Band-Aid cartridges. Currently the content of recycled material in the cartridge is 30%. The production is exported world wide and around 80% or the US-market of Band-Aid packages are coming from the production in Brazil.

4. Objectives

The project´s main objectives have been defined as following in the original proposal to REPIC and targeted three work streams: Scaling up the model, include new waste streams and provide safe working conditions to workers.

Below a short description of each of the three main objectives:

1. Establish the integration of recycled material from five waste cooperatives in packaging of multinational companies, install an auditable mass balance control and elaborate the necessary tools that help to scale the program

Under this objective, the project targeted to be extended to at least five more cooperatives in the region of São Paulo. These cooperatives developed commercial connections with the aggregators and packaging industry that serve the participating companies. In order to create a solid control of how much waste could be channelled to commercial reuse for the participating companies, a mass balance system is necessary and needs to be accessible for all partners.

2. Extend the current scope of the project focusing on waste of packaging to other waste streams such as plastic waste and electronic waste

At the project start, the pilot cooperatives have been commercializing paper and cardboard waste only. As the cooperatives are collecting other waste such as plastic, metal, glass or electronic waste, it was important to extend the model to more waste streams. Given the specific interest of the participating companies, plastic and electronic waste are two waste products which will have been analysed in detail and e-waste has been piloted as soon as the corresponding economic model had been defined.

3. Contribute to safe and decent working conditions for around 1000 waste pickers working in the participating cooperatives.

Applying the *Social Fingerprint* and assessing the sites with audit-like methods, the project strives to improve significantly the health & safety conditions in the participating cooperatives. By improved management systems, adequate training and infrastructural improvements, the workers and their families regain dignity and recognize the value of their important work. We estimated, that around 1.000 workers would benefit within the scope of the project, and more than 5.000 family members will be impacted indirectly, a number that had been corrected during the course of the project (see below).

Figure 2: Visit of the Vice-President of Flextronics at Coopernova (left). First delivery of e-waste by Coopernova (right).

5. Project Review

5.1 Project Implementation

The project has been implemented divided in 4 major work packages described in more detail below. The work packages follow the main stages of the IWRC-program which contains four main steps:

1. Socialization – 2. Site Diagnostics – 3. Action plan – 4. Scaling up (using the elaborated tools)

Below we summarize the milestones of each work packages. For each work package, anticipating some of the observations for section 5.2, we deliver the status of achievement by end of the project period, July 31, 2019.

Work Package 1: SOCIALIZATION

Milestones and deliverables of Work Package 1:

1. *Selection and identification of five participating cooperatives including different waste streams (packaging, e-waste) –* ***FULLY ACHIEVED***
2. *Awareness raising and commitment of local company staff in socialization workshops –* ***FULLY ACHIEVED***
3. *Agreement on project activities and timeline –* ***FULLY ACHIEVED***

The following five cooperatives are operating the two waste streams – packaging and electronic waste, all in the state of São Paulo, the numbers indicate the sequence of their entrance in the project:

Packaging stream (linked to production of Johnson & Johnson packaging at São José dos Campos plant):

- **Cooperativa Futura – São José dos Campos (1)**
- **Cooperativa Recicla – Jacarei (2)**
- **Cooperalfa – São José dos Campos (3)**
- **Coopertech – São José dos Campos (4)**

(Futura, Coopertech and Cooperalfa are operating under a common management structure, called CCRS “Central de Cooperativas de Residuos Sólidos de São José dos Campos” and are selecting waste at the location of URBAM – the municipal waste collection company.)

Electronic waste stream (linked to Sinctronics in Sorocaba, the waste processing plant used by HP in Brazil):

- **Coopertech – São José dos Campos (4)**
- **Coopernova – Cotia (5)**

(Coopertech is involved at its own site, as it is a cooperative that is specialized on e-waste, around one third of the staff is working at their e-waste warehouse, while two third of the staff are working in the CCRS facility.)

The packaging waste stream has been operationalized and is working according to the designed model, including regular monthly waste transactions since March 2018. For the e-waste stream, the pilot phase has been started in October and has transitioned to a normal operational cycle in June 2019.

Today, a total of more than 250 cooperative members and their families are benefitting from the project, which allowed them to get salaries which are in the range of 1.200 to 2.500 Reais (compared to the minimal salary of 998 Reais currently).

As an important milestone in the socialization process, a stakeholder round table has been organized and brought all business partners and the cooperative leadership together by end of May 2019. The roundtable served to analyze existing challenges of the program and design next important steps.

Figure 3: Working sessions at the stakeholder roundtable discussed challenges and opportunities of the inclusive waste stream solution.

By end of February 2020, two further cooperatives could be included in the e-waste program: Coopamare in São Paulo and Reciclamp in Campinas. With these two cooperatives, the number of participating cooperatives rose to a total of 7. In both cooperatives, awareness has been raised and commitment has been obtained, and the kick-off workshops have been held.

Furthermore, and based on the commitment of the project partner companies Johnson & Johnson, Kimberly-Clark, HP and Sinctronics, the project will be escalated to a total of 30 cooperatives in the major metropolitan areas of the state of São Paulo. For this purpose, we have mapped a total of 90 potential cooperatives that will be further evaluated and visits to the selected cooperatives will take place as soon as the situation with Covid-19 will allow it during the year 2020.

The project 30+, as it is called, started beginning 2020 and has a timeline over 2 years to achieve the goal of 30 cooperatives and the expected volumes in e-waste, paper and PET which the companies will reintegrate in their production chains. Currently, discussions with more companies (Natura and Femsa) are on the way as they eventually will join the consortium in the coming months.

Work Package 2: SITE DIAGNOSTICS

Milestones and deliverables of Work Package 2:

1. *Complete site diagnostics including: Analysis of working conditions, management systems, waste streams and commercial relations – **FULLY ACHIEVED***
2. *Initial Social Fingerprint assessment of each participating cooperative – **FULLY ACHIEVED***
3. *Action plan for implementation of Social Fingerprinting process in each cooperative and preparation for closing commercial loop – **FULLY ACHIEVED***

Social Fingerprint Assessments and Site Diagnostics have been implemented at the following cooperatives:

- Cooperativa Recicla: The cooperative has been certified SA8000 and therefore has a very strong social management system still in place. The commercial loop has been closed and per month, the cooperative is forwarding regularly 40 tons of paper waste to the closed loop with J&J. Currently, it is analysed to include plastics to develop new packaging from recycled material for J&J.

- CCRS: The Central (includes Coopertech, Cooperalfa and Futura) could improve its management system of health and safety significantly since late 2018, its monthly

volume of paper waste is adding to the volume already delivered by Recicla and guarantees the need of 60-80 tons monthly for J&J.

- Coopernova: The cooperative could raise its Social Fingerprint assessment during the pilot phase to the necessary 3-point benchmark. The monthly material delivery has been stabilized by 4 tons of e-waste per month.

- Coopertech: The cooperative was able to relocate its e-waste unit to a new, modern warehouse and could dramatically improve its health and safety management at the new site, but still needs some improvements to reach the benchmark of 3 points at Social Fingerprint measurement. The new site also guarantees the delivery of 6 tons of e-waste on a monthly basis to Sinctronics.

- Coopamare: The newly entering cooperative has undergone the first assessment in March 2020, and the first transaction and the first lot of e-waste is ready to be delivered.

Coopernova and Coopertech currently entered in phase 2 of the e-waste project which includes an action plan to consolidate and improve their Social Fingerprint score. A training plan has been developed and will be implemented over the next couple of months.

Figure 4: New warehouse of Coopertech in São José dos Campos (left). Waste picker at Cooperativa Recicla in Jacarei (right).

The Social Fingerprint assessments cover ten management areas that are crucial to improve human rights at work and safe working conditions. Based on the SA8000-standard for social management, the methodology has been used by many international brands and has been adapted to the context of cooperatives. In each category, the organization can reach a level between 1 and 5 points. In the case of the waste-cooperatives, the minimum desirable level was defined to be 3 points in the ranking.

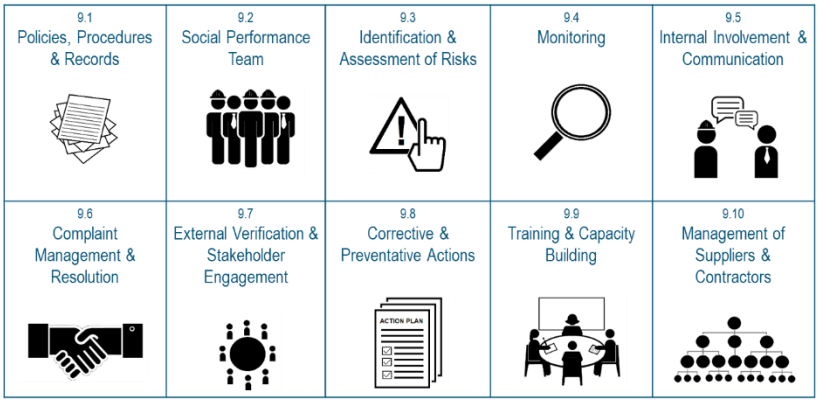


Figure 5: Ten categories of the Social Fingerprint (SF) assessment.

After an initial assessment, the cooperative managers need to implement specific actions to address major gaps and advance to 3 points in the assessment scale within the first year of their enrolment into the program.

The assessments are to be repeated after each 6 months to measure constant progress, see figure 6.

Figure 6: SF-assessment calendar for Coopernova and Coopertech 2018/19 (SF 1 = initial assessment, SF 2 = re-assessment.)

Below we present the evaluation results of Coopernova as an example (Figure 7). Between October 2018 and May 2019 the major gaps in supplier management, risk assessment and grievance mechanisms have been addressed and helped the cooperative to improve the level of the Social Fingerprint score to the desired average level. In the following month, actions will target areas with remaining gaps.

Social Fingerprint

Evaluation Coopernova

Date of assessments:
10.10.2018 – initial/24.05.2018 – Re-assessment

social fingerprint

SOCIAL FINGERPRINT CATEGORIES - Coopernova	mai/19	oct/18
Policies, Procedures & Records	2,8	2,7
Social Performance Team	3,0	2,7
Identification & Assessment of Risk	3,0	2,8
Monitoring	3,3	3,0
Internal Involviment & Communication	3,3	3,0
Complaint Management & Resolution	2,9	2,4
External Verification & Stakeholder Engagement	3,0	2,7
Corrective & Preventive Actions	3,0	3,0
Training & Capacity Building	3,0	2,8
Management of Suppliers & Contractors	2,3	1,5
TOTAL RATING	**3,0**	**2,6**

Figure 7: Social Fingerprint results of Coopernova raised to the 3-point threshold within the pilot period and now need to be continually improved.

The management categories refer to the areas covered by the SA8000 standard and include the 8 basic requirements: Child Labour; Forced Labour; Discrimination; Compensation: Disciplinary Practices; Working Hours; Freedom of Association and Health & Safety.

Work package 3: IMPLEMENTATION OF ACTION PLAN

Milestones and deliverables of Work Package 3:

1. *Social management teams built and trained in all cooperatives – **FULLY ACHIEVED***
2. *Control tools and management systems implemented in all cooperatives – **FULLY ACHIEVED***
3. *Management and staff trainings implemented in all cooperatives – **FULLY ACHIEVED***
4. *Internal audits and external re-evaluation of Social Fingerprint in each cooperative – **FULLY ACHIEVED***
5. *Commercial loop closed with first economic transaction of waste sales implemented – **FULLY ACHIEVED***

The project team elaborated a detailed training plan which has been validated with the participating cooperatives and trainings have been provided according to a priority list. All mandatory trainings have

been delivered to the Cooperatives by end of February 2020. The following trainings have been implemented:

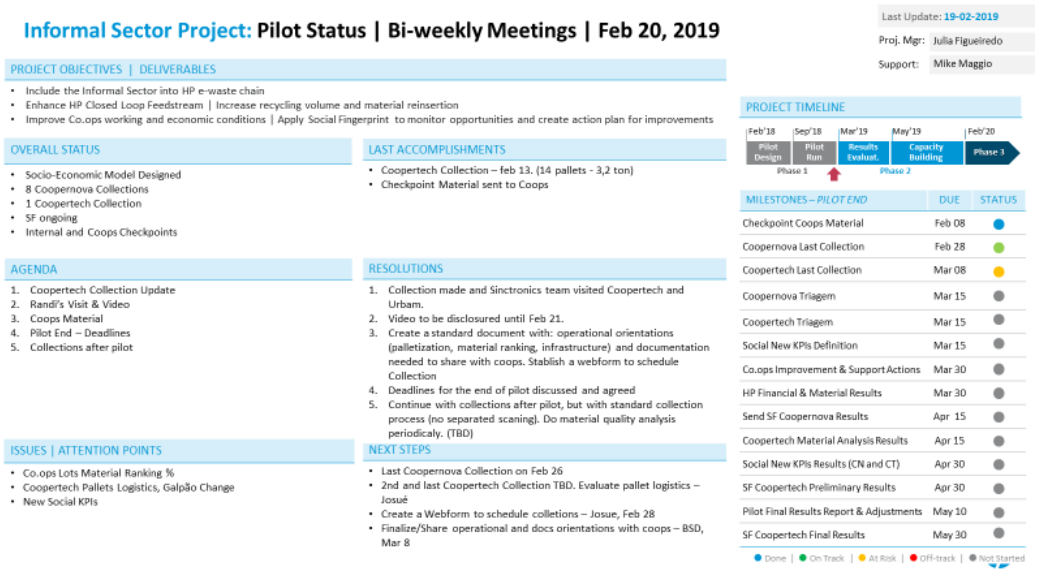
- SA8000 basic requirements (BSD)
- Working hours and remuneration (BSD)
- Operational training (Sinctronics)
- Financial management (Sinctronics)

The Financial Management-training at Coopertech and Coopernova has been given online and equipment that HP donated to both cooperatives has been used. In order to have an alternative to face-to-face training, we are currently checking how we can use online trainings for the new cooperatives, as travels will be restricted over the coming weeks.

Figure 8: Online and onsite trainings provided by Sinctronics at Coopernova and Coopertech.

Also, as mentioned above, based on the Social Fingerprint assessments the cooperatives developed – in collaboration with BSD – action plans to address their main gaps in their social management systems. The action plans have been synchronized with other clients' demands. Given the fact that operational challenges have been priority at that stage, the action plans have so far not yet achieved the desired pace and several times deadlines had to be renewed. One cooperative, Coopertech, also moved to a completely new site which caused a further delay and rescheduling of actions due to the transition period (see Figure 6).

For the e-waste component, a project management structure has been established which allow the tracking of the program process on a bi-weekly basis. These bi-weekly calls have been maintained during the pilot phase and are now extended to a second phase which is dedicated to consolidating the material flow.



Informal Sector Project: Pilot Status | Bi-weekly Meetings | Feb 20, 2019

Last Update: 19-02-2019
Proj. Mgr: Julia Figueiredo
Support: Mike Maggio

PROJECT OBJECTIVES | DELIVERABLES
- Include the Informal Sector into HP e-waste chain
- Enhance HP Closed Loop Feedstream | Increase recycling volume and material reinsertion
- Improve Co.ops working and economic conditions | Apply Social Fingerprint to monitor opportunities and create action plan for improvements

OVERALL STATUS
- Socio-Economic Model Designed
- 8 Coopernova Collections
- 1 Coopertech Collection
- SF ongoing
- Internal and Coops Checkpoints

LAST ACCOMPLISHMENTS
- Coopertech Collection – feb 13. (14 pallets - 3,2 ton)
- Checkpoint Material sent to Coops

AGENDA
1. Coopertech Collection Update
2. Randi's Visit & Video
3. Coops Material
4. Pilot End – Deadlines
5. Collections after pilot

RESOLUTIONS
1. Collection made and Sinctronics team visited Coopertech and Urbam.
2. Video to be disclosured until Feb 21.
3. Create a standard document with: operational orientations (palletization, material ranking, infrastructure) and documentation needed to share with coops. Stablish a webform to schedule Collection
4. Deadlines for the end of pilot discussed and agreed
5. Continue with collections after pilot, but with standard collection process (no separated scaning). Do material quality analysis periodicaly. (TBD)

ISSUES | ATTENTION POINTS
- Co.ops Lots Material Ranking %
- Coopertech Pallets Logistics, Galpão Change
- New Social KPIs

NEXT STEPS
- Last Coopernova Collection on Feb 26
- 2nd and last Coopertech Collection TBD. Evaluate pallet logistics – Josué
- Create a Webform to schedule colletions – Josue, Feb 28
- Finalize/Share operational and docs orientations with coops – BSD, Mar 8

PROJECT TIMELINE

Feb'18 Pilot Design | Sep'18 Pilot Run | Mar'19 Results Evaluat. | May'19 Capacity Building | Feb'20 Phase 3
Phase 1 | Phase 2

MILESTONES – *PILOT END*	DUE	STATUS
Checkpoint Coops Material	Feb 08	
Coopernova Last Collection	Feb 28	
Coopertech Last Collection	Mar 08	
Coopernova Triagem	Mar 15	
Coopertech Triagem	Mar 15	
Social New KPIs Definition	Mar 15	
Co.ops Improvement & Support Actions	Mar 30	
HP Financial & Material Results	Mar 30	
Send SF Coopernova Results	Apr 15	
Coopertech Material Analysis Results	Apr 15	
Social New KPIs Results (CN and CT)	Apr 30	
SF Coopertech Preliminary Results	Apr 30	
Pilot Final Results Report & Adjustments	May 10	
SF Coopertech Final Results	May 30	

Done | On Track | At Risk | Off-track | Not Started

Figure 9: Bi-weekly status reports used to monitor the progress of the program for e-waste.

The commercial loops allow that the cooperatives now have monthly transactions of volumes, in the case of Coopernova and Coopertech of around 10 tons of e-waste monthly, and in the case of Recicla and CCRS 60-80 tons a month. Before the project, the cooperatives often had to wait some weeks to find buyers and they often sold to middlemen to very low prices when they were in need of cash.

The current price for paper waste within this loop is of R$ 0,58 compared to the average market price of R$ 0,45 and in the case of e-waste, the model brought a new remuneration of R$ 1,07/kg for Coopernova, which is a remuneration for environmental services, as no further treatment of the waste is necessary and the cooperative can dismantle more valuable items.

Figure 10: Waste selection at CCRS in São José dos Campos.

Work Package 4: TOOL DEVELOPMENT

Milestones and deliverables of Work Package 4:
1. *Online mass balance tool for packaging and e-waste – **PARTIALLY ACHIEVED***
2. *Template business models for waste streams with industrial partners – **FULLY ACHIEVED***
3. *Management and staff trainings tools – **FULLY ACHIEVED***
4. *Certification scheme drafted (depending on result of consultation) – **FULLY ACHIEVED***

After defining the technical requirements, a digital platform to host the mass balance tool is being developed by HP, in order to be tested by the onboarded cooperatives and companies. The platform creates a marketplace that matches available volumes of cooperatives of waste pickers and demands of companies. Volumes will be inserted by cooperatives and uploaded using the local administration software. The platform will also use machine learning to make volume previsions. The tool allows companies to track mass balances of needed recyclable material such as e-waste, paper, plastics, carton beverages, metals, glass etc. to close their volume goals and source material within a controlled socially inclusive waste stream. Preparing the way to the certification scheme, the platform will be able to issue certificates based on traced waste transactions, that attest that socially inclusive waste has been included in the recycling stream of the company. We call the certification, which has similarities with the Fairtrade system, tentatively IR^2. Below (Figure 11) some screenshots of the platform.

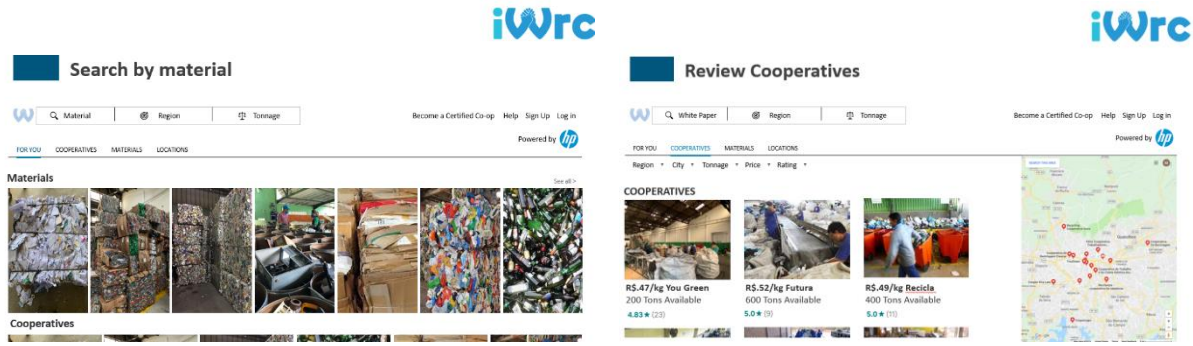


Figure 11: Illustrative screenshots of the digital platform supported by HP and developed by the project. The rollout is planned by end of 2019.

It has already been defined with HP and other potential platform funders, that the platform and its tools will be available for all interested partners and cooperatives in full agreement with the REPIC funding requirements. A local legal person for IWRC has been created in Brazil which can detain the property rights and keep the platform as an open source instrument.

The workstream under this work package has suffered modifications during the project implementation. The main challenge was to streamline the objectives of the different project partners which was only possible during a face-to-face meeting on May 31, 2019, at the HP-offices. At this meeting, clear goals for scaling the initiative and using the digital platform as an important tool have been set by the member companies.

It was also decided to pursue the official certification of the waste streams, which allows the companies to recognize the volumes of recycled materials in these streams in the terms of the National Solid Waste Policy. This decision and the final decision of HP to support the development of the platform allow now further progress with this important tool.

The digital platform which hosts the mass balance tool has been presented in a beta-version in October 2019. Nevertheless, the version and the conditions of the developers did not attend the requirements of the project. Therefore, the strategy had to be changed now the strategy and are now in contact with software developers and commission them to elaborate the platform for the network which will demand further time and investment.

In the meantime, we set-up a dashboard on Power BI platform which will allow us to track the KPIs of the project and the volumes on a monthly basis. See screenshot below:

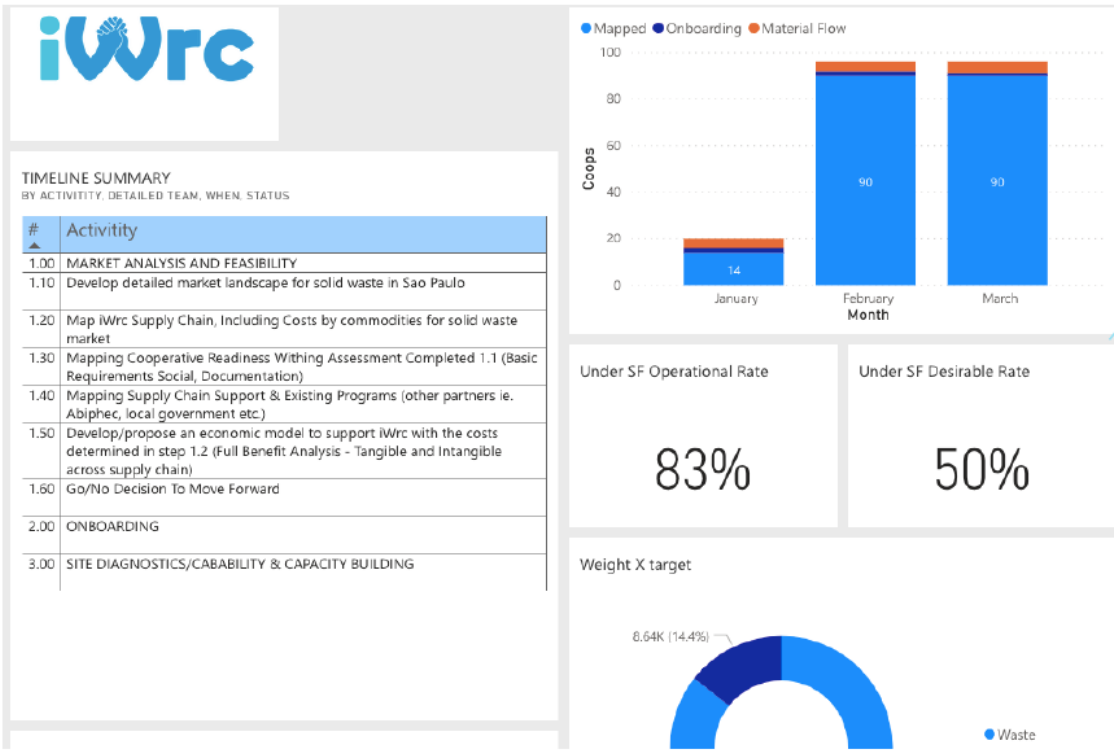


Figure 12: Screenshot of current KPI monitoring on Power BI which will be accessible online.

5.2 Achievements of Objectives and Results

Evaluating the project's results regarding the three main objectives, we can conclude that most of the objectives have been fulfilled, even if some delays in terms if scaling-up have been registered, but the current interest of new companies and clients will help to fill this gap in a relatively short period of time.

Below a short assessment of each objective:

Objective 1: Establish the integration of recycled material from five waste cooperatives in packaging of multinational companies, install an auditable mass balance control and elaborate the necessary tools that help to scale the program

While the first part of the objective has been fully achieved, the second part has been partially achieved. In terms of the project approach, an easily applicable for replication model has been developed and allows new partners to quickly adopt the system. The elaboration of the digital platform which contains the mass balance tool has suffered delays but the commitment of the supporters to develop and host the platform has been obtained and the development has been initiated and bridged with an online system showing the main KPIs of the program.

Objective 2: Extend the current scope of the project focusing on waste of packaging to other waste streams such as plastic waste and electronic waste.

The e-waste stream could be successfully inaugurated and entered in its operational phase in June 2019 after a period or piloting and testing, and two additional cooperatives in the cities of São Paulo and Campinas have been onboarded to join the e-waste stream in early 2020. Also, the plastic work stream has gained traction by end of the project period: In July 2019, the cosmetic giant Natura has solicitated and received a proposal to enter the consortium and include cooperatives in order to recover plastics for their product packaging, parallelly, J&J is studying, in cooperation with IWRC, BSD and its packaging suppliers, the insertion of recycled PET in its product packaging. With these two major new demands, at least 5 new cooperatives will have to be onboarded while the existing participating cooperatives will have an economically interesting new sales channel for their current PET volumes.

Objective 3: Contribute to safe and decent working conditions for around 1000 waste pickers working in the participating cooperatives.

By end of the project period, five cooperatives with a total of 250 workers have been fully integrated and are monitored regarding safe and sound working conditions. Together with the 2 new cooperatives for e-waste, we will reach the number of 350 workers in the project scope in August. The original goal of 1000 workers has proved to be very difficult to achieve given the fact that the onboarding of each cooperative has been quite time consuming and that the number of cooperative members has been stable and not increased as we originally assumed, a fact which has to be attributed to the limited space and administrative capacities of each cooperative. We firmly believe that within the next year and the growing demand of companies for the project (see section 5.3), the number of cooperatives and workers will significantly grow.

5.3 Multiplication / Replication Preparation

A key turning point has been the implementation of a roundtable of all project stakeholders between May 29 and May 31th, 2019 at the HP headquarters in Barueri near São Paulo, in Brazil. The roundtable was attended by the sustainability leadership of J&J, K-C, HP and Sinctronics, as well as other companies such as Braskem, Natura, Alpla, McDonalds, the recycling coalition of the large beverage industries and stakeholders such as legal advisors, civil society organizations and of course the leadership of the already engaged cooperatives.

Together, the partners decided to multiplicate the model and create and ecosystem that will allow to increase the project to 6 brand members, 30 cooperatives and 600 cooperative members over the next two years, totalling an offer of 100.000 tons of socially certified waste per year (see figure 13 below).

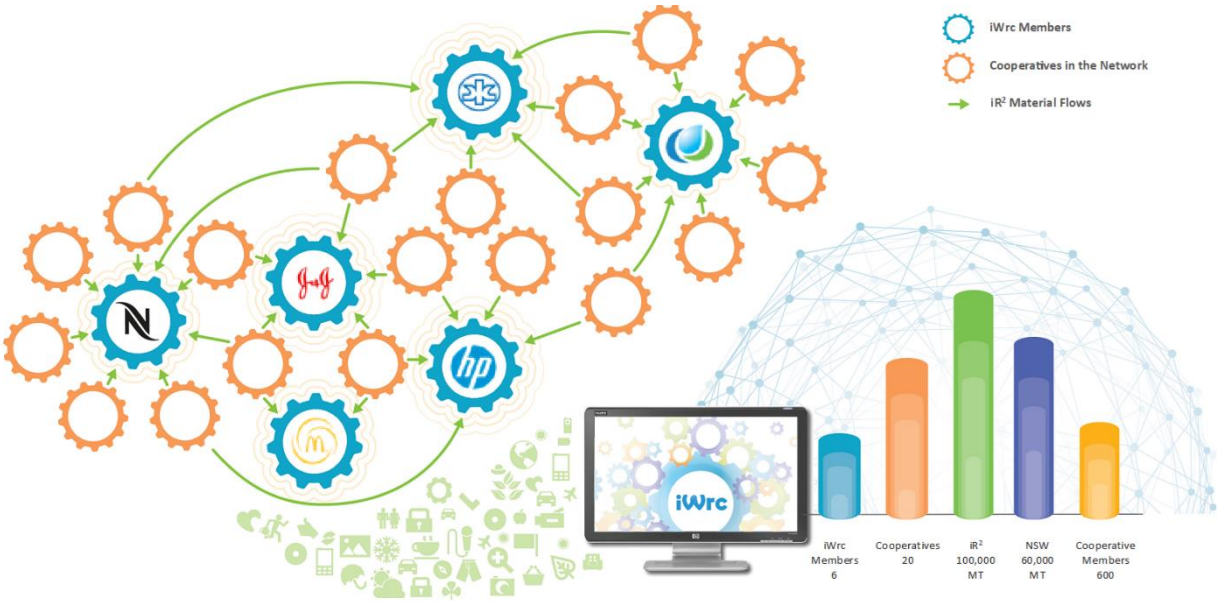


Figure 13: Scalable ecosystem of IWCR-model and targets for 2020.

During the project period, BSD and its project partner HMS elaborated a standard approach which allows a fast replication of the model involving new business partners and cooperatives. The approach is consisting of five elementary steps (see figure 14) which are each broken down in activities which are applicable according to the maturity of the waste stream and the partners of a new project.

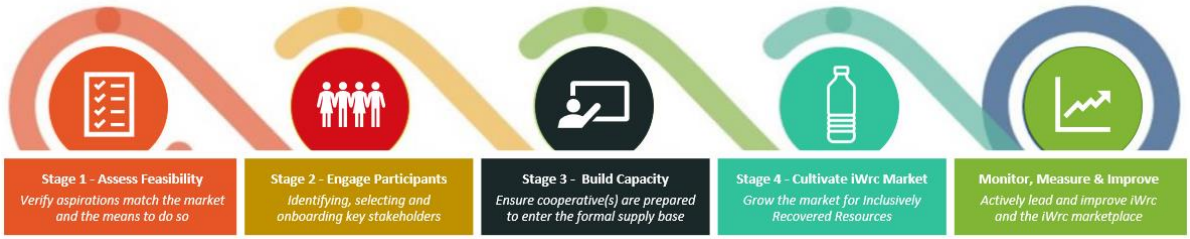


Figure 14: Main project steps of the IWRC-model.

The main tool for replication and multiplication will be the digital platform which will allow to shorten the enrolment process and the monitoring of the waste volumes, prices and performance indicators. The platform will contain standard forms, terms of agreements and other important project documents that have already been elaborated during the current project.

The project will not only be multiplied in Brazil, but the participating multinationals have declared interest to replicate the model in Asia and other Latin American countries. Currently, a first pilot project is implemented in India by IWRC but plans of the IWRC-members include also countries such as Peru, Mexico, Colombia and the Philippines.

By end of April 2020, the original consortium members Johnson&Johnson, Kimberly-Clark, HP and Sinctronics have committed financial resources to guarantee the multiplication to 30 cooperatives in 2020 and 2021. Furthermore, negotiations with Femsa Foundation and Natura are in a very advanced stage and could further leverage the outreach to more material streams and at least 20 more cooperatives, resulting in a number of 50 cooperatives with at least 1000 workers by end of 2021 or early 2022.

5.4 Impact / Sustainability

During the project, different KPIs have been monitored and showed significant improvements in the participating cooperatives. As example, we reproduce of one of the cooperatives involved in the e-waste work stream after finishing the pilot phase, Coopernova:

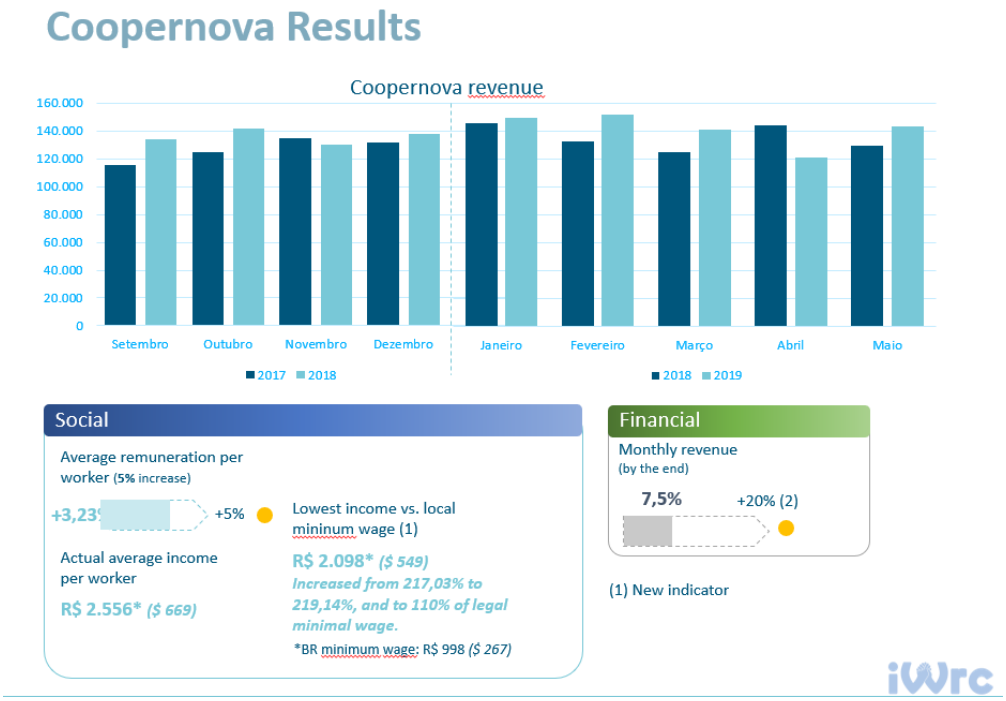


Figure 15: Evaluation of results of Coopernova.

Generally, we identified developments in the following KPIs in all cooperatives which were involved in the project. The following table is providing an overview of the trends we could monitor during the project implementation:

Description of KPI	**Measurement applied**	**Trends perceived during test period**
Number of members	Number of members monthly count	Stable, in some cases small increase
Cooperative Revenue	Monthly sales in Reais	Slow but steady increase
Average salary	Monthly average compensation in Reais	Slow but steady increase
Lowest salary	% of lowest salary compared to legal minimum wage	Significant increase
Accident rates	Number of lost days due to accidents	Lowered to zero within test period
Social Fingerprint evaluation	Social Fingerprint assessment score	Increase by at least 0,5
Volumes of material	Tonnage of material/month	Stable
Insertion of recycled material in production	Percentage of material reuse in production chain	Stable and slow increase of reuse of paper waste for cartridge production Slow increase in reuse of plastic for printer production

Figure 16: KPIs and measured data trends.

Detailed numbers can be shared on demand but some of the numbers are market sensitive information which eventually cannot be shared publicly without consent of the project partners.

In terms of triple bottom-line benefits, the project has without doubt had significant impact for all stakeholders and the environment. Below an overview of the main results.

Ecological	**Unit**	**At the REPIC Project's Completion**
Greenhouse gas reduction	[t CO_2-eq]/year	144.000
Newly collected and separated waste	[t]	18.000
Newly recycled waste	[t]	1.816
Economic		
Triggered third-party funding/investments	[CHF]	550.000
Local private income generated	[CHF]	4.480.000
Social		
Number of beneficiaries	[Number]	1200 (total family members)
Number of new jobs	[Number]	40
Number of trained personnel	[Number]	350

Other Indicators		
Reinsertion rate of plastic in electronics	%	7%
Reinsertion rate for paper	%	30%

Figure 17: Overview of performance of key indicators at the end of the project.

Repic's funding has been fundamental to achieve these results and guarantee that the programme has now a basis for a long-term operation and scaling of the solution to new waste streams and partners. The long-term economic model of the inclusive waste program will be based on a volume fee which will be competitive with the volume fees of current compensation schemes for programs which do not integrate social and economic aspects of the informal and do not enhance circular material flow.

6. Outlook / Further Actions

6.1 Multiplication / Replication

As mentioned above, during the roundtable discussions end of May, the project partners defined the next steps of the program which include:

- Scaling the program to include at least 20, preferably to 30 cooperatives
- Raise the total volume of socially certified waste from 13.500 tons/year to at least 60.000 tons/year, with the goal of 100.000 years on long term
- Raise the number of participating multinationals to 6 companies
- Target at least 600 cooperative members and their families as beneficiaries

Following the roundtable, different companies have approached the project partners in order to enter the consortium and work with recycled waste in their raw material supply chain, using the socially sound and inclusive model of IWRC. So, far interest has been led to a new concrete proposal for Natura, the Brazilian cosmetic company that acquired Body Shop and Avon globally and has become the fourth largest company in the sector. Natura has already tested cooperation with cooperatives in the past but was enthusiastic about the model that has been developed. One other interested company is Femsa through the Femsa Foundation which as about to approve a proposal to join the program.

On behalf of the existing partners, the commitment of J&J and K-C is to expand dramatically the sourcing of recycled waste for their production. Currently, K-C seeks to integrate 1.000 tons of paper waste per month into is production chain and is undertaking feasibility studies via IWRC and BSD. J&J has initiated tests and studies to increase the content of recycled paper and at the same time introduce recycled PET in the packaging of the products. HP also foresees to increase the project to reach 200 tons of e-waste monthly on long term. All these new work streams will help to dramatically increase the volumes and the impact of the successfully tested program.

There are three main challenges that will influence the further replication and multiplication of the project:

1) Successful implementation of the digital platform

One of the major challenges of the next step in upscaling the project is the successful development and implementation of the digital platform, which can boost the onboarding of cooperatives and the increased sales in the program.

2) Official accreditation of waste certificates

A second challenge consist in the formal accreditation of the certificate of IR2 by the Brazilian governmental agencies. This second challenge is one of the main drivers that will help to bring the project to a next level. A major legal firm in Brazil which is already advising the local industry federation in waste policies has offered to support the program in seeking this formal approval.

3) Favourable economic model in a more competitive environment

A third and decisive challenge consists in defining the final economic model for the project, which will be based on a small contribution per kg of waste traded in the socially inclusive system. Currently, calculations are undertaken which show that the cost will be in the range of similar schemes and therefore be competitive given the fact that other waste compensation schemes are not offering the social component which is key for many of the participating companies. Anecdotical reference showed that in other schemes, child and forced labour as well as implications with illegal transactions have been evidenced and only a project with the tools and controls embedded as in this project assures the companies that compliance is guaranteed all along the waste chain.

Regarding the last point, the ongoing project has shown that it can provide differentials which provide the companies more trust and a competitive analysis of the program shows that it combines sustainability and economic characteristics (see figure 18) compared to providers of similar solutions in the waste sector.

Figure 18: Comparison of IWRC-approach with other waste solution providers (ESG = Environmental, Social and Governance aspects).

6.2 Impact / Sustainability

In medium term, the planned scaling steps are contributing to a growth of a multiple of at least 5 of the indicators reported in section 5.4. In a common effort, the participants of the project also mapped the

different tangible and intangible benefits that the program generates both for companies and cooperatives.

Figure 19 shows the outcome of the mapping exercise. Several of the impacts have been measured (see above social and economic indicators), mainly on the cooperative level, but evidence for better more efficiency and reputational benefits for the member companies has already been collected. It is foreseen to create metrics that can help to measure these benefits on long term.

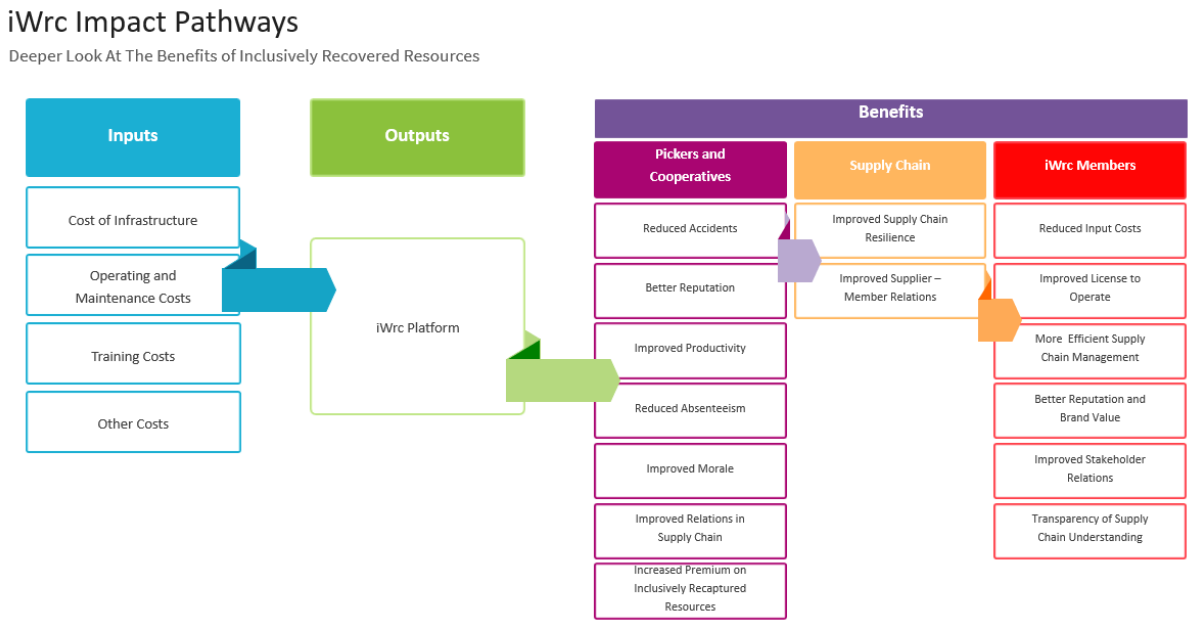


Figure 19: Mapping of tangible and intangible benefits of the inclusive supply chains for cooperatives and brands which have been evidenced in course of the project.

7. Lessons Learned / Conclusions

Figure 20 is a summary of the project and its main pillars and can serve as an overall conclusion of the project. The proposed and tested solution which targets the recycling of waste using existing informal picker communities and transforming the cooperatives into well managed and safe working spaces has achieved its proof of concept.

The key of the solution is the creation of a pre-competitive collaboration platform which allows participating companies to learn from existing projects and share resources to resolve their waste recycling goals.

At the same time, the model provides fair commercial conditions for the cooperatives which in turn impact the working conditions and the remuneration o the waste pickers which has showed a strong growth at the bottom line, raising the salaries above the legal minimum. A fact which is not guaranteed in the normal context of the informal waste picker universe.

Figure 20: The four pillars of the inclusive waste recycling solution.

It is a true that in Brazil several sector wide initiatives have been put in place to help the local industry to achieve the waste goals. While these initiatives may serve to raise enough quantities, the investment done by the initiatives is not impacting the social side of the waste supply chain and often results in significant expenses for infrastructure and overhead of the initiatives.

These costs burden the budget of the companies on long term. Furthermore, these initiatives are based in a pure trade of tax receipts and do not incentivize the companies to reinsert material in their production chain. This reinsertion is key for the IWRC-solution and is in the end the main objective of a journey to a more circular economy.

It is the specific focus on social compliance but also the fact that product innovation is key to enable circular material flows which has called attention of large brands which are interested in joining the program. So far, sector wide initiatives have guaranteed enough lobbying to win some time and reduce legal risk for the companies, but now it is time to act and start to effectively recycle the post-consumer waste. Inclusive waste recycling offers the companies different advantages which similar

programs and sector agreements do not offer. Here is a list of the main differentials of the solution that attracted the existing and will attract new partners:

- Formal inclusion of waste pickers in the waste supply chain, guaranteeing wide penetration in the community
- Assurance of legal compliance and good working conditions in formalized waste picker cooperatives
- Mandatory reconduction of waste in the production chain, enabling cost reductions due to less purchase of virgin material
- Reduction of risk of legal non compliance of established waste recycling goals
- Enhanced positive branding and reputation with consumers who are sensitive to sustainability
- Concrete contribution to several Sustainable Development Goals, namely Goal 1 (Poverty Reduction), Goal 8 (Decent work and economic growth) and Goal 12 (Responsible Production and Consumption)
- Incentive to innovate product composition and increase recyclability of products
- Pre-competitive partnership approach that allows to share knowledge and costs and benefit from an existing scalable model

Additionally, the program also allows the company to report their practices in the Sustainability Reports attending the waste management standard of the Global Reporting Initiative.

Finally, some of the comments of the project partners may sustain the personal impressions registered above:

"It's not philanthropy – it is social impact, you don't get that with any other program."
Phil Dahlin – Global Director of Sustainability for Johnson & Johnson

"The ability to buy material from a certified supply chain makes the difference."
Jim Bath – Director of Global Environmental Services at Kimberly-Clark Corporation

"Finally, an economic model that has created a self-sustaining platform."
Paloma Cavalcanti – Head of Sustainability Brazil and Argentina

8. References

- Website of the Inclusive Waste Recycling Consortium:
  www.iwrc.world
  www.irc.solutions

- Tweet on presentation of the project at the annual conference of Gartner:
  https://twitter.com/jnjnews/status/1129121875760750593

- Website Gartner:
  https://www.gartner.com/en/documents/3953731/video-johnson-johnson-s-circular-economy-partnership-sup

- HP and Cooperatives: Video of Coopernova
  https://www.youtube.com/watch?v=JcnCqa3dLAc

9. Annex

- *Examples of material tests executed by HP and the project dashboard:*