

DEVELOPMENTAL EVALUATION OF BUSINESS WITH IMPACT (BEAM) PROGRAMME

Field Mission 2: India

By

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List of abbreviations & definitions

BEAM	Tekes and the Ministry for Foreign Affairs' joint programme BEAM – Business with Impact
BIRAC	Biotechnology Industry Research Assistance Council
CelluClean	Affordable nanocellulose based non-electrical filters to eliminate microbial contamination and harmful compounds from drinking water and waste water - project
CFTRI	Central Food Technological Research Institute, Mysore
CSO	Civil society organization
DBT	Department of Biotechnology
DST	Department of Science & Technology
ESG	Evaluation Steering Group
EU	European Union
FMI	The Finnish Meteorological Institute
GITA	Global Innovation & Technology Alliance, India
IIT	Indian Institute of Technology
LUKE	Natural resources institute Finland
MFA	Ministry for Foreign Affairs of Finland
MoU	Memorandum of understanding
NGO	Non-governmental organization
Nutri-Concept	Innovative Concepts and Technologies Supporting Global Nutrition and Business - project
R&D	Research and development
SaaS	Software as a Service
SME	Small and medium enterprises
TAQIITA	Traffic and air quality in India: technologies and attitudes
Telaketju	Project for developing a comprehensive collecting, sorting and refining system for end-of-life textiles in Finland
TERI	The Energy and Resources Institute of India
ToC	Theory of change
ToR	Terms of reference
UFF	U-landshjälp från folk till folk i Finland, an NGO
UN	United Nations
UTU	University of Turku
Vadodara	Sustainable Agro Ecological Approach for Animal Waste Rendering Plant in Vadodara - project
VTT	Technical Research Centre of Finland Ltd
WP	Work package

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Executive summary

This report synthesises the results of the second field mission conducted as part of the Developmental Evaluation of BEAM Programme. The field mission to India was carried out between 11-20 December 2017. The aim of the second review mission was to assess the progress and outcomes of the BEAM/India projects and to assess the societal, developmental and business impacts of the programme as a whole.

The field mission also paid a particular attention to local collaboration both at the programme level (i.e. embassies, institutions, agencies, networks, etc.) and at the project level (partnering, networking, utilisation of results, etc), in light of BEAM's anticipated contribution towards economic and societal change, business ecosystems etc in its partner regions.

The assignment consisted of document analysis and project partner and stakeholder interviews both in Finland and in India. Altogether eight projects were evaluated individually and then assessed at programme level. The relevant Team Finland representatives in the Finnish Embassy and Finpro were also interviewed as well as relevant Indian funding agencies.

According to the Terms of Reference (ToR, Annex 1), the review assesses the **reach, relevance, efficiency** as well as potential effectiveness, sustainability and indications of impact of BEAM implementation in the region, i.e.:

1. To which extent has BEAM, and its projects, been able to find, reach and engage relevant partners of the target country to the programme and with whom should Beam operate? More precisely, to which extent has BEAM succeeded in following activities:
 - a. Activation, initiation, definition of collaboration;
 - b. Implementation of projects, piloting and demonstration;
 - c. Engagement of potential partners and stakeholders.

Success and achievement in above refer to *quality, quantity and timeliness*. What are the reasons for successes and failures? Who are the potential partners that could increase the value of the programme?

2. In which ways and how well does the BEAM programme administration and management, which is a cooperation arrangement between TEKES and MFA, support programme implementation? What are the reasons for successes and failures?

The review also assesses BEAM's **potential for effectiveness, impact and sustainability**:

3. To which extent, and how in practice, are the projects contributing economic, societal and developmental objectives (as defined and anticipated at individual project level)? Taking into account local conditions how to maximise business impact for the project partners in the future?
4. To which extent are the projects, and the BEAM programme, making progress towards achieving such results and impacts? What are the initial signals of impact?
5. Are there factors that promote or hinder the achievement of results and impacts in the BEAM results framework?

Key Findings, Conclusions and Recommendations

The overall relevance of BEAM projects in India is considered high. The projects focus on issues that constitute tremendous development challenges in the rapidly growing and highly populated country: access to clean water, waste management, inclusive education, improved healthcare, better nutrition and the control of air pollution.

BEAM support has enabled collaboration between universities/research institutes and firms in Finland. Research and innovation are being promoted and they have resulted already now in some important innovations that have good commercial potential. None of the innovations is yet at the stage of commercialization but considerable progress is being made.

However, BEAM as an instrument is not well known among Finnish and Indian institutional agencies in India. The Finnish Embassy, Finpro representatives in India, GITA, DBT and DST are not fully aware of BEAM program and BEAM projects, BEAM objectives and working modalities. In building the networks and understanding the environment in India, the expertise and contacts of the Finnish Embassy and Finpro representatives have been underutilised.

In most projects the role of Indian partners has remained marginal. This is mainly due to missing funding to Indian partners. They are not eligible for having direct BEAM funding and some have not received funding either from GITA/DST/DBT or other relevant ministries. According to Indian funding agencies this is mainly due to the lack of coordination and communication between Tekes/MFA and their Indian counterparts. In countries like India funding schemes need to be agreed in advance at the government level.

Lastly, there is still a rather limited knowledge and interest on local ecosystems among some of the Finnish partners. The main incentive seems to be limited to getting funding for developing a particular product or innovation but not thinking big enough on long-term goals and positioning in the Indian market. This is unfortunate since India has vast market potential which remains underutilized due to missing communication and networks as well as insufficient market analyses. Key findings, conclusions and recommendations of the report are presented more in details in the following table.

FINDINGS	CONCLUSIONS	RECOMMENDATIONS
1. Reach and relevance		
<ul style="list-style-type: none"> • BEAM support has enabled collaboration between universities / research institutes and firms in Finland. In some projects the role of Indian partners has remained marginal. In some projects, the entry to the Indian market has not been a major goal. • Indian partners are not eligible for having direct BEAM funding and some have not received funding either from GITA/DST/DBT or other relevant ministries. In two projects, the Indian partners are awaiting deliverables by Finnish project partners to complete milestone-based activities and be reimbursed by GITA. In most projects Indian partners have therefore not been active. • Finnish and Indian institutional agencies (e.g. Finnish Embassy, Finpro, GITA, DBT, DST) are not fully aware of BEAM program/projects, its objectives and working modalities. • There is a limited knowledge and interest on local ecosystems among Finnish partners. 	<ul style="list-style-type: none"> • R&D in Finland could have been financed by other Tekes / Academy of Finland instruments. The emphasis on developing markets has remained rather remote. • The lack of funding of Indian partners has led to under-utilization of their support and networks, weakening the scalability of the projects as well as access to business networks and markets. • Companies involved are mostly SMEs operating mainly in Finland. They do not have sufficient networks and market knowledge and understanding of how to do business in India or other emerging markets. 	<ul style="list-style-type: none"> • More careful screening (pre-selection), active monitoring and action-taking (during the implementation) and verification (at the end of the project) on developmental aspects of the projects by Tekes and MFA would improve the BEAM results. • Terminate or channel the project to other funding instruments when the Indian partnership and/or developmental impacts appear reduced. • Clarify the roles and responsibilities in and between the two funding agencies Tekes and MFA to strengthen the expertise on India (e.g. BEAM Indian “desks”). • Improve and systematize communication and engagement with Indian partners (GITA / DBT /DST). Business Sweden can be taken as a benchmark when developing communication and management process. • Instruct the Finnish project partners to contact in the very beginning some relevant sources of information (Business Finland, Finnish Embassy, chamber of commerce etc.) to gain better understanding of the market situation and prospects in India and to get relevant contacts to operate in a fluctuating and challenging Indian market. • Include in project proposals a short inception phase during which the partners can get to know each other, assess the relevance

Thinking is in many cases limited to getting funding for developing a particular device or product but not thinking big and connecting to ecosystems or other companies.		of the project concepts and projects' link to larger ecosystems. During the inception phase the partners will agree the roles and responsibilities.
2. Programme structure and ways of organizing		
<ul style="list-style-type: none"> • There is a disconnect between Finnish and Indian funding agencies when the calls are designed and launched. • Projects lack sufficient support and follow-up during the implementation phase. 	<ul style="list-style-type: none"> • The disconnect has led to the lack of timely funding to Indian partners due to insufficient information that Indian funding agencies have on projects' connection to bilateral programmes. • Funding agencies in Finland and in India have not updated information regarding the projects' status and thus are not able to offer support. 	<ul style="list-style-type: none"> • Establish a continuous Indo-Finland dialogue. This applies to the period before and during the launch / calls as well as during the implementation. This is a critical prerequisite to the smooth running of the programme. • Create a regional BEAM monitoring system and establish permanent contact points in Business Finland and MFA for BEAM projects.
3. Efficiency of implementation		
<ul style="list-style-type: none"> • There have been delays in the implementation of most projects, especially in India. In some projects Indian partners have not even been able to start their part of the project due to the missing funding. 	<ul style="list-style-type: none"> • Development outcomes or impacts cannot be expected if the project implementation in India has not even started. 	<ul style="list-style-type: none"> • Before launching a regional call, Ministry and funding agency level discussions and meetings need to be organized. In between the calls, at least quarterly meetings need to take place. • A close and regular contact between the Finnish and Indian funding agencies is necessary to monitor the timely implementation of projects. This will help to identify the possibilities for support in case of delays in implementation.
4. Potential for effectiveness, impact and sustainability		
<ul style="list-style-type: none"> • The eight small-size BEAM-India projects form a set of scattered interventions that are far from creating development impacts. 	<ul style="list-style-type: none"> • Strategic approach is partly missing when making project decisions. 	<ul style="list-style-type: none"> • Ministry for Foreign Affairs and Tekes need to form a strategic funding position in terms of regional calls, preparing the calls as a joint activity of Finnish embassies, Business Finland Country representatives and local partners.

<ul style="list-style-type: none"> Projects lack the theory of change –thinking (ToC). The intervention logic based on the result chain (inputs – activities – outputs – outcomes – impacts) is not clear to many partners and the implementation has not been properly reported. Developmental impacts and sustainability aspects have not sufficiently been taken into account. 	<ul style="list-style-type: none"> The lack of ToC is not only a theoretical issue, but it influences the continuation or discontinuation of project activities after projects end (opportunities lost). Impossible to evaluate expected impacts and sustainable results. 	<ul style="list-style-type: none"> To achieve sustainable business results and link these results to development objectives and goals, the BEAM partners need to state the projects’ theory of change. One potential funding scheme could be a dual funding model, i.e. Business Finland finances Finnish companies, research institutions and NGO while MFA funding is allocated to partner organizations in emerging markets and developing countries. This model would increase the overall effectiveness of the BEAM Programme and emphasize more the developmental goals and impacts.
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1. Description of the BEAM programme

BEAM Programme

The aim of the Tekes and the Ministry for Foreign Affairs' (MFA) joint programme BEAM – Business with Impact, is to generate new, sustainable business in developing countries. It is a five-year programme (2015-2019) with a total budget of EUR 50 million, equally financed by Tekes and the Ministry for Foreign Affairs. The immediate objective of BEAM is that participating private sector enterprises, education and research organisations and civil society organisations in developing countries and in Finland create new innovations, new knowledge and knowhow. BEAM assists Finnish companies and other actors in using innovations to address global development challenges, by converting such innovations into successful and sustainable business in Finland and in developing countries.

BEAM does not have sector specific objectives, while the anticipated impact areas include three specific themes or aspects: a) economic b) environmental and c) social impact.

The intended direct beneficiaries of the BEAM-programme are Finnish companies and other actors (e.g. NGOs), as well as their partners in developing countries. Secondary or final beneficiaries of the BEAM-programme are people living in developing countries: rural small farmers, ethnic minorities, disabled people, women, men, children, elderly people etc.

Developmental evaluation of BEAM

The developmental evaluation of BEAM begun in September 2015. It is planned to continue through the duration of the programme. One important objective of the developmental evaluation is to document the progress and the choices made during the programme implementation, and to provide the programme management team with informative means to learn from experiences to improve the service delivery. At the same time, the evaluation provides means to verify achievements against intended results as well as unintended consequences – both positive and negative.

The three work packages (WP) of the developmental evaluation have covered several tasks (Table 1), including the first field mission to Namibia and South Africa in February 2017. The WP2 was completed in mid-2017 and the implementation of WP3 will continue until the end of 2019.

Table 1: The phases of the developmental evaluation of BEAM

Work Package 1:

- 1.1 State of the Art Analysis
- 1.2 Analysis of Ramp-up Phase
- 1.3 Evaluability conclusions and recommendations

Work Package 2:

- 2.1 Meta-analysis
- 2.2 Portfolio Analysis
- 2.3 Field Mission 1 (Namibia & South Africa)
- 2.4 Validation workshop
- 2.5 Mid-term review of BEAM

Work Package 3:

- 3.0. Management
- 3.1. Biannual review
- 3.2. Impact workshop
- 3.3. Biannual review
- 3.4. Biannual review
- 3.5. Biannual review
- 3.6. Final report

As shown in the Table 1, the WP3 includes several biannual review missions. The review mission 1 in Southern Africa forms the basis for the planning of the current mission.

2. Focus of the field mission

The timing and the geographical and thematic focus of the second review mission was discussed and agreed with the BEAM management at the Evaluation Steering Group meeting of 20th September 2017. India was chosen as the target country due to the large number of BEAM projects. The focus of the mission was on detecting possible outcomes and signals of impact and on identifying ways to improve the impact. This information is important for further planning of the activities as well as strategic decisions of the BEAM programme. The Terms of reference (ToR) of the mission are attached as Annex 1 and the mission plan and evaluation matrix as Annex 2.

In line with the above, the review mission aims to answer the following evaluation questions:

1. To what extent has BEAM, and its projects, been able to find, reach and engage relevant partners of the target country to the programme and with whom should Beam operate? More precisely, to what extent has BEAM succeeded in following activities:
 - a. Activation, initiation, definition of collaboration;
 - b. Implementation of projects, piloting and demonstration;
 - c. Engagement of potential partners and stakeholders.

Success and achievement in above refer to *quality, quantity and timeliness*. What are the reasons for successes and failures? Who are the potential partners that could increase the value of the programme? Who are the end-users and how they value the outcomes?

2. In what ways and how well does the BEAM programme administration and management, which is a cooperation arrangement between TEKES and MFA, support programme implementation? What are the reasons for successes and failures?

In line with the above, the review mission has two main areas of investigation:

- BEAM projects and their progress
- BEAM processes and services from the projects' point of view

The following eight projects are included in the review:

	Name of the Project	Public project description
1	CelluClean: Affordable nanocellulose based non-electrical filters to eliminate microbial compounds from drinking water and waste water / Side project: Measurement and elimination of microbes and harmful components from water	Nanocellulose is a polysaccharide matrix of nanofibers derived from plants and this most abundant biopolymer is an ideal nanomaterial suitable for filtration applications due to its robust physico-chemical properties. As part of this project, nanocellulose-based water purification materials will be prepared. These materials will possess water purification properties including anti-microbial action and metallic/organic detoxification abilities. The project also involves the development of an end-of-function visual sensor that would allow the customer to identify the loss of filtration efficacy of material. Furthermore, this project develops water quality analytics to quantify the efficacy of materials and provides capabilities to design water treatment processes internationally. Overall, the project aims to develop cheap and efficient non-electrical water treatment units using environmentally green nanocellulose matrix with anti-microbial, detoxification and end-of-function capabilities. The participants of this Finnish-Indian collaborative project are Aalto University, Betulium Oy, Teollisuuden Vesi Oy, Indian Institute of Technology Madras and InnoNano Research Private Ltd.
2	Innovative Concepts and Technologies Supporting Global Nutrition and Business (Nutri-Concept)	The Indo-Finnish collaborative project aims to develop new technologies and product concepts for utilization of plant proteins from cereals and legumes. The crops cultivated in Finland and in India are the prioritized raw materials to be investigated. Special attention is paid to the nutritional needs of targeted population such as vegetarians, celiacs, children and the elderly
3	Preparation Project for Inclusive Technology for Schools for Children with Special Needs (Pre-INCEPT)	Pre-INCEPT is a preparation project, which lays foundations for the research and development work of inclusive, digital learning environments in Indian markets. Main target groups are challenged learners and children with special needs, which often are in the most underprivileged position in Indian society. This is due to sociocultural and economic reasons, and due to deficiencies in information, practices and diagnosis. Fortunately, the situation is improving. At the moment, there are (for example) several influential NGO's who offer services for example for the children with autism spectrum disorders. Advances in digitalization have raised interest also among the technology businesses. In Pre-INCEPT, India's varying service ecosystem in learning is mapped and modelled especially in the capital region, and most potential targets for Indo-Finnish collaboration are identified. The project network consists of Finnish and Indian NGO's and companies.
4	Pure Waste – recycled textiles	Pure Waste Textiles produces 100% recycled yarns, fabrics and readymade garments from the waste of textile industry. Pure Waste Textiles was founded in 2013 in Helsinki. The company's production is in India, where cutting and spinning waste of the textile industry is available to a large extent. With the BEAM funding Pure Waste Textiles makes research and test for post-consumer waste suitability for recycling to different kind of yarns and fabrics. Pure Waste Textiles also continues the developments and tests for yarn and fabric development made out of pre-consumer waste.
5	Remote Healthcare	Remote Healthcare project aims to improve healthcare availability and quality in rural India. In the project, a smart glass based mobile healthcare solution will be created and tested in live environment. The usability of the product and predictable benefits (reduced healthcare delivery system costs, earlier detection of diseases, reduced visits to specialty hospitals

		etc.) will be justified. The outcome of the project is a minimum viable product prepared for commercialisation.
6	Sparkwork Performance	Sparkwork is a next generation talent development, performance management and knowledge retention SaaS focused on Extraordinary Employee Experience (EEE). The customers use Sparkwork for onboarding their new hires - provide them what they need to get them to speed including mentoring, develop their competence - in an engaging and collaborative manner, measure their performance in ongoing and continuous fashion - getting their performance aligned to the organizational goals, retaining the employee knowledge and helping them resolve issues faster for the benefit of the whole organization. Sparkwork is used by major brands such as R-kioski and Oriflame.
7	Traffic and air quality in India: technologies and air quality (TAQIITA)	Air pollution is a significant problem in India causing hundreds of thousands premature deaths every year. Rapidly increasing number of motor vehicles and their emissions in Indian cities are the single most important factor explaining the poor air quality. In particular the emissions of diesel vehicles are dangerous to human health and recently classified as carcinogenic. Solutions concerning both monitoring as well as new fuel, lubricant oil and engine technologies are very much urged for solving this air quality and health problem. Therefore, the main goal of this project is to improve air quality in Indian cities and citizens' health by producing these solutions in collaboration with Indian research partners and companies. Project includes significant amount of technology development work, such as: 1) future sensor solutions to observe the most health dangerous fraction of particulates using cost-effective methods, and 2) new bio fuels for Indian and global markets. Emissions of new bio fuels will be characterized in the project using the cost-effective sensors and all the available state-of-the-art technologies. Finally, air quality measurement demonstrations will be done in real-traffic environment in Delhi. Project has also a large component of dissemination of information, of mapping the relevant stakeholders and supporting the collaboration between India and Finland in the area of human health, air quality networks and engine technology solutions, for the benefit of well-being in both countries, and for rapid implementation of project results in real life practice. Finally, the project has benefits for public health through the increased knowledge in air quality monitoring and emission control
8	Sustainable Agro Ecological Approach for Animal Waste Rendering Plant in Vadodara	Companies will develop business with impact in animal waste management and processing, bioenergy production and waste water treatment in India. The activities of the project are based on the analysis of the current situation and needs for technology development and capacity building in pilot city Vadodara. Consortium project will improve health and welfare of a large population segment by reducing poverty and creating jobs to locals thus, economic growth while helping to counteract the effects of climate change. The project increases sustainable development by organic and green by-products which will have environmental and economic effect in India and in Finland. Companies will develop scalable concept which can be copied in emerging markets.

Source : <https://www.tekes.fi/en/programmes-and-services/tekes-programmes/beam--business-with-impact/projects/>

The interviews were structured to answer the questions in the evaluation matrix, which is attached to the mission plan in the Annex 2. The complete list of interviewed persons is available at Annex 3. Annex 4 shows the detailed case studies of each project.

3. Methodology

The approach to the field mission was iterative, the plans for next stages were further elaborated and detailed during the mission preparation, as more information came available. Interviews and other interactions with Finnish and Indian project partners, BEAM team, Embassies, Finpro, Tekes and MFA were carried out to bring new aspects to light and influence mission plans accordingly.

The second field mission included the following tasks:

1. ***Desk study (collection and analysis of information)***
 - a. The review of the material made available by Tekes and MFA for each project
 - b. The review of any intermediate reports in each project
 - c. The final selection of projects for evaluation during the mission
2. ***Project interviews in Finland***
 - a. Interviewing main project partners; understanding each project progress in India, identifying main contacts to interview during the mission
 - b. Decision of Indian partners to visit during the field mission
 - c. A detailed mission plan as a deliverable
3. ***Mission preparations and organizing interviews***
 - a. Contacting project partners in target countries, as well as the Embassy and Finpro
 - b. Organizing meetings and travel logistics in India
 - c. Detailed time table and interview list as a deliverable
4. ***Field Mission***
 - a. Interviews (Embassy, Finpro, project partners, GITA, DBT, other relevant informants such as consultants, other Embassies)
 - b. Participation in the Indo-Finnish seminar at The Energy and Resources Institute of India, organized by the partners of TAQIITA-project
5. ***Reporting & briefing***

Limitations of the review mission:

- The review mission scope is limited. The eight projects reviewed cannot be seen as a representative sample of all BEAM projects, and therefore the results should be seen as indicative to the situation in India;
- Project level ToCs and expected impacts were not clearly articulated.
- The mission and the interviews focused on the local partners and field implementation. On multi-partner projects, all Finnish or Indian project partners could not be interviewed;
- It was not possible within the time frame of the review to go very deep into the content and substance of each project;
- Most project had not started activities in India due to the lack of funding or delays on the Finnish.
- The reviewed projects did not include civil society organization (CSO) projects, and the potential role of CSOs / NGO's in BEAM was not raised during the evaluation.

4. Main findings by evaluation questions

The second review mission particularly aimed to assess the progress and outcomes of the projects and the anticipated societal, developmental and business impacts of the programme;

what kind of societal and developmental contributions are anticipated from projects, which issues appear critical for generating such impacts, etc.

The review is also paying a particular attention on local collaboration both at the programme level (i.e. embassies, institutions, agencies, networks, etc) and at the project level (partnering, networking, utilisation of results, etc), in light of BEAM's anticipated contribution towards economic and societal change, business ecosystems, etc in India.

4.1. Reach and relevance

To what extent can it be verified that there is a need for BEAM activities in India, BEAM can reach relevant target groups and BEAM brings an added value to them?

Indicator 1.1. Agencies' awareness of BEAM

The interviews showed that the general awareness of BEAM among the agencies is limited. The Finnish Embassy does not have a complete understanding of BEAM in general, and in India in particular. According to interviews, information has been sought but it has not been possible to get answers neither from Tekes, nor from the consultant working with Tekes on contractual basis. The contact with the mission team was for the Embassy the first time to get a comprehensive list of projects and Finnish companies and research institutions partnering in India with BEAM funding. The Embassy has good connections and network in India and therefore, their role is crucial.

Currently, also Finpro has little knowledge of BEAM and the supported projects, although they know the concept. Finpro promotes actively networking and business relations between Finnish and Indian companies, they are well aware of and in contact with many Finnish companies working in the country and they understand the ecosystems through long experience and wide contacts both in public and private sector. With the establishment of Business Finland the general awareness and collaboration between the Embassy, Finpro and Tekes is supposed to considerably improve.

Indicators 1.2. and 1.3. Presence / existence of joint projects and events; Evidence of joint activity

The selected sectors are justifiable and they projects have attracted interested and competent private and public-sector partners in Finland and in India. The projects address several important development challenges in India, including health, nutrition, waste management, access to clean water, air pollution and education. The interviews showed, however, that in most cases there is limited understanding of or connection to larger ecosystems apart from (maybe) the Pure Waste project: the Indian company uses laboratories and smaller companies available in the local ecosystem for testing of technologies, although the actual development work is done in Europe. Few projects are developing innovation and research in India and, according to interviews and observations, the Finnish companies are, at this point of the project, only slightly interested in accessing the Indian market.

The relevance of sectors and ecosystems is undermined by the lack of funding for Indian partners and limited understanding of the result chain. Two projects, for example, have not properly started as in the absence of funds the project has not been formally established by the directorate of the research institute. The Finnish research partners are proceeding fast but later the innovations may only benefit the Finnish companies. In some cases, no Indian companies are involved in the project and the result chain for the project has been only partially developed, without considering the commercialization aspects in India to achieve development impacts.

Joint events and meetings have been organized although in one project the project partners have never met physically. Only in one project has a joint kick-off workshop taken place in India albeit one year after the official starting of the project. Otherwise skype and email contacts are common between Finnish and Indian partners.

The passive role of the Finnish embassy and Finpro, together with the limited presence of Tekes in India may have influenced the difficulties that some Finnish partners have had in identifying suitable partners in India and in connecting supporting organizations and individuals.

Indicator 1.4. Number of supporting and/or overlapping development programmes

As mentioned earlier, most Finnish partners have little knowledge of local ecosystems in the sector they are working in. In most cases, the thinking is limited to getting funding for developing a particular device, product or service but not thinking big and connecting to larger ecosystems or other companies. In Finland other instruments are available through Tekes, Academy of Finland or EU Horizon funding. Development impacts have not been concretized and there is an opportunity lost in most BEAM India projects.

Most Finnish partners have been clients of Tekes for many years and they are familiar with different Tekes funding instruments. One company has had previous support from Nordic Environment Finance Company NEFCO. In India the funding is provided by the Global Innovation & Technology Alliance (GITA), which is a “not-for-profit” Public Private Partnership (PPP) company promoted jointly by the Technology Development Board (TDB), Department of Science & Technology (DST), Government of India (GoI) and the Confederation of Indian Industry (CII). In some projects, the partners had already worked together in projects funded through joint calls for proposals by Tekes and Department of Biotechnology (DBT), which is part of the Ministry of Science of Technology like the DST.

Indicators 1.5. and 1.6. Shared objectives with BEAM / Commitment to shared objectives

BEAM objectives are not well known by Indian partners and stakeholders. The DBT has organized joint calls with the Academy of Finland and Tekes since 2006, and four of them have involved Tekes. The DBT finds, however, that restructuring of Tekes has resulted in less contacts and interest in India. The last joint call for proposals was in 2013 and since then there is no communication from Tekes side whether there is interest to continue the collaboration and sign a new memorandum of understanding (MoU) – the last MoU has expired. Some of the BEAM partnerships and networks have been created through these previous projects but DBT is not well familiar with BEAM modality of working. They see that they could considerably assist the projects f.ex. in accessing government institutions.

According to GITA, post the agreement signing processes in India and for the ongoing projects, DST/GITA follows Reimbursement basis grant support, and since the Indian project partners are still in completion phase of Milestone based activities (with less cooperation from the Finnish Partners) further instalment release to the Indian applicants are delayed. DST/GITA would like to be in touch with Tekes further so that the above projects can be implemented smoothly.

DST/GITA are also keen to initiate the new Request for Proposal (RFP) the upcoming year (2018) under the ongoing Bilateral Industrial R&D Programme. However, according to GITA they do not have a requisite point of contact at Tekes/Business Finland to take the dialogue forward. This is unfortunate since GITA has been waiting for an intimation from Finnish side since the first half of 2017. Representatives of GITA state that it would be highly appreciated if they can get an update from Tekes/Business Finland on the status from Finnish side on the future co-operations. In addition, a contact point at the Finnish Embassy at Delhi would also be helpful to discuss on various day-to-day strategic level dialogues.

All Finnish and Indian project partners find the BEAM focus of innovation and business very relevant and interesting for developing both research and commercialization of new products and services. The Finnish partners emphasized more the possible development impact of projects while this aspect was not pronounced among Indian companies and research organizations. One interviewee emphasized that the “Finnish brand” is not known in India: while the Swedish companies and Sweden are branded, most Indian companies and organizations do not know what are the strengths of Finland.

Indicator 1.7. Presence / existence of local actors networking for development impacts

The consortia in Finland have mostly been well created and established jointly by research institutes and companies. Collaboration has worked well, and this has also resulted in the idea of continuing the work through new funding applications either from Tekes or other funding agencies.

The consortia from Indian side have not always had the same attention and thorough thinking to make the project happen timely and completely. For example, the Nutri-Concept project only works with CFTRI as research institute but while CFTRI is the leading laboratory for food microbiology and fermentation in Asia, another establishment such as the National Institute of Nutrition might have been better position to survey the nutritional, health and market situation. The Vadodara project had three public sector research partners and two collaborating companies in India. The partners were identified by a Finnish and Indian consultant who had contacts in the state of Gujarati but at the end the partners could not sufficiently assist the Finnish consortium in India. In the Pre-Incept project, Indian partners were interviewed separately and thus do not form a consortium as such. For example, the Tamana NGO was not aware about their potential role in the future INCEPT project. In TAQUIITA project FMI and TERI have been actively working together and therefore the collaboration between partners started smoothly after TERI received funding from Indian side. There are also active business participation (e.g. Neste and Indian Oil Corporation) in both sides. In all, this makes the partnership in TAQUIITA project genuine, active and comprehensive.

In building the networks and understanding the environment in India, the expertise and contacts of the Finnish Embassy and Finpro representatives have been underutilised. India is a new market for Finnish SMEs and not easy to capture and enter. In addition to the Embassy and Finpro, there are some private Finnish and many local Indian consultants who assist companies, but some have a questionable reputation. Screening of potential partners and defining their roles in projects is a major task in the initial phase of project construction. Several Finnish interviewees mentioned that they would have needed more assistance at the initial stage of the project.

Also, the main funding agencies (DBT, DST, GITA, BIRAC) are important partners who could increase the value of the programme. These agencies have a crucial role in enabling the success of joint projects.

One of the options that has not been properly investigated, is to create networks and partnerships around the ecosystems where the larger Finnish companies are already present (Fortum, Vartsila, Outotec, Valmet) or with large Indian companies (Tata, Mahendra group). Finnish NGOs have not been integrated in projects, but some of them have contacts and understanding of local needs and communities in India, including Plan, UFF, Kynnys and Save the Children Finland (Pelastakaa Lapset).

There had not been any consultation or contact with the Unit for South Asia or the India desk officer in MFA for the projects.

4.2. Programme structure and way of organising

To what extent can it be verified that BEAM (and its projects) has sufficient resources, the means and a suitable approach to conduct the activities it is aiming??

Indicator 2.1. Added value of BEAM resources for partners; (e.g. need for project funding?)

The opportunity for getting funding both for research and the development of business was appreciated by all partners although in one project the Finnish enterprise was under the impression of not being allowed to use the funding for commercializing the product. The partners in the Finnish consortia usually have good collaboration and they share ideas achieving important results for each partner. The Finnish-Indian joint projects do not, however, always function the same way. Of the eight projects, only two conducted joint planning in the beginning to establish the way of collaboration, to strengthen the team work and to streamline the objectives. Some others did not have the joint planning phase which has resulted in Indian partners having a much weaker role in the project. Pure Waste is a positive exception in this sense. Pure Waste and Vardhan Industries have worked in very close collaboration during project preparation and implementation. They also have regular coordination and communication sessions. With the BEAM funding Pure Waste Textiles makes research and test for post-consumer waste suitability for recycling to different kind of yarns and fabrics. Pure Waste Textiles also continues the developments and tests for yarn and fabric development made out of pre-consumer waste.

In most cases, the development of a technology or a product has been the objective rather than entering the Indian markets. The funding has enabled new partnerships among the Finnish actors and also some Indian research institutes and companies. According to one consortium (Vadodara project) the BEAM funding has been a huge boost to Finnish companies, it has increased their understanding of how to add value to their products, approach the international context and make new products out from a waste management plant. Most projects have resulted in SMEs becoming more confident in approaching international markets and also in understanding the Indian markets and operating environment.

In one case (CelloClean), the consortium has enabled working with and learning from a top-quality Indian research team which would not have been otherwise possible. The Vadodara project has enabled one of the companies to have access to water-related data not only in India but also in Ruanda and Palestine. Access to markets is significant also for Pure Waste.

One partner mentioned that the idea of societal impact by business and doing sustainable business has been particularly emphasized in the project as they were forced to think about impacts.

Indicator 2.2. Added value of Finnish partners / network for local partners (e.g. access to knowledge, markets, etc.)

As only two of the projects have been planned and constructed jointly by Finnish and Indian partners, in most projects the local partners are not fully aware what the project should be doing and what is funded from Finland. This phase of building trust and understanding between the partners is an opportunity lost and if missed, affects the communication in later stages of project.

In most cases the added value for local partners has been very limited as they have not had access to funding for conducting research or development work related to the project. As the Finnish partner is funded for exchange visits, research institutions in India can benefit from contacts and, in some cases, from the access to specific technology. Access to Finnish technology is generally considered as the most important issue that adds value in India. For example, in the case of Remote Healthcare project, the partners agreed that the real win-win situation is when the Finnish company gets access

to the huge Indian market and the Indian company benefits from the Finnish technology. It was also stressed that in the beginning during joint planning, the partners should identify what are the mutual benefits and how they can be achieved, to establish a mutually advantageous arrangement. The NGO partner of Pre-Incept would need funds to adapt the learning applications developed in the west for autistic children in India and also to search the markets for its devices but this has not been included in the project plan.

Sometimes the weak understanding of BEAM among Indian partners creates significant problems. In the Vadodara project, the Indian partner company clearly indicated in interviews that they wanted first complete studies, and then piloting and demonstrating of technology. Without a demonstration plant the project would not achieve its purpose and only the demonstration would convince the state government in Gujarat to invest in such plants and create more business. This was, however, not the aim of Finnish companies, who were mainly interested in developing a model rather than investing in a business considered risky in the Indian, especially Gujarat market. In Gujarat slaughtering is a crime and it can result in high fines and prison sentences. Therefore, the only source of animal waste would be the collection of carcasses from landfills, also envisaged in the Finnish proposal. The Indian partners have now understood that there will be no investment from the Finnish side, leaving them disappointed.

Indicator 2.3. Main intended and non-intended outcomes and impacts

The projects have achieved some outcomes but at this stage the projects are still mostly implementing initial activities. In the Vadodara project, a virtual model for the concept of waste management park has been designed and it could be replicated. This model is not, however, linked to value chain / logistics chain in India and the company will try to sell the concept first elsewhere. The outcome for nanocellulose project still far away as the research results are not satisfactory. The same applies to Remote Health as the Indian partner is waiting for the demonstration to work on the proof of concept phase.

The new and affordable, nutritious plant-based food products also necessitate more research in Finland while the Indian partners have not been able to contribute almost anything to achieve the outcome. Pure Waste is now testing the ring-spinning technique and treatment of fibre that have been developed with partners in Europe. The outcome of the Pre-Incept project was to prepare an interview-based mapping of the learning ecosystem and potential partners – this has been achieved.

Recycled textile testing and piloting in Pure Waste project has enhanced technological capacity in Indian companies that have participated in the process. There are also other positive spill-over effects such as local employment, testing opportunities etc. Sparkworks has now activated local sales and partner networks in India. One potential (non-intended) outcome of its activities could be the changes in working habits and organizational cultures in Indian companies purchasing the application.

Achieving development impacts is still remote and, in many cases, will not be possible with the planned activities. Most projects have concentrated in developing the innovation: a device or a product that could be eventually commercialized and, with time, would have development impacts in the environment where it will be used. While only a few projects have been able to reach the outcome stage, none is near to having any impacts, the least in India.

Indicator 2.4. What would have happened if project was not accepted to BEAM?

Most partners would not have pursued this project without BEAM funding or the development would have been considerably slower or smaller. BEAM has contributed to salaries of researchers and developers in Finland, and they have been able to concentrate on the project activities. This would have not happened without BEAM.

Indicator 2.5. What would have happened if resources were more or organised otherwise?

The question is redundant to most Indian partners as only two of them have been granted funding from GITA. Some local partners applied for funds from DBT, but they were not successful; one partner applied from GITA but due to erroneous information used wrong format and were not able to rectify because of GITA's rigid attitude. Especially research institutes find the GITA funding problematic: it is based on milestones, which are set in the beginning of the project and verified physically by GITA personnel. After the verification, expenses are reimbursed against receipts. This is complicated for Indian universities and research centres which may not have reserve funds whereas companies may find it easier to lend money for running the project.

From the Finnish side, none of the interviewed companies or research institutes considered the amount of funding as limiting factor. Funds were sufficient and timely received, they assisted in providing human resources to projects, travelling to India, organizing exchanges and hiring consultants.

4.3. Efficiency of Implementation

To what extent has BEAM succeeded in implementing the "activation, initiation, definition" and "projects, piloting, demonstration" activities and achieving the "engagement of partners and stakeholders" results? Success and achievement refer to quality, quantity and timeliness. How well does the BEAM programme administration and management, which is a cooperation arrangement between TEKES and MFA, support programme implementation?

Indicator 3.1. Project progress

The results chains in the project cases (Annex 4) show the progress of different projects as per interviews and reports. The progress is mostly in activities while the real results are yet to be achieved.

The progress can be observed especially in the work that is done in Finland: development of materials, design of systems, analysis and testing. Some of the achieved results are affordable nanocellulose that can be tested to remove bacteria in drinking and waste water, ideas for the use of new devices in telemedicine, testing of recycled yarn in textile industries and a virtual model for animal waste rendering. The lack of funding in India has affected the participation of Indian partners: it is difficult to activate them or require their contribution when no funding from external sources has been made available. In one project, the Finnish partner modified the budget with Tekes approval and uses small amount of money for paying "services" by the Indian partner. One Finnish partner compares their Indian project to another they have in a Latin American country, where the Finnish Tekes employee is actively supporting the arrangements for local funding. In India, Tekes is considered absent by Indian partners, stakeholders and also other Finnish actors. Two projects decided that when the progress and collaboration with Indian partners was not successful, it was best to use project funds for hiring a Finnish consultant in India and an Indian consultant in Finland, respectively, to collect data for surveys and to assist in contacts. Also, Finnish students have been used for doing the work in India.

Many Indian partners are not aware of the actual progress achieved by Finnish partners. The communication can be patchy and not regular; in one project, the communication has ceased, and the Indian partners have not heard from Finland for four months. In other projects, informal phone

calls and skype meetings are organized when necessary. The projects with larger consortium in Finland have steering committees to discuss the project progress and guide the processes. Sparkworks, Pure Waste and TAQIITA have all had active and regular communication between Finnish and Indian partners. This has also been one of the reason for effective implementation of these projects; TAQIITA started almost one year late but this was due to other reasons.

Indicator 3.2. Project timeliness

Most projects have been delayed and the Finnish partners have therefore applied for no-cost extension from Tekes. It seems, however, that the delays are not seriously affecting the projects. In one project (Vadodara) Tekes decided initially that Finnish partners would not get funding as the Indian partners did not get any from their side – later this idea was abandoned but it delayed the project by six months. As already noted, TAQIITA project started almost one year late due to funding arrangements in India (TERI finance).

Time for most projects is rather short, varying from one year to three years: to design and test an innovation or adapt an existing idea to Indian / development markets may be finalised in two years, but according to the interviews, building of a business model and the actual establishment of a business needs much more time. Five years were proposed by one company as a minimum for this type of project. In some cases, it was mentioned that more time is needed but the amount of funding is sufficient.

Indicator 3.3. Results / progress achieved vs resources

In most projects the activities have progressed well in Finland. The only exception is the Remote Healthcare project: both the Finnish and the Indian partner agree that the Finnish company has not yet been able to produce the demonstration for testing in India. In the Pure Waste project, the role of Indian partners is mainly for testing of yarn in textile production, as in India the production costs are much lower than in Europe. Pre-Incept had a small funding and therefore it only implemented few activities for networking and interviews in different locations in India.

Indicator 3.4. Efficiency & effectiveness compared to other / domestic / international projects

Comparative data for assessing the relative efficiency and effectiveness was not available.

Indicator 3.5. Encountered challenges in project administration

There have not been any major challenges in project administration. All the Finnish partners consider Tekes a very supportive funding agency, which makes its best to accommodate delays in project progress and reporting. Tekes has been actively guiding companies and research institutes toward appropriate funding instruments; unfortunately, the support is only limited to Finland and is not extended to India, where Finnish partners seem to be left on their own. Most partners have not contacted the Finnish embassy nor Finpro to inform them about the project, nor to look for assistance in finding new partners or information about the Indian business environment.

The documentation does not contain result chains or result-based management frameworks. Monitoring is based on simple, narrative 1-2-page reports which mostly describe the activities. Only one project has not sent Tekes the report.

The real administrative challenge lies in the cooperation between Tekes and the other agencies that should enable the successful innovation and business development between Finnish and Indian partners: Finnish Embassy, Finpro and GITA / DTB / DST. Tekes was previously represented in India but now all the administration and contacts are handled from Finland and outsourced services are bought from a Finnish consultant. The interviewed Indian agencies report that their messages are not responded by Tekes and they cannot get hold of anybody. The Embassy and Finpro are not informed about BEAM and BEAM projects, which is clearly a lost opportunity for strong support to Finnish partners and BEAM programme. In principle, BEAM has a strong focus on development impacts but the main player representing development policy of Finland (the Embassy as part of MFA) is not involved in any of the programme phases.

Indicator 3.6. Timeliness and efficiency of BEAM in addressing project challenges

The projects with substantial basic research, such as Nutri-Concept or the CelluClean, are facing delays as the results of research are not always predictable. Most other projects are also delayed because of limited participation of Indian partners; this has affected especially those parts of the projects that deal with the research in India and business development. Whenever partners have applied for well justified no-cost extension, Tekes has granted it without any problems.

Indicator 3.7. New /changed ways of conducting projects or work

The emphasis of development impacts in the planning phase of the projects has in some ways guided the way of conducting the projects. An example is the Vadodara project, in which the participating Finnish companies were facilitated by the university partner to emphasise more the sustainability aspects of animal waste rendering and the achievement of development impacts.

Most of the BEAM projects in INDIA have been forced to alter the implementation due to several reasons e.g.:

- Sudden changes in external environment (Sparkwork – from Nepal to India)
- Lack of funding in Indian side (Nutri-Concept, Affordable nanocellulose, Vadodara)
- Communication problems or misperceptions (Vadodara, Remote Health Care, Nutri-Concept).
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This emphasises the importance of thorough project planning and sufficient communication and understanding of the goals and objective of the project under preparation. Also, the development goals need to be more explicitly stated and shared.

Indicator 3.8. Issues which are reported back to BEAM and issues, which could/should be reported

The mission team received the mid-term reports from all but one project. The reports are descriptive and general, with limited analysis of issues or emphasis on outcomes and possible impacts. The issues that are reported include:

- ✓ the activities performed during the reporting period: the tests performed, the materials produced
- ✓ people who worked in the project (Affordable nanocellulose, Pre-Incept, Pure Waste, Sparkwork)
- ✓ steering committee meetings (Nutri-Concept)
- ✓ problems and changes to the original plan (Vadodara, Nutri-Concept, Sparkwork, TAQIITA)
- ✓ results (as annex to the Nutri-Concept report, not received by the mission team);
- ✓ an assessment of possibilities for exploiting the results of the project.

The most important observation concerning monitoring is that there is no proper system for monitoring results and impacts. This relates to the lack of result chain, which has not been constructed for any project initially. Consequently, projects only report the activities and it is sometimes difficult to understand what the expected results and development impacts should be. The result chain should be discussed between the project partners initially and validated in a kick-off meeting.

It would also be useful for the projects to report back issues such as what is the increased understanding of the business environment in the target country and how does the ecosystem work.

4.4. Potential for effectiveness, impact and sustainability

Are there factors that promote or hinder the achievement of results and impacts in the BEAM results framework?

Indicator 4.1. Any indicators that projects are not progressing fast enough, big enough or have sufficient quality

As mentioned earlier, most projects are progressing fast on the Finnish side but the lack of funding is slowing down any development in India by Indian partners. This means that the projects are not progressing as fast as planned.

Some projects would might have a more significant impact if the set-up and partnerships had been organized differently. The Vadodara project is an example: with careful selection of the geographic location and Indian partners, as well as better understanding of the working environment from the beginning of the project, it might already now be in the stage of looking for investment in establishing a pilot plant in India. According to one of the Indian partners, a Japanese company is now investing in such plants in Jharkhand state.

The lack of appropriate partners will also slow down the Nutri-Concept project, as CFTRI is not the right institute to cover the market studies and there is no Indian private sector company involved in the set-up.

The scalability of projects is low although Sparkwork is now moving toward real commercialization of its product in India. To make projects scalable, most products and services would benefit from big partners. These could include larger Finnish companies already active in India, or Indian companies such as TATA or Mahindra Group. Only TAQIITA has larger partners, including Neste and Indian Oil Corporation, while other projects are relatively small.

The business models are not yet ready in the projects. This indicates that there is still only limited understanding of the Indian business environment. Also, the quality of projects and the level of project management skills is rather weak in some of the projects. This is partly due to the fact that some Indian partners do not consider these activities as developments projects but business as usual.

Indicator 4.2. External interferences with projects

There have not really been any external interferences as such with projects. It could be mentioned, however, that the lack of understanding of culture and limited communication with Indian partners has affected the Vadodara project. The Sparkwork project was initially working in Nepal but due to political instability after approving the new constituency, the company transferred operations to India and Tekes granted funding for the new project. In the Nutri-Concept project, the retirement of the original project coordinator in CFTRI has caused some problems in communication.

Indicator 4.3. Lack of commitment from stakeholders

Commitment is usually shown by positive attitude and timely implementation of activities. When interviewed, the involved Ministries (DBT and DST) as well as GITA showed low commitment due to lack of communication from Tekes and MFA. In the same time, also Finpro and the Finnish Embassy are not really committed to BEAM: they know little about the programme and almost nothing about the projects funded in India.

The same applies to most Indian project partners as from their part there is limited or non-existent activity because of lack of funding. The initial promises and plans have led to big expectations but when there is no implementation, there are also signs of disappointment. In Vadodara, the Indian partners expected an investment to a demonstration plant, but it did not materialize. In Nutri-Concept, the current coordination at CFTRI thought they would get funds from BEAM but this was a misunderstanding. The interviews also showed signs of disappointment among the partners of Pre-Incept and in Remote Healthcare.

Indicator 4.4. Lack of results and achievements

In three projects the Indian partners have not implemented activities until now: Nutri-Concept, Vadodara and Remote Healthcare. According to GITA, the Remote Healthcare partner company, Caliban Software, has been granted funding, but there is no evidence of activity and thus no disbursements. In the CelluClean project, only the sample collection and some water analysis has been implemented in India with funds coming from Finland. TAQUIITA project has carried out the first activity (kick-off seminar in Delhi) in December 2017. Therefore, it is too early to assess the achievements and results of TAQUIITA project.

The TAQUIITA project is delayed and the kick-off meeting was held in Delhi in December 2017 one year after the start of the project. The Vadodara project had a six-month delay, while also the Pure Waste project progress is slower than expected and the whole production with new recycled yarns can be considered a learning process.

Both in CelluClean and Nutri-Concept projects the activities are delayed as the activities planned to be implemented in India, were done in Finland instead. Also, the research is delayed as the results are not what was expected.

Indicator 4.5. The extent and potential of economic impacts to partnering companies

Some of the pre-conditions for scaling up business in India are the innovation of affordable products, an enabling technology, a working business model, the existence of an anchor company and well-networked and large enough partners.

As shown in the reconstructed result chains (Annex 4), the projects are not thinking sufficiently about potential business impacts and until now they are research-driven. Many projects are led by public sector research organizations although the idea of BEAM is “business with impact”. The potential for business in the examined projects is good in Finland or even internationally but maybe not in India (Vadodara, Nutri-Concept, Pure Waste). Nutri-Concept has no Indian partner company and the Finnish partners of Vadodara project have almost no communication with the original Indian partners.

The Indian company partner of CelluClean project (Innonano) is establishing itself in the Indian market for the sale of affordable water cleaning equipment but rather for drinking water, not for waste water treatment. Pre-Incept is still preparing the application for the project and they might have a big Finnish company interested in the concept. An Indian partner company has not been identified.

Sparkwork has decent potential for business and it is preparing a large contract in India. In the same time, the company has good prospects also in the European markets. Although Pure Waste subcontracts testing and manufacturing to its Indian partners Indian market is not yet ready for recycled garments that are often more expensive than non-recycled ones. It is likely that the main market will be in the US or in Europe.

Indicator 4.6. Exit strategies and plans

The products or services innovated by the Finnish partners are not yet ready for commercialization and thus far from markets. Research will continue, and the partners are planning for more exchanges of researchers and students as well as new applications for funds. For example, one of the Vadodara project partners is planning to apply Kiito-funding from Tekes for commercializing the new rendering plant concept.

5. Conclusions

BEAM as an instrument is not well known among Finnish and Indian institutional agencies in India. The Finnish Embassy, Finpro representatives in India, GITA, DBT and DST are not fully aware of BEAM program and BEAM projects, BEAM objectives and working modalities. In building the networks and understanding the environment in India, the expertise and contacts of the Finnish Embassy and Finpro representatives have been underutilised. India is a new market for Finnish SMEs and not easy to capture and enter.

There is a limited knowledge and interest on local ecosystems among Finnish partners. Thinking is in many cases limited to getting funding for developing a particular device or product but not thinking big and connecting to ecosystems or other companies. In some projects, the entry to the Indian market has not been a major goal. BEAM India has vast potential which is underutilized due to missing communication, insufficient market analyses and understanding and low level of commitment. Because of this, the developed products and services may have an easier access in other markets than in India.

The relevance of all Indian BEAM projects is at least potentially rather high. The projects focus on issues that constitute tremendous development challenges in the rapidly growing and highly populated country: access to clean water, waste management, inclusive education, improved healthcare, better nutrition and the control of air pollution.

BEAM support has enabled tight collaboration between universities/research institutes and firms in Finland. Research and innovation are being promoted and they have resulted already now in some important innovations that have good commercial potential. None of the innovations is yet at the stage of commercialization but considerable progress is being made.

In most projects, the role of Indian partners has remained marginal. This is mainly due to missing funding from Indian funding agencies. Indian partners are not eligible for having direct BEAM funding and some have not received funding either from GITA/DST/DBT or other relevant ministries. In two projects, the Indian partners are awaiting milestone-based activities/ deliverables to be completed by Finnish project partners. In most projects Indian partners have therefore not been active.

In the same time, the theories of change behind the projects appear incomplete and they are missing realistic assumptions. This is partially due to the limited understanding of Indian environment and local ecosystems which would benefit from closer collaboration with the Indian partners. This relates to the lack of result chain, which has not been constructed for any project initially. Consequently, projects only monitor the activities and it is sometimes difficult to understand what the expected results and development impacts should be. The result chain is not discussed between the project partners initially or validated during the course of the project. The initial phase of building trust and

understanding between the partners is an opportunity lost and if missed, affects the communication in later stages of project.

The above-mentioned factors have led to a disconnect between innovation and business in the Indian market. Any societal and development contributions would necessitate that the innovations (products, devices, services) created in the projects were followed by the creation of businesses and entering the Indian market. This kind of contributions and impacts are still remote.

Many projects do have a relevant group of partners, including research institutes and companies in both countries. The most successful partnerships have been created through close collaboration over years.

6. Recommendations

To enhance the societal and development contributions by BEAM projects, Tekes and MFA need to establish a system of a) more careful screening (pre-selection), b) active monitoring and timely action-taking (during the implementation) and c) verification (at the end of the project) of developmental aspects of the projects. This is linked to thinking along the result chain and theory of change: BEAM partners need to establish the projects' theory of change to achieve sustainable business results and link these results to development objectives and goals.

Should the Indian partnership and/or developmental impacts appear reduced during the implementation, the project need to be either terminated or channelled to other funding instrument. Tekes (forthcoming Business Finland) and MFA should improve and systematize communication and engage Indian partners. The roles and responsibilities should be clarified in and between the funding agencies to strengthen the expertise on India, e.g. BEAM Indian "desks" in both organizations.

Tekes and MFA are to establish a continuous Indo-Finland dialogue. This applies to the period before and during the launch / calls for proposals as well as during the implementation. This is a critical prerequisite to the smooth running of the programme. Regional BEAM monitoring system needs to be created. To properly coordinate and communicate, Ministerial and funding agency level (Tekes/Gita) discussions and meetings are necessary before launching a regional call. When there are no regional calls, at least quarterly meetings are recommended. A close and regular contact between the Finnish and Indian funding agencies is necessary to monitor the timely implementation of projects. This will help to identify the possibilities for support in case of delays in implementation.

Ministry for Foreign Affairs and Tekes need to form a strategic funding position in terms of regional calls. These calls should be prepared together with Finnish embassies, Business Finland country representatives and local partners.

In the very beginning, the Finnish project partners must be instructed to contact relevant organizations to get information on possible partners, on the business environment and on the code-of-conducting business in India (Business Finland, Finnish Embassy, chamber of commerce etc.). This would enable them to gain better understanding of the market situation and prospects in India and get relevant contacts to operate in a fluctuating and challenging Indian market.

Project proposals and funding should include a short inception phase during which the partners can get to know each other, assess the relevance of the project concepts and assumptions, ensure projects' link to larger ecosystems and agree on their roles and responsibilities.

Annex 1. Terms of reference for the field mission #2

**Ministry for Foreign Affairs
Terms of Reference / EVA-11
29.09.2017**

**Developmental Evaluation of the BEAM Programme
Terms of Reference for the Review Mission Fall 2017**

1 BACKGROUND TO AND SCOPE OF THE REVIEW

The Terms of Reference for the developmental evaluation of BEAM includes several biannual review missions as part of WP3. During WP2 of the evaluation, one review mission was conducted in Southern Africa, and it will form the basis for planning the next missions.

The implementation of the developmental evaluation is continuously adjusted to progress and evolution of the BEAM Programme, its implementation and the expressed needs of the BEAM management. The timing and the geographical and thematic focus of this second review mission was discussed and agreed with the BEAM management at the Evaluation Steering Group meeting of 20th September 2017. The focus of the remaining missions will be on possible outcomes and signals of impact and on identifying ways to improve the impact. This information is important for further planning of the activities as well as strategic decisions of the BEAM programme.

2 PURPOSE AND OBJECTIVE OF THE REVIEW

The overall purpose of the review mission is to collect experience and evidence on the field with regard to the practical implementation of the programme. The review mission has a two-level objective; to assess the progress and performance of a) the BEAM programme as a whole, and b) the individual BEAM projects, against a set objectives, and on the basis of that, to suggest changes to improve Programme implementation. Hence, the primary focus of the review will be at the programme level, while assessing the progress, results and anticipated business impact (economic, but also social and environmental where applicable) of the projects will form an important contribution to that.

The results of the review will be reported to ESG and the BEAM management, and also sent for the information of the Business Finland emerging markets steering committee (name of the body to be confirmed) as the results will also contribute the further planning and decisions of the BEAM programme as a part of Business Finland concept. The report will also contribute to the final report of the BEAM developmental evaluation.

3 FOCUS OF THE REVIEW

The review will have its geographical focus on India, where BEAM currently lists 7 different projects and altogether 14 partners.

This second review mission will particularly aim to assess the progress and outcomes of the projects and the anticipated societal, developmental and business impacts of the programme; what kind of societal and developmental contributions are anticipated from projects, which issues appear critical for generating such impacts, etc.

The review will also pay a particular attention on local collaboration both at the programme level (i.e. embassies, institutions, agencies, networks, etc) and at the project level (partnering, networking, utilisation of results, etc), in light of BEAM's anticipated contribution towards economic and societal change, business ecosystems, etc in its partner regions.

4 EVALUATION QUESTIONS

The review assesses the **reach, relevance, efficiency** as well as potential effectiveness, sustainability and indications of impact of BEAM implementation in the region:

1. To which extent has BEAM, and its projects, been able to find, reach and engage relevant partners of the target country to the programme and with whom should Beam operate?. More precisely, to which extent has BEAM succeeded in following activities:
 1. Activation, initiation, definition of collaboration;
 2. Implementation of projects, piloting and demonstration;
 3. Engagement of potential partners and stakeholders.

Success and achievement in above refer to *quality, quantity and timeliness*. What are the reasons for successes and failures? Who are the potential partners that could increase the value of the programme?

2. In which ways and how well does the BEAM programme administration and management, which is a cooperation arrangement between TEKES and MFA, support programme implementation? What are the reasons for successes and failures?

The review also assesses BEAM's **potential for effectiveness, impact and sustainability**:

3. To which extent, and how in practice, are the projects contributing economic, societal and developmental objectives (as defined and anticipated at individual project level)? Taking into account local conditions how to maximise business impact for the project partners in the future?
4. To which extent are the projects, and the BEAM programme, making progress towards achieving such results and impacts? What are the initial signals of impact?
5. Are there factors that promote or hinder the achievement of results and impacts in the BEAM results framework?

5 GENERAL APPROACH AND METHODOLOGY

The review will include planning, conduction and reporting of the following:

- Desk study to review BEAM activities and project progress reports, as well as to defined project objectives, baselines, partners, etc
- BEAM staff and project interviews in Finland to collect background info and evidence on progress and changes suggested by the previous reports of the evaluation; and
- Field mission (with on-site interviews) to map up, trace and validate progress in the field on a sample bases and to identify impact improvements based on local conditions/networks. Methods of outcome harvesting and process tracing should be used in addition to interviews for identifying and validating the possible unexpected results as well as results that are not necessary monitored properly.

After the field mission, organize a joint debriefing and validation session with the BEAM management, Tekes and MFA.

Reporting of the field mission will be concise, evidence based and conclusive including recommendations for the BEAM management as well as Tekes, MFA and the Team Finland emerging markets management group.

6 EVALUATION PROCESS AND DELIVERABLES

The evaluation team will produce the following deliverables

Deliverable	Deadline
Elaborated evaluation matrix for the review and comments of the ESG	11.10.2017
Work plan and budget accepted by the ESG	31.10.2017
Debriefing session after the field mission	TBC
Draft mission report for the comments of BEAM management, Tekes and MFA	31.12.2017
Final mission report delivered for the acceptance of the ESG	31.1.2018

The reporting will follow the guidance in the Evaluation Manual of the MFA. The review results will be presented by the evaluation questions in this ToR. For all evaluation questions findings, conclusions and recommendations will be presented. The main quantitative results will be summarised in graphs.

All deliverables are separately approved by the Evaluation Steering Group.

Annex. Evaluation Matrix

Evaluation question related to criterion in the ToR	Verifying, supportive and explanatory questions	Indicators for questions	Source of data and/or methods for collecting the data
1. Reach and relevance			
To which extent can it be verified that there is a need for BEAM activities, BEAM can reach relevant target groups and BEAM brings an added value to them?	<p>What is the general awareness and reach of BEAM in target countries / regions?</p> <p>How is the relevance of BEAM objectives perceived from target country & stakeholders' viewpoint?</p>	<p>Agencies are aware of BEAM</p> <p>Presence / existence of joint projects and events</p> <p>Evidence of joint activity</p> <p>Shared objectives with BEAM</p> <p>Commitment to shared objectives</p>	<p>Tekes / MFA (BEAM mgt) interviews</p> <p>Project data (Tekes)</p> <p>Project applications and progress reports</p> <p>Interviews with Finnish project partners</p> <p>Interviews at the Embassy and local ministries, agencies, etc</p> <p>Interviews with project partners</p> <p>Project /news search on organisation's websites</p>
2. Programme structure and way of organising			
To which extent can it be verified that BEAM (and its projects) has sufficient resources, the means and a suitable approach to conduct the activities it is aiming?	<p>What would have happened if project was not accepted to BEAM?</p> <p>What is the significance / added value of BEAM projects</p> <p>In which concrete ways can BEAM's added value be observed?</p>	<p>Added value of BEAM resources for partners; (e.g. need for project funding?)</p> <p>Added value of Finnish partners/network for local partners (e.g. access to knowledge, markets, etc)</p> <p>What would have (not) happened without BEAM?</p> <p>What would have happened if resources were more or organised otherwise?</p>	<p>Tekes / MFA (BEAM mgt) interviews</p> <p>Project data (Tekes)</p> <p>Project applications and progress reports</p> <p>Interviews with Finnish project partners</p> <p>Interviews with local project partners / partnering organisations</p>
3. Efficiency of implementation			
<p>To what extent has BEAM succeeded in implementing the "activation, initiation, definition" and "projects, piloting, demonstration" activities and achieving the "engagement of partners and stakeholders" results?</p> <p>Success and achievement refer to quality, quantity and timeliness.</p> <p>How well does the BEAM programme administration and management, which is a cooperation arrangement between TEKES and MFA,</p>	<p>What kind of progress and results can be observed?</p> <p>How is the in reflection to different BEAM / project objectives?</p> <p>What are the reasons for successes and failures?</p> <p>What kind of programme and project level monitoring is in place, how well does it provide information and what should be further developed?</p> <p>What are the possible field implications of BEAM being a jointly organised programme?</p>	<p>Project progress</p> <p>Project timeliness</p> <p>Results / progress achieved vs resources</p> <p>Efficiency & effectiveness compared to other / domestic / international projects</p> <p>Encountered challenges in project administration</p> <p>Encountered challenges in project implementation</p> <p>Timeliness and efficiency of BEAM in addressing project challenges</p>	<p>Tekes / MFA (BEAM mgt) interviews</p> <p>Project data (Tekes)</p> <p>Project applications and progress reports</p> <p>Interviews with Finnish project partners</p> <p>Interviews with local project partners / partnering organisations</p> <p>Other feedback from projects (reporting, survey)</p> <p>Observations by the evaluators</p>

<p>support programme implementation?</p>		<p>New /changed ways of conducting projects or work</p> <p>Issues which are reported back to BEAM and issues, which could/should be reported</p>	
<p>4. Potential for effectiveness, impact and sustainability</p>			
<p>Are there factors that promote or hinder the achievement of results and impacts in the BEAM results framework?</p>	<p>What kind of challenges / important enablers can be identified in projects? (technological, administrative, cultural, economic /business/ market-related, etc)?</p> <p>To which extent are these context or actor specific?</p> <p>To which extent can these be replicable /scaled / relevant in other projects?</p> <p>To which extent can these factors be anticipated / managed / mitigated / leveraged?</p>	<p>Any indications that projects are not progressing fast enough, big enough or have sufficient quality</p> <p>External interferences with projects</p> <p>Lack of commitment from stakeholders</p> <p>Lack of results and achievements</p>	<p>Tekes / MFA (BEAM mgt) interviews</p> <p>Project data (Tekes)</p> <p>Project applications and progress reports</p> <p>Interviews with Finnish project partners</p> <p>Interviews with local project partners / partnering organisations</p> <p>Interviews with Embassy, ministries, agencies, etc</p> <p>Other feedback from projects (reporting, survey)</p>

Annex 2. Mission plan and evaluation matrix

Implementation Plan for BEAM Field Mission #2

Updated version (1 December 2017)

1. Mission purpose, rationale and evaluation questions

BEAM field missions are conducted as part of the developmental evaluation approach. The purpose of the missions is to observe how BEAM and its projects are implemented in practice, and to deliver observations, feedback and development ideas back to the ESG and BEAM Management.

The Terms of Reference for the developmental evaluation of BEAM includes several biannual review missions as part of WP3. During WP2 of the evaluation, one review mission was conducted in Southern Africa, and it forms the basis for planning of the next missions.

The timing and the geographical and thematic focus of this second review mission was discussed and agreed with the BEAM management at the Evaluation Steering Group meeting of 20th September 2017. India was chosen as the target country due to the large number of BEAM projects. The focus of the remaining missions will be on possible outcomes and signals of impact and on identifying ways to improve the impact. This information is important for further planning of the activities as well as strategic decisions of the BEAM programme.

In line with the above, the review missions aim to answer the following evaluation questions:

6. To which extent has BEAM, and its projects, been able to find, reach and engage relevant partners of the target country to the programme and with whom should Beam operate?. More precisely, to which extent has BEAM succeeded in following activities:
 1. Activation, initiation, definition of collaboration;
 2. Implementation of projects, piloting and demonstration;
 3. Engagement of potential partners and stakeholders.

Success and achievement in above refer to *quality, quantity and timeliness*. What are the reasons for successes and failures? Who are the potential partners that could increase the value of the programme? Who are the end-users and how they value the outcomes?

7. In which ways and how well does the BEAM programme administration and management, which is a cooperation arrangement between TEKES and MFA, support programme implementation? What are the reasons for successes and failures?

The field mission will pay special attention to how the economic impact of projects to partnering companies could be improved. In addition, the mission will identify how and what kind of local networks could be used to strengthen the development impact of BEAM in India.

2. Geographical and thematic focus of the field mission in India

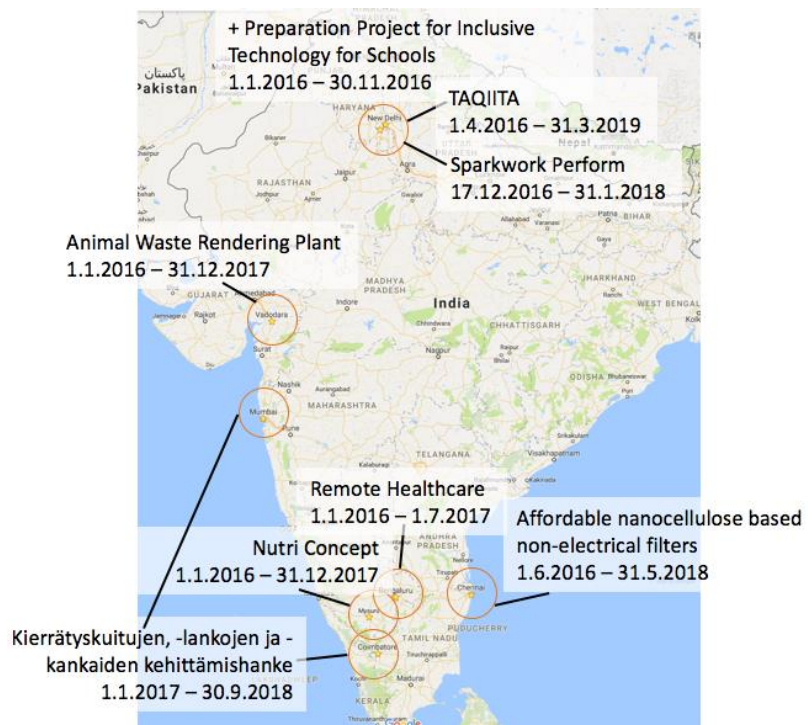
The evaluation team has interviewed one informant from each BEAM/India project, discussed with the BEAM management, and also carried out a portfolio analysis (i.e. project documents handed to the evaluation team by Tekes and MFA). List of BEAM projects in India is presented in Annex 1. The criteria for selecting site visit projects are the following:

- Time of implementation
- Type (research/NGO/firm)
- Sector / area
- Geographical location
- Size / number of partners
- Insights (outstanding success, unexpected problems etc.)

As a principle, the field mission review focuses on BEAM projects, which have already implemented activities in the region, and have submitted either a mid-term report or an end-report. Inclusion of other projects in the selected countries is decided case by case after the initial interviews with the Finnish partners. If they have had significant interaction with local partners and/or started piloting or implementing, they may be included in the analysis.

BEAM/India consists of altogether eight projects:

1. Affordable nanocellulose based non-electrical filters to eliminate microbial contamination and harmful compounds from drinking water and waste water/ Measurement and elimination of microbes and harmful components from water
2. Innovative Food Concepts and Technologies Supporting Global Nutrition and Business (Nutri-Concept)
3. Pure Waste Textiles
4. Preparation Project for Inclusive Technology for Schools for Children with Special Needs
5. Remote Healthcare
6. Sparkwork Perform
7. Sustainable Agro Ecological Approach for Animal Waste Rendering Plant in Vadodara
8. Traffic and air quality in India: technologies and attitudes (TAQIITA)



These projects vary according to their size, number of partners and progress as per October 2017. Their Indian partner organizations (research institute and firm) are located in three geographical areas: 1) Greater Delhi Area (TAQIITA, Sparkwork perform), 2) Western India in Mumbai (Pure Waste Textiles) and in Vadodara (Sustainable Agro) and 3) in South: clustered around Mysore, Bangalore and Madras area (Remote Health Care, Nanocellulose, Pure Waste Textiles' factory and Nutri-Concept).

After approval of this mission plan, the Finnish consortium partners will be contacted for the second time and interviewed to get a better understanding of which target country partners could be contacted and possibly visited. We aim to visit the partners of seven projects during our Field Mission. As the collaboration with the original Indian partners did not materialize in the Sustainable Agro project, the team will only meet the consultants providing services to the consortium. One or more of the original partners will be interviewed on phone.

Tentatively the mission will be carried out in the following locations in India:

- **Delhi area** (TAQIITA, Sparkwork perform, Preparation Project for Inclusive Technology for Schools for Children with Special Needs)
- **Mysore** (Nutri-Concept) and **Coimbatore** (Pure Waste Textiles)
- **Bangalore** (Remote Health Care)
- **Madras** (Affordable nanocellulose)

3. Approach and methodology

The approach to the field mission is iterative, the plans for next stages will be further elaborated and detailed during the mission preparation, as more information comes available. The reports and other materials currently available through BEAM are somewhat high-level and not fully up to date at any given time. Therefore, interviews and other interactions with projects, BEAM team, Embassies, Finpro, Tekes and MFA may bring new aspects to light and influence mission plans accordingly. Any significant change or adjustment in the plan will be discussed with ESG, when possible.

If this would seem to be a sensible course of action, the mission team will inform and ask for comments from ESG by email.

The second field mission will include the following tasks:

1 **Desk study (collection and analysis of information)**

- a The review of the project proposal documents for each project
- b The review of any intermediate reports in each project
- c The selection of appropriate projects for evaluation during the mission

2 **Project interviews in Finland**

- a Interviewing main project partners; understanding each project progress in partner countries, identifying main contacts to interview during the mission
- b Possibly identifying some (3-4) projects for a more detailed case study
- c A detailed mission plan as a deliverable

3 **Mission preparations and organizing interviews**

- a Contacting project partners in target countries, as well as the Embassy and Finpro
- b Organizing meetings and travel logistics in target countries
- c Detailed time table and interview list as a deliverable

4 **Field Mission**

- a Interviews
- b Possibly internal workshops with partners in the same area, if feasible

5 **Reporting & briefing**

4. Mission work plan

Preparation of the field mission includes desk research of the relevant projects, their reports and other documents, as well as background interviews with the Finnish partners of the projects. BEAM programme team contributes by commenting on the projects and people to visit.

Embassy of Finland in New Delhi, Team Finland / BEAM contacts and Finpro representative in New Delhi will be interviewed during the mission.

The tentative list of eight BEAM projects to be covered by the field mission include the following:

	Name of the Project	Project organizations in Finland	Indian partners
1	Affordable nanocellulose based non-electrical filters... / Measurement and elimination of microbes and harmful components from water	Aalto, Betullium Oy, Teollisuuden Vesi Oy	Nano Inno Private Ltd. India IIT Madras yliopisto
2	Nutri-Concept	University of Turku, Luke	CSIR-Central Food Technological Research Institute (CFTRI)
3	Preparation Project for Inclusive Technology for Schools for Children with Special Needs	University of Tampere	NGOs Tamani and Deepalaya
4	Kierrätyskuitujen, -lankojen ja -kankaiden kehittämishanke	Pure Waste Textiles Oy	Oma CMT-tehdas Intiassa Pure Waste Textiles India; lisäksi Vardhan Industries.
5	Remote Healthcare	Epicit Oy	Caliban Software Solutions Private Ltd
6	Sparkwork Perform	Sparkwork Software Oy	fully owned subsidiary
7	TAQIITA	Ilmatieteen laitos, TTY-säätiö, Metropolia AM	The Energy and Resources Institute (TERI), Indian Oil Corporation Ltd; ONGC TERI Biotech Ltd.
8	Sustainable Agro Ecological Approach for Animal Waste Rendering Plant in Vadodara	Lappeenrannan teknillinen yliopisto, Honkajoki Oy, Doranova Oy, Fenno Water Oy	The Maharaja Sayajirao University of Baroda (MSU) and Navrachana University (NUVT), Oxive Environmental Management Private Limited, AVNI Environmental Solutions Pvt. Ltd, Arvindbhai Patel Institute Of Environmental Design.

Depending on the number of partners in each project, we estimate 1-2 interviews in Finland and 1-3 interviews in locations per project. Some of the interviews may be done by phone or Skype if organizing a meeting proves impossible.

5. Information sources

Data and information for the field mission plan will be gathered from the following sources:

Data / information	Source
1. Technical project information / data	Tekes / BEAM
2. Project applications and description	Tekes / BEAM
3. Project mid-term reports	Tekes / BEAM
4. BEAM portfolio analysis	Evaluation team
5. Project interviews in Finland (1-2 per project)	Tekes BEAM + MFA
6. Partner and stakeholder interviews (1-3 per project)	Target country

6. Team and resource allocation

The field mission will be carried out by **Petri Uusikylä** (Lead) and **Merja Mäkelä**, with **Kimmo Halme** supporting the concept design and desk study. Allocated resources are shown in the below table.

	P. Uusikylä	M. Mäkelä
Concept design and desk study	1	1
Field mission	8	8
Reporting	1	1
Total	10	10

The validation of the field mission results will be combined with the validation workshop for the mid-term evaluation and summary of WP1 and WP2.

7. Timing of tasks

Task	Anticipated timing
Concept design	25.9 – 30.10. 2017
Mission plan and budget ready	3.11. 2017
Desk study	23.-27.10. 2017
Project interviews in Finland	19.10. -30.11. 2017
Mission preparations and organising interviews	4.12.- 8.12. 2017
Field mission	11.12. – 20.12. 2017
Draft report and briefing	by 31.12. 2017
Validation	by 31.12. 2017
Report	by 31.12. 2017

8. Reporting

The reporting will follow the guidance in the Evaluation Manual of the MFA. The review results will be presented by the evaluation questions in the ToR. For all evaluation questions findings, conclusions and recommendations will be presented.

The main quantitative results will be summarized in graphs. Interview notes or detailed project descriptions will not be published in reporting for confidentiality reasons.

9. Evaluation and interview questions (Evaluation matrix)

Evaluation question related to criterion in the ToR	Verifying, supportive and explanatory questions	Indicators for questions	Source of data and/or methods for collecting the data
1. Reach and relevance			
To what extent can it be verified that there is a need for BEAM activities in India, BEAM can reach relevant target groups and BEAM brings an added value to them?	What is the general awareness and reach of BEAM in India / selected regions?	Agencies awareness of BEAM	Tekes / MFA (BEAM mgt) interviews Project data (Tekes)
	Are the selected sectors, business areas or ecosystems (e.g. health care, ICT, Cleantech, bio etc.) justifiable?	Presence / existence of joint projects and events Evidence of joint activity	Project applications and progress reports Interviews with Finnish project partners Interviews at the Embassy and local business support, agencies, etc
	Are there parallel or overlapping support programmes in the same areas or with same ecosystems?	Number of supporting and/or overlapping development programmes.	Interviews with project partners and service providers
		Shared objectives with BEAM	Project /news search on organisation's websites

	<p>How is the relevance of BEAM objectives perceived from target country & stakeholders' viewpoint?</p> <p>What kind of networks of local actors exist that could be used to strengthen the development impact of BEAM?</p>	<p>Commitment to shared objectives</p> <p>Presence / existence of local actors networking for development impacts</p>	
2. Programme structure and way of organising			
<p>To what extent can it be verified that BEAM (and its projects) has sufficient resources, the means and a suitable approach to conduct the activities it is aiming?</p>	<p>What is the "theory of change" behind joint development projects?</p> <p>What would have happened if project was not accepted to BEAM?</p> <p>What is the significance / added value of BEAM projects</p> <p>What are the expected outcomes and impacts of the activities?</p> <p>What's the rationale behind these outcomes and impacts?</p> <p>In what concrete ways can BEAM's added value be observed?</p>	<p>Added value of BEAM resources for partners; (e.g. need for project funding?)</p> <p>Added value of Finnish partners/network for local partners (e.g. access to knowledge, markets, etc.)</p> <p>Main intended and non-intended outcomes and impacts.</p> <p>What would have happened without BEAM?</p> <p>What would have happened if resources were more or organised otherwise?</p>	<p>Tekes / MFA (BEAM mgt) interviews</p> <p>Project data (Tekes)</p> <p>Project applications and progress reports</p> <p>Interviews with Finnish project partners</p> <p>Interviews with local project partners / partnering organisations / service providers</p>
3. Efficiency of implementation			

<p>To what extent has BEAM succeeded in implementing the “activation, initiation, definition” and “projects, piloting, demonstration” activities and achieving results on the “engagement of partners and stakeholders”?</p> <p>Success and achievement refer to quality, quantity and timeliness.</p> <p>How well does the BEAM programme administration and management, as a cooperation arrangement between TEKES and MFA, support programme implementation?</p>	<p>What kind of progress and results can be observed?</p> <p>How is the in reflection to different BEAM / project objectives?</p> <p>Has the implementation of the joint development project(s) been cost-efficient and carried out according to high professional standards?</p> <p>What are the reasons for potential successes and failures?</p> <p>What kind of programme and project level monitoring is in place, how well does it provide information and what should be further developed?</p> <p>What are the possible field implications of BEAM being a jointly organised programme?</p>	<p>Project progress</p> <p>Project timeliness</p> <p>Results / progress achieved vs resources</p> <p>Efficiency & effectiveness compared to other / domestic / international projects</p> <p>Encountered challenges in project administration</p> <p>Encountered challenges in project implementation</p> <p>Timeliness and efficiency of BEAM in addressing project challenges</p> <p>New /changed ways of conducting projects or work</p> <p>Issues which are reported back to BEAM and issues, which could/should be reported</p>	<p>Tekes / MFA (BEAM mgt) interviews</p> <p>Project data (Tekes)</p> <p>Project applications and progress reports</p> <p>Interviews with Finnish project partners</p> <p>Interviews with local project partners / partnering organisations</p> <p>Other feedback from projects (reporting, survey)</p> <p>Observations by the evaluators</p>
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4. Potential for effectiveness, impact and sustainability

<p>Are there factors that promote or hinder the achievement of results and impacts in the BEAM results framework?</p>	<p>What are intended and non-intended outcomes and impacts of the activities?</p> <p>How have the end-users been co-opted? What has been their role in co-creation or involvement? How do the end-users value the products or services?</p> <p>What kind of challenges / important enablers can be identified in projects? (technological, administrative, cultural, economic /business/ market-related, etc.)?</p> <p>To what extent are these context or actor specific?</p> <p>To what extent can these be replicable /scaled / relevant in other projects?</p> <p>To what extent can these factors be anticipated / managed / mitigated / leveraged?</p> <p>How could the economic impact of projects to partnering companies be improved?</p> <p>How sustainable are the achievements, results and impacts of the projects? What is likely to happen to these</p>	<p>Any indications that projects are not progressing fast enough, big enough or have sufficient quality</p> <p>External interferences with projects</p> <p>Lack of commitment from stakeholders</p> <p>Lack of results and achievements</p> <p>The extent and potential of economic impacts to partnering companies</p> <p>Exit strategies and plans</p>	<p>Tekes / MFA (BEAM mgt) interviews</p> <p>Project data (Tekes)</p> <p>Project applications and progress reports</p> <p>Interviews with Finnish project partners</p> <p>Interviews with local project partners / partnering organisations</p> <p>Interviews with Embassy, ministries, agencies, etc</p> <p>Other feedback from projects (reporting, survey)</p>
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activities and networks when
project ends?

Annex 1. List of BEAM projects in India

	Project name	Start and end date	Type	Reports received	Consortium in Finland	Locations	Partners in target countries
1	Affordable nanocellulose based non-electrical filters to eliminate microbial contamination and harmful compounds from drinking water and waste water	1.6.2016 – 31.5.2018	Public sector research / firm	Mid-term report	Aalto, Betullium Oy, Teollisuuden Vesi Oy	Chennai	Nano Inno Private Ltd. India IIT Madras (Technical university)
2	Innovative Food Concepts and Technologies Supporting Global Nutrition and Business (Nutri-Concept)	1.1.2016 – 31.12.2017	Public sector research	Mid-term report	Turun yliopisto, Luonnonvarakeskus	Mysore	CSIR-Central Food Technological Research Institute (CFTRI)
3	Kierrätyskuitujen, -lankojen ja -kankaiden kehittämishanke (Pure waste)	1.1.2017 – 30.9.2018	Firm	Mid-term report	Pure Waste Textiles Oy	Tamil Nadu, Mumbai	Oma CMT-tehdas Intiassa Pure Waste Textiles India; lisäksi Vardhan Industries.
4	Preparation Project for Inclusive Technology for Schools for Children with Special Needs	1.1.2016 – 30.11.2016	Public sector research	Final report (7.7.2017)	Tampereen yliopisto	Northern India	Haastateltu useita kouluja pohjoisessa Intiassa. Sunnitteilla jatko, jossa mukana kouluja Delhistä
5	Remote Healthcare	1.1.2016 – 1.7.2017	Firm	No report	Epicit Oy	Bangalore	Caliban Software Solutions Private Ltd
6	Sparkwork Perform	17.12.2016 – 31.1.2018	Firm	Mid-term report	Sparkwork Software Oy	Gurgaon	Fully owned subsidiary
7	Sustainable Agro Ecological Approach for Animal Waste Rendering Plant in Vadodara	1.1.2016 – 31.12.2017	Public sector research / firm	Mid-term report	Lappeenranta teknillinen yliopisto, Honkajoki Oy, Doranova Oy, Fenno Water Oy	Vadodara	The Maharaja Sayajirao University of Baroda (MSU) and Navrachana University (NUVT), Oxive Environmental Management Private Limited, AVNI Environmental Solutions Pvt. Ltd, Arvindbhai Patel Institute Of Environmental Design.
8	Traffic and air quality in India: technologies and attitudes (TAQIITA)	1.4.2016 – 31.3.2019	Public sector research / firm	Mid-term report	Ilmatieteen laitos, TTY-säätiö, Metropolia AMK	New Delhi	The Energy and Resources Institute (TERI), Indian Oil Corporation Ltd; ONGC TERI Biotech Ltd.

Annex 3. List of interviews and source materials

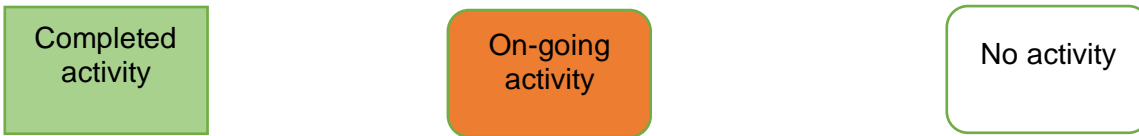
Interviews in Finland

Markku Turunen, University of Tampere
Baoru Yang, University of Turku
Tommi Hokkanen, Epicit Oy
Jukka Hassinen, Aalto-korkeakoulusäätiö sr
Antti Laukkanen, Betulium Oy
Anu Kettunen, Industrial Water
Jukka Peltola and Noora Alhainen, Pure Waste
Sumita Sahu, Tuxconn Oy
Bijay Baniay, Managing Director, Sparkwork Software

Interviews in India

Nina Vaskunlahti, Ambassador of Finland in India
Silva Paananen, Kasvu consulting
Samrat GHATAK, Deputy Director, GITA
Nilesh Patel, Executive Officer – Strategy & Partnership, GITA
Blessin Varkey, TAMANA NGO
Shailja Vaidya Gupta, Adviser, International Cooperation, DBT, Ministry of Science and Technology
Maria Lunander, Counsellor, Innovation and Science, Embassy of Sweden
SVN Vijayendra, Principal Scientist, Microbiology & Fermentation Technology Department, CSIR-Central Food Technological Research Institute
Dr. Banwari Lal, Senior Director, The Energy and Resources Institute
Dr. Sanjukta Subudhi, Senior Fellow, The Energy and Resources Institute
Pravina Bhatt, researcher, CFTRI
Sarma Mutturi, researcher, CFTRI
G. Venkateswaran, Chief Scientist and Head, CFTRI
Bijay Baniay, Managing Director, Sparkwork Software
Srinivasa Rao, Caliban Software Solutions
Professor T. Pradeep, Institute professor, IIT Madras
Amrita Chaudhary, Innonano
Anil Kumar Avula, PhD student, IIT Madras
Raj Agrawal, Vardhan Industries
Sharan Dharmesh, Senior Market Adviser, Finpro
Topi Rönkkö, Tampere University of Technology

Annex 4. Project case studies



Name of the project:	TAQIITA – Traffic and air quality in India: technologies and air quality Timeframe: 1.4.2016 – 31.3.2019.		
Project description	<p>Project aims to improve the capacity of India to react on air quality, health and energy related challenges by;</p> <ol style="list-style-type: none"> 1) Developing new methods for air pollution monitoring, especially targeted for traffic originated pollution and making these technologies low-cost and easy to operate, targeted to Indian market operational use. 2) Supporting the development of new biofuels and other vehicle technologies suitable to Indian markets and know-how on producing these, 3) Making real world air quality demonstrations where goal is to demonstrate developed and tested technologies in operation in India, also to get the attention of the public and increase the awareness of citizens and relevant stakeholders. <p>These actions build the capacity to respond to an increasing demand for air pollution controls, on demands to develop sustainable technologies for traffic and energy production and demands for better surveillance and protection against hazardous pollutants.</p>		
Results chain	<p style="text-align: right;">BEAM / TAQIITA</p>		
Partners in Finland	Public sector Ilmatieteen laitos, TTY-säätiö, Metropolia AMK (Project organizations), HSY ympäristöpalvelut kuntayhtymä (Partner)	Private sector Dekati Oy, Neste Oyj, Pegasor	NGOs


Partners in India	The Energy and Resources Institute (TERI)	Indian Oil Corporation Ltd; ONGC TERI Biotech Ltd.	
Main observations	<ul style="list-style-type: none"> - The start of the project was delayed by almost a year (kick-off seminar organized 19th December 2017) due to the funding arrangements of the main Indian partner Teri. - Project is highly needed therefore extremely relevant as the air pollution in Delhi and other Indian cities is caused by traffic, one of the most hazardous emission source of pollutants - The long and successful partnership between Finnish Meteorological Institute and Teri (joint projects before TAQIITA) has resulted in high reputation and great networks to policy-making institutions and companies operating in the field. - The partners in both Finland and India are well defined and competent providing an excellent starting point for the collaboration - The nature of the project as research orientated proposes a challenge to finding new and lucrative business opportunities (cf. BEAM – business with impact). - In order to achieve the impact goals, project (especially Teri) should start campaigning for the new and more environmental friendly regulation in India. - Project activities could be linked more to UN Sustainable Development Goals 2030 and involve also NGOs for its advocacy campaigns. 		
Data or information sources	<p>Interviews: 18.10. Topi Rönkkö 19.12. TAQIITA seminar in the premises of Teri 19.12. Interview with Dr. Banwari Lal, Senior Director, The Energy and Resources Institute, Dr. Sanjukta Subudhi, Senior Fellow. The Energy and Resources Institute. Discussions: Heikki Lihavainen ja Eija Asmi, Ilmatieteen laitos</p>		

<p>Name of the project:</p>	<p>Innovative Concepts and Technologies Supporting Global Nutrition and Business (Nutri-Concept) Timeframe: 1.1.2016 – 31.12.2017, applying for no-cost extension.</p>		
<p>Project description</p>	<p>The project aims at developing protein-rich, plant-based food products through fermentation. The products could be commercialized in Finland and India as health products. The project is composed of six work packages (WP), the first four of which research the use of plant protein. A special emphasis is on the influence of processing in the conservation and the sensory quality of the products. The WPs to be implemented by the Indian partner CFTRI are: WP1. Screening of raw materials (Indian high-protein leguminous and cereals materials), products (native Indian foods) and their microbiota (Indian strains); WP2. Fermentation (with LUKE); WP3. Processing, especially product concept refinement. In addition, CFTRI has been planned to have a role also in the WPs 4-6 (product analysis, market analyses and dissemination / stakeholder activation). The project has more than 10 Finnish company partners who form a steering committee, while no Indian partner company was initially identified.</p>		
<p>Results chain</p>			
<p>Partners in Finland</p>	<p>Public sector University of Turku Luonnonvarakeskus (LUKE)</p>	<p>Private sector Apetit Suomi, Bioferme Oy, Foodwest Oy, Gaia consulting Oy, Palkuainen, Polarglucan Oy, Ravintoraisio Oy, Finnsoy Oy, Sybimar Oy, Verso Food Oy, Fazer Leipomot Oy, JKK Partners Oy</p>	<p>NGOs</p>
<p>Partners in India</p>	<p>CSIR-Central Food Technological Research Institute (CFTRI), Mysore</p>		
<p>Main observations</p>	<p>- the Indian partner never received any funding; they thought that BEAM funds could be used to fund also CFTRI. Therefore, the CFTRI could not open the project in the institute and in practice nothing has happened in the Indian side</p>		

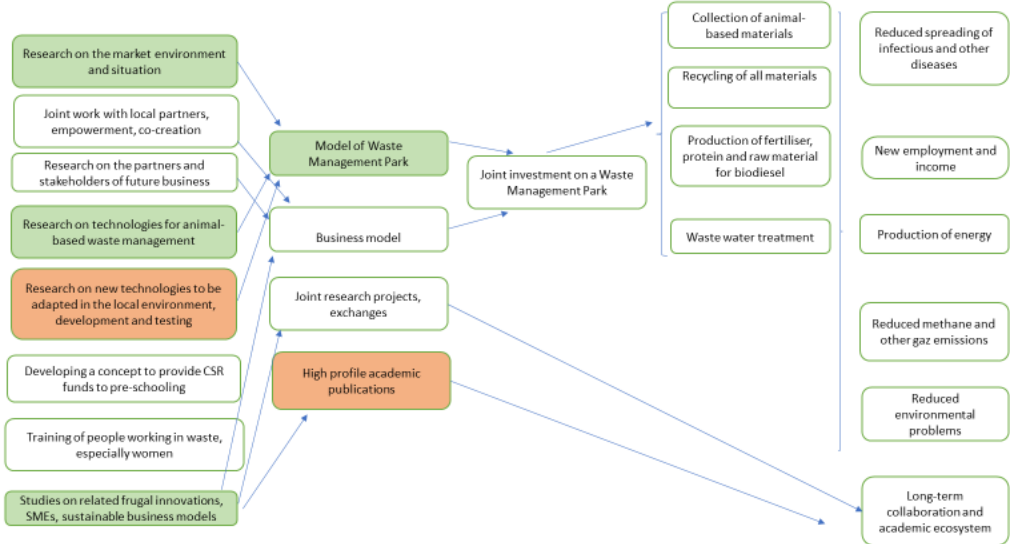
	<ul style="list-style-type: none"> - no Indian companies were identified for the project and now in the absence of the project in CFTRI, they could not attract interest from private companies - the project network could have included also f.ex. National Institute of Nutrition which does market surveys - CFTRI believes that the project would have potential and they are interested – now they cannot even travel anywhere. As Finnish researchers are visiting India, new project ideas have been created and the networks have been strengthened - from the Finnish side the project is progressing fast and it is creating considerable enthusiasm among the participating research institutions and companies. Collaboration between Finnish partners has been enhanced and this will create new business opportunities in Finland. - a market analysis report was being prepared in October based on information received by a Finnish project partner, not an Indian partner - it is not clear whether the companies have any interest in Indian markets. If they start exporting, it will be first to Europe
Data or information sources	<p>Interviews: 27.11. Baoru Yang, University of Turku 15.12. SVN Vijayendra, CFTRI Project assessments MFA, Tekes. Impact assessment by Turku University. Additional information on the roles and activities of CFTRI in project plan.</p>

<p>Name of the project:</p>	<p>Pure Waste – recycled textiles Timeframe: 1.1.2017 – 30.9.2018.</p>		
<p>Project description</p>	<p>Pure Waste Textiles produces 100% recycled yarns, fabrics and readymade garments from the waste of textile industry. Pure Waste Textiles was founded in 2013 in Helsinki. The company's production is in India, where cutting and spinning waste of the textile industry is available to a large extent. With the BEAM funding Pure Waste Textiles makes research and test for post-consumer waste suitability for recycling to different kind of yarns and fabrics. Pure Waste Textiles also continues the developments and tests for yarn and fabric development made out of pre-consumer waste.</p> <p>Project is split in two parts. The first part is research and is mainly part of the TELAKETJU-project (joint project with different companies and research institutes). Alongside this project, Pure Waste has their own research into the development of pre-consumer waste based yarns and fabrics. The second part is a continuation of the first and the aim is to run bulk scale pilot with the yarn and fabric qualities selected in the first project.</p>		
<p>Results chain</p>	<pre> graph LR A[Testing new opening methods of fabrics from industrial waste] --> B[Beta-versions of the recycled products] C[Testing how 65/35 recycled cotton/polyester yarn works with more robust fabrics.] --> B D[Testing ring spinning machines with recycled fabrics] --> B E[Testing ring spinning machines with recycled fabrics] --> F[Experience and revision of production methods] G[Testing how 65/35 recycled cotton/polyester yarn works with more robust fabrics.] --> F H[Testing new opening methods of fabrics from industrial waste] --> F I[Scanning the production and market potential in India] --> F B --> F F --> J[Enhanced capacity and learning of Indian partners] F --> K[New business opportunities for Finnish companies] F --> L[New opportunities for Indian companies] F --> M[Employment opportunities both in Finland and in India] J --> N[New opportunities and business for Indian textile ecosystems] N --> M K --> O[Ecological and sustainable products in the existing consumer markets] K --> P[Opening new demand for ecological products in emerging markets] L --> P M --> Q[Positive rural development in India] </pre> <p style="text-align: right;">BEAM / Pure Waste</p>		
<p>Partners in Finland</p>	<p>Public sector VTT (quasi)</p>	<p>Private sector Ilmakunnas, Touchpoint, Soften, Zenrobotics</p>	<p>NGOs</p>
<p>Partners in India</p>	<p>Pure Waste Textiles India and Vardhan Industries (Mumbai and Coimbatore).</p>		

Main observations	<ul style="list-style-type: none"> - Pure Waste has developed products made from recycled yarns, fabrics and readymade garments from the waste of textile industry. These are ecological products that have huge market potential once the technical problems related to manufacturing have been solved and the production has been scaled up. - Project has commenced smoothly, Vardhan Industries as an Indian partner has actively participated in the testing and piloting of yarns, textiles and fabrics - Testing and piloting in India (Coimbatore area) acts has laid ground for forthcoming potential developmental effects and impacts in terms of activation of local communities, employment effects and capacity development - The project has had a positive impact on local know-how and capacity development regarding the textile manufacturing technologies and innovations - However, it is not clear how the project positions itself in the context of business in the emerging markets. While the developmental impacts can be positive locally (see the observation above), the project still struggles to meet the limited demands of the wider Indian consumer market
Data or information sources	<p>Interviews:</p> <p>1.11. Noora Alhainen, Pure Waste</p> <p>27.11. Jukka Peltola and Noora Alhainen, Pure Waste</p> <p>15.12. Raj Agrawal, Vardhan Industries</p> <p>16.12 Site visit to Vardhan Industries´textile factory in Coimbatore</p> <p>Project assessments Tekes, Mid-term Report by the project 26.9.2017.</p>

<p>Name of the project:</p>	<p>Sparkwork Performance Timeframe: 17.12.2016 – 31.1.2018</p>		
<p>Project description</p>	<p>Sparkwork is the mobile communication, training and knowledge sharing platform designed to unite scattered workforce. Solution provides real-time information access to deskless workers' mobile devices wherever they are: on the selling floor, in the warehouse, or on the road. Sparkwork helps companies to train more effectively and communicate instantly, to create consistency and increase productivity across your organization. The platform is used by several employees at companies such as R-kiosk, Mirka, Fysios and Oriflame among others to improve their employees' training, communication and performance.</p>		
<p>Results chain</p>	 <pre> graph LR A[Building and testing mobile tool for scattered workers] --> B[Development of the business model] C[Achieving new clients] --> D[Strengthening the market position in India] E[Exploring Indian markets] --> D B --> F[Sales growth, growth in export] B --> G[New training opportunities] D --> G D --> H[Enhancing employees' capacity in Indian companies] F --> I[Entrance to global markets] G --> J[Change of the organizational culture in Indian companies] H --> K[New employment opportunities in India] J --> K </pre> <p style="text-align: right;">BEAM / Spartwork</p>		
<p>Partners in Finland</p>	<p>Sparkwork Software</p>	<p>Private sector</p>	<p>NGOs</p>
<p>Partners in India</p>		<p>Sparwork India</p>	

Main observations	<ul style="list-style-type: none"> - The Sparkwork project can be differentiated from the previous BEAM India projects as the the implementing organisation is a relatively new start-up company, Sparkwork Software Ltd. - The aim of the project is to develop the internet based SaaS-software solution, a workforce management tool for hospitals, restaurants, factories and hotels among others. The demand for a software of this type is ever-growing in countries like India. - The project has proven its agility by changing the target country from politically unstable Nepal to more stable and predictable India. The management team of the project has shown similar agility and flexibility in finding new customers and partners from India which can illustrated by the ongoing negotiations with a major Indian hotel chain. - This has been made possible by Bijay Baniya, the Indian-Finnish partner, with his networks and knowledge of the Indian market - Only the future will show, whether the company manages to successfully enter the competitive Indian market or to remain as a subcontractor providing services to the Finnish branch.
Data or information sources	<p>Interviews:</p> <p>19.10. Bijay Baniya, Sparkwork Software (telephone)</p> <p>19.12. Second interview with Bijay Baniya, Sparkwork Software in New Delhi</p>

Name of the project:	Sustainable Agro Ecological Approach for Animal Waste Rendering Plant in Vadodara Timeframe: 1.1.2016 – 31.12.2017		
Project description	<p>The project aims at building a closed agro-ecological circular economy system, in which animal waste (animal carcasses) is rendered while producing waste water and energy as side products. The rendered waste will be used for producing fertilizers and protein-rich animal feed, waste water is cleaned, and energy used for heating and other needs.</p> <p>Initially the project was in Vadodara (Gujarat) where partners were identified through Finnish and Indian consultants. Honkajoki Oy has the role of coordinator in developing and adapting the model of Waste management park (rendering plant) in India, with considerable experience through its monopole position in Finland. Fennowater develops the treatment of waste water while Doranova specialises in developing technical drawings, equipment and biogas production from the rendering plant. The university of Lappeenranta conducts frugal innovation research as well as studies in socially responsible business models to start global business through sustainable and ethical solutions.</p> <p>The role of Indian partners is not described in detail, but they should have been involved in feasibility studies and market surveys.</p>		
Results chain	 <p>The diagram illustrates the results chain, starting with research and development activities on the left, leading to a central 'Model of Waste Management Park' and 'Business model', which then lead to implementation and final outcomes on the right.</p> <ul style="list-style-type: none"> Research and Development (Left): <ul style="list-style-type: none"> Research on the market environment and situation Joint work with local partners, empowerment, co-creation Research on the partners and stakeholders of future business Research on technologies for animal-based waste management Research on new technologies to be adapted in the local environment, development and testing Developing a concept to provide CSR funds to pre-schooling Training of people working in waste, especially women Studies on related frugal innovations, SMEs, sustainable business models Central Model and Business (Middle): <ul style="list-style-type: none"> Model of Waste Management Park Business model Joint investment on a Waste Management Park Joint research projects, exchanges High profile academic publications Implementation and Outcomes (Right): <ul style="list-style-type: none"> Collection of animal-based materials Recycling of all materials Production of fertiliser, protein and raw material for biodiesel Waste water treatment Reduced spreading of infectious and other diseases New employment and income Production of energy Reduced methane and other gas emissions Reduced environmental problems Long-term collaboration and academic ecosystem 		
Partners in Finland	Public sector Lappeenranta teknillinen yliopisto	Private sector Honkajoki Oy Doranova Oy Fennowater Oy	NGOs
Partners in India	The Maharaja Sayajirao University of Baroda (MSU) and Navrachana University (NUVT)	Oxive Environmental Management Private Limited, AVNI Environmental Solutions Pvt. Ltd, Arvindbhai Patel Institute of Environmental Design.	
Main observations	<ul style="list-style-type: none"> - The project is found very relevant by Finnish and Indian partners; the intended outcomes and development impacts are realistic and offer concrete examples of changes in social, environmental and economic environment - The planning was done separately by Finnish and Indian partners and the plans were not shared 		

	<ul style="list-style-type: none"> - The Indian partners were not able to get funding from GITA; the understanding in India was that the Finnish consortium would invest in building a rendering plant in India (this is somehow indicated in the initial impact assessment by Honkajoki) - The divergence in understanding the project implementation led to problems with GITA; GITA is now waiting to hear from Finnish and Indian partners and in the same time Indian partners are waiting to hear from the Finnish side - the Finnish consortium has found it extremely challenging to understand the business environment in India. They have gathered information about the sector, but the knowledge of the whole ecosystem is still incomplete. They have used individual consultants (Finnish and Indian) to collect information and the communication with the original partners has been suspended - Finnish companies have developed a virtual model of 30 000 tonne Waste Management Park which can be replicated. Due to difficulties in understanding the processes in India, they are now exploring the markets in Africa, notably in the major meat-consuming countries South Africa and Ethiopia.
Data or information sources	<p>Interviews: Reetta Nevala, Honkajoki 1.12. 2017 Helena Sjögren, Lappeenranta teknillinen yliopisto 4.12. 13.12. 2017 Suketu Shah Ox-ive, Gujarat Project assessments by Tekes and MFA Assessment of expected impacts by Honkajoki</p>

<p>Name of the project:</p>	<p>Remote Healthcare Timeframe: 1.1.2016 – 1.7.2017.</p>		
<p>Project description</p>	<p>The project is composed of three phases: preparation, research and planning; development of the service and technical integration; validation and commercialization. The aim is to develop the telemedicine in India by adding the element of augmented reality and study where the best value could be provided to patients. The product under design is based on smart glasses: combined with instruments such as stethoscope they could be operated by health practitioners in remote, rural areas. Professional doctors could guide the health practitioner in visiting the patient and making the diagnosis. In addition, the companies study how the technology can be used in rural conditions and what would be the conditions for business development. The risks are quite high, including the engagement of project partners, realization of the intended benefits for patients, risks related to the used technology and finally the risk related to the business opportunities.</p>		
<p>Results chain</p>			
<p>Partners in Finland</p>	<p>Public sector</p>	<p>Private sector Epicit Oy</p>	<p>NGOs</p>
<p>Partners in India</p>		<p>Caliban Software Solutions Private Ltd</p>	
<p>Main observations</p>	<ul style="list-style-type: none"> - the project is relevant because in remote areas health services are poor. Relevance reduced by the price of the device, weak internet or mobile phone connections for practising telemedicine - the opinion of MFA for funding the project was negative - the project is delayed as the research for the product has been proceeding slowly. The Indian partner would like to start preparing the proof of concept, but they claim that they have not received anything from Finland. In Finland, the prototype is however ready and piloting will start in Madhya Pradesh next year - Epicit has done a lot of research on what is happening in telemedicine in India; they have also used an Indian consultant who lives in Finland 		

	<ul style="list-style-type: none"> - According to Epicit and the Indian consultant, Caliban is not cooperating although there is good communication. The Finnish and Indian partner have never met physically - Caliban received funding from GITA but as they have not been able to show any activities, GITA cannot verify the work and therefore nothing is reimbursed until now - Epicit will probably look for another partner in India - the innovation should be screened / certified by a Finnish university such as Aalto, it is still far from commercialization - Epicit has not sent any reports to Tekes - the project is late and they have not yet communicated about extension - Epicit would appreciate a local mentor with whom to discuss about the domain, about a possible business model – but have not communicated with Tekes or Finpro in India, all contacts in India with Caliban and the consultant - Epicit will look for an investor later on.
Data or information sources	<p>Interviews: Tommi Hokkanen, Epicit, 8.6. 2017 Srinivasa Rao, Caliban Software Solutions 18.12. 2017 Sumita Sahu, consultant 22.12. 2017 Assessments by Tekes and MFA. Assessment of expected impacts by Epicit.</p>

<p>Name of the project:</p>	<p>CelluClean: Affordable nanocellulose based non-electrical filters to eliminate microbial compounds from drinking water and waste water Side project: Measurement and elimination of microbes and harmful components from water (only Industrial water) Time frame: 1.6.2016 – 31.5.2018</p>		
<p>Project description</p>	<p>The aim of the project is to develop a water filtering system based on nanotechnology and renewable raw material (cellulose from agriculture waste). The material to be developed will communicate the obstruction of filter through a sensor. The innovation can be applied both for cleaning water for human consumption in households or water treatment plants, as well as for treating waste water. The new filtering method will be cost-efficient, and it will not depend on the availability of electricity. The role of the private company Betulium Oy is to develop and supply chemically functionalised, affordable nanocellulose; develop scalable composite membrane preparation procedures; and supply filtration membranes for in-lab and in-field testing. IIT Madras develops synthesis of novel metallic and inorganic nanoparticles; designs and synthesizes the composite filtration membranes and cartridges; and conducts in-lab testing of membranes to filter microbes and harmful compounds. Aalto university develops a low cost “end of function” sensor; develops strategies to improve the capability of membranes to capture harmful compounds from water; and makes nanoscale characterization of the membranes. The role of Industrial Water is to make water analysis covering microbial contamination and harmful compounds and test in-lab and in-field the filtration membranes to be used in waste water treatment. Finally, Innonano company is responsible for the production scale-up and prototype development of the filtration device; field testing of filtration membranes, prototypes and filtration device; and for making cost assessment of processes and materials used at each phase of the project.</p>		
<p>Results chain</p>	<p>The diagram illustrates the results chain of the CelluClean project. It starts with four research and testing phases on the left: 'Research on affordable biomaterials for water filtering and cleaning', 'Research to adopt nanocellulose for water filtering and cleaning', 'Laboratory testing of composite materials for water filtering', and 'Field experiments and field testing'. These lead to 'Affordable, chemically functionalized nanocellulose' and 'Affordable, non-electrical water purifying mechanisms based on nanocellulose'. From these, the path leads to 'Commercialization in India and elsewhere', which then branches into 'Business model' and 'Increased internationalization of Finnish companies'. The final outcomes on the right include 'Improved quality of water in rivers and lakes', 'Improvement in health due to clean water', 'Higher income for the Indian manufacturer and the Finnish company', 'Reduction of poverty', and 'Long-term cooperation and exchange of expertise and research ideas'.</p>		
<p>Partners in Finland</p>	<p>Public sector Aalto University</p>	<p>Private sector Betulium Oy Industrial Water (Teollisuuden vesi)</p>	<p>NGOs</p>
<p>Partners in India</p>	<p>Indian Institute of Technology (IIT) Madras</p>	<p>Inno Nano Research Private Ltd</p>	

Main observations	<ul style="list-style-type: none"> - the project plan was made jointly by IIT Madras and the Finnish partners - Indian partners never received funding because the application was submitted through a wrong format - the role of Indian partner is mostly in gathering water samples, they have outsourced the water analysis - the Finnish consortium works well together but they have less interaction with IIT and none with Innonano management (only with professor Pradeep) - results in testing the materials for removing the bacteria in Finland and in India are not the same, cannot be repeated; they have not been able to develop a nanocellulose-based membrane to remove the microbes; maybe nanocellulose is not the solution after all? - therefore, the project is delayed - the side project of Industrial water has been able to collect samples also in Ruanda and later in Palestine, which has increased the size of their database to understand the challenges - Betulium Oy is more interested about the applications of nanocellulose-based solutions in mine industries in Finland. They have been able to reduce the cost of nanocellulose considerably - Also Industrial water plans to work more in Finnish market, not so much international markets. For them, the project is mainly for collecting data, not so much in starting a business in India. The same for Betulium. - collaboration between the universities has been strengthened, student exchanges take place.
Data or information sources	<p>Interviews of Jukka Hassinen, Aalto-korkeakoulusäätiö sr 24.11. 2017; Antti Laukkanen, Betulium 28.11. 2017; Anu Kettunen, Industrial water 28.11. 2017</p> <p>Interviews on 16.12. 2017 of Professor T. Pradeep, IIT Madras; Amrita Chaudhary, Innonano; Mr. Anil Kumar Avula, IIT Madras</p> <p>Teollisuuden Veden tutkijat Intiassa - raportti matkastamme Chennain miljoonakaupunkiin 15.-24.9.2017- http://www.teollisuudenvesi.fi/ajankohtaista/teollisuuden-veden-tutkijat-intiassa-15-24.9.2017/</p>

Name of the project:	Pre-Incept Timeframe: 1.5.2016 – 30.11.2016.		
Project description	Pre-incept is a preparatory project that aimed to develop the educational environment of children with special needs and providing new ICT-based tools to support the teaching and learning processes. The status of children with special needs in India is marginal. Therefore, supportive actions are urgently needed. During the preparatory phase project has carried out several interviews, organized seminars and collected information of the potential needs and demand for such learning tools in India.		
Results chain	<pre> graph LR A[Research on learning and pedagogic methods for teaching autistic children] --> B[Analysis on pedagogical needs] A --> C[Analysis on Indian education system and inclusive learning environments/ecosystems] D[Needs assessment of ICT-based learning methods and tools] --> B D --> C E[Feasibility study and analysis on Indian education markets] --> C F[Matchmaking and network creation] --> G[Network and stakeholder mapping] G --> B G --> C G --> H[Partner selection for the new projects INCEPT] B --> I[Target setting for the new project INCEPT] C --> I C --> H I --> J[INCEPT PROJECT] H --> J J --> K[Education export and business opportunities] J --> L[Improved learning environments and results] </pre> <p style="text-align: right;">BEAM / Pre-Incept</p>		
Partners in Finland	University of Tampere	Private sector Sanako Oy, Teacher Gaming, More Minutes, Otava, Ubiikki	NGOs Helsingin seudun erityisopijat (HEROO, autismiliitto)
Partners in India		Deepalaya School, Taman School, Delhi Public School.	

Main observations	<ul style="list-style-type: none"> - The final relevance and developmental impacts are difficult to define as the current goal of the project was only a preparatory one. - The objective of the main project will be to develop the educational environment of children with special needs such as autism - Interviews and meetings were arranged and carried out in India during the preparatory phase according to the plan. However, the type of development plan for the educational environment remains to stay relatively unclear and undefined. - One of the interviewees, Taman School in New Delhi, seemed unaware of the proceeding actions as well as the school's role in the INCEPT project. - The final rapport states that the complexity of autism creates too great of a challenge for ICT-based applications and the technological developments. - Therefore, the focus of the Incept project has been broadened to include all the 8 to 15-year-old students - It is unfortunate that the connections with the schools specialised in children with special needs are sacrificed as a result of broadening the scope.
Data or information sources	<p>Interviews:</p> <p>27.11. Markku Turunen, University of Tampere</p> <p>12.12. Site visit to Taman School (Blessin Varkey)</p>