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POLITÈCNICA
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TESIS DOCTORAL

TOWARDS INCLUSIVITY THROUGH A THEORETICAL AND EMPIRICAL APPROACH

INCLUSIVE INNOVATION FRAMEWORK AND AN ADIVASIS' CASE OF STUDY

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Departamento de
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Presentada por:

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Valencia, Septiembre de 2017

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Resumen

La presente tesis busca aportar al conocimiento dentro del área de inclusión; no obstante se ha enfocado en la inclusividad hacia el área de desarrollo y el área de innovación. Indudablemente, incluso dentro de esas áreas, el abanico de posibilidades de investigación es muy amplio; por ello se ha decidido centrar la tesis en la innovación inclusiva y en el desarrollo inclusivo.

La innovación inclusiva es desarrollada dentro de un análisis de marco teórico que examina la definición de innovación inclusiva como tal. Se ha utilizado la metodología de revisión sistemática para identificar la literatura pertinente para el análisis teórico posterior. Dentro de este análisis se han evaluado cuatro categorías de estudio: elementos centrales, tipología de estudios, cobertura geográfica, y finalmente, los hilos de conclusión dentro de la literatura. Asimismo, se ha identificado qué autores se refieren a la innovación inclusiva como homónima con otras corrientes o conceptos similares. Una vez concluida la revisión sistemática en las cuatro categorías de investigación planteadas se ha sugerido ciertas acciones en relación al trabajo posterior para los investigadores dentro de este campo, ya que se ha explicado todavía la definición requiere cierta consolidación para establecer sus pautas de acción y trabajo en un mediano plazo.

Por otro lado, el desarrollo inclusivo viene tomando protagonismo en los organismos internacionales. En este caso, el análisis del desarrollo inclusivo se ha basado en un caso de estudio real ex post con el que trabajé en India. Éste análisis de tipo empírico, se centra en una evaluación de uno de los proyectos que una organización no gubernamental lleva a cabo para evaluar una opción adicional de subsistencia para uno de los grupos más desprivilegiados de India y el mundo. La evaluación del proyecto, cuyo objetivo es mayor desarrollo inclusivo para este tipo de poblaciones, se realizó en diferentes índoles: del proyecto como tal, su impacto económico y social, y la realidad demográfica de la población también fue analizada. Primeramente, para la valoración del proyecto como tal se utilizaron: rendimientos comparativos, se ejecutó un análisis del proceso de producción, y la creación de escenarios de ganancias/pérdidas identificando así mejoras que la organización puede implementar en diferentes áreas. Para la evaluación económica se estimó el impacto económico por hogar en ambas partes del proceso: acopio y proceso productivo, también se llegó a realizar una segmentación por Panchayat involucrado en el proceso

productivo. Complementariamente, el ámbito del impacto en la parte social implicó un trabajo con las mujeres que forman parte de los grupos de auto-ayuda en las poblaciones involucradas con el acopio, así se trabajó con la metodología de grupo focal de discusiones, gracias a éstos se lograron identificar las percepciones de las mujeres en relación al proyecto, a sus vidas, y a los avances dentro las mismas. Se complementaron las reuniones también con los esposos para identificar el nivel de apoyo que brindan a sus mujeres con el proyecto. Adicionalmente, se ha logrado crear una base demográfica en tres indicadores demográficos: edad y estado civil; tasa de fertilidad, y la tasa de alfabetización. Dichos resultados fueron contrastados con una referencia literaria relevante para confirmar qué avances pudieron existir. La evaluación de desarrollo inclusivo como tal es bastante amplia y se constituye en una ejemplificación para investigadores que deseen trabajar in situ con poblaciones similares en este campo.

La tesis tiene como objetivo poder profundizar en la inclusión aportando a ella desde ambos ámbitos: teórico y empírico, articulando así diferentes herramientas y metodologías que se aplican para poder aportar al conocimiento de esta área.

Palabras clave: inclusión, innovación inclusiva, desarrollo inclusivo

Resum

La present tesi busca aportar al coneixement dins de l'àrea d'inclusió; no obstant s'ha enfocat en la inclusivitat cap a l'àrea de desenvolupament i l'àrea d'innovació. Indubtablement, fins i tot dins d'aquestes àrees, les possibilitats d'investigació són molt àmplies; per això s'ha decidit centrar la tesi en la innovació inclusiva i en el desenvolupament inclusiu.

La innovació inclusiva és desenvolupada dins d'una anàlisi de marc teòric que examina la definició d'innovació inclusiva com a tal. S'ha utilitzat la metodologia de revisió sistemàtica per identificar la literatura pertinent per l'anàlisi teòrica posterior. Dins d'aquesta anàlisi s'han avaluat quatre categories d'estudi: elements centrals, tipologia d'estudis, cobertura geogràfica, i finalment, els fils de conclusió dins la literatura. Així mateix, s'ha identificat quins autors es refereixen a la innovació inclusiva com homònima amb altres corrents o conceptes similars. Un cop conculsa la revisió sistemàtica en les quatre categories d'investigació plantejades s'ha suggerit certes accions en relació al treball posterior per als investigadors dins d'aquest cam. La definició requereix certa consolidació per establir les seves pautes d'acció i treball en un mitjà termini.

D'altra banda, el desenvolupament inclusiu ve prenent protagonisme en els organismes internacionals. En aquest cas, l'anàlisi del desenvolupament inclusiu s'ha basat en un cas d'estudi real ex post amb el que vaig treballar a l'Índia. Aquest anàlisi de tipus empíric, se centra en una avaluació d'un dels projectes que una organització no governamental porta a terme per avaluar una opció addicional de subsistència per a un dels grups més marginats de l'Índia i el món. L'avaluació del projecte, amb l'objectiu del major desenvolupament inclusiu per a aquest tipus de poblacions, es va realitzar en diferents índoles: del projecte com a tal, el seu impacte econòmic i social, i la realitat demogràfica de la població. Primerament, per a la valoració del projecte com a tal es van utilitzar: rendiments comparatius, una anàlisi del procés de producció, i la creació d'escenaris de beneficis/ pèrdues identificant així millores que l'organització pot implementar en diferents àrees. Per a l'avaluació econòmica es va estimar l'impacte econòmic per llar en ambdues parts del procés: recol·lecció i procés productiu. També es va arribar a realitzar una segmentació per Panchayat involucrat en el procés productiu. Complementàriament, l'àmbit de l'impacte en la part social va implicar un treball amb les dones que formen part dels grups d'autoajuda a les poblacions involucrades amb la recol·lecció. Així es va treballar amb la metodologia de grups focal de discussió. Gràcies a aquests es van

aconseguir identificar les percepcions de les dones en relació al projecte, a les seues vides, i als avenços dins les mateixes. Es van complementar les reunions també amb els homes per identificar el nivell de suport que brinden a les seues dones amb el projecte. Addicionalment, s'ha aconseguit crear una base demogràfica en tres indicadors demogràfics: edat i estat civil; taxa de fertilitat, i la taxa d'alfabetització. Aquests resultats van ser contrastats amb referències rellevants per confirmar quins avenços van poder existir. L'avaluació de desenvolupament inclusiu com a tal és prou àmplia i es converteix en una exemplificació per a investigadors que vulguin treballar in situ amb poblacions similars en aquest camp.

La tesi té com a objectiu poder aprofundir en la inclusió aportant-hi des d'ambdós àmbits: teòric i empíric, articulant així diferents eines i metodologies que s'apliquen per poder aportar al coneixement d'aquesta àrea.

Paraules clau: inclusió, innovació inclusiva, desenvolupament inclusiu

Abstract

This thesis seeks to contribute to knowledge within the area of inclusion; nevertheless it has focused on the inclusivity towards the area of development and the area of innovation. Undoubtedly, even inside these areas, the range of research possibilities is very wide; therefore, it has been decided to focus the thesis on inclusive innovation and inclusive development.

Inclusive innovation is developed within a theoretical framework analysis that examines the definition of inclusive innovation as such. Systematic review methodology has been used to identify relevant literature for subsequent theoretical analysis. Within this analysis we have evaluated four categories of study: central elements, typology of studies, geographic coverage, and finally, the conclusion threads within the literature. It has also been identified which authors refer to inclusive innovation as homonymous with other similar currents or concepts. Once the systematic review in the four categories of research has been concluded, certain actions have been suggested in relation to the subsequent work for researchers within this field, since it has been explained the definition still requires some consolidation to establish its patterns of action and work in a medium term.

On the other hand, inclusive development is taking center stage in international organizations. In this case, the inclusive development analysis has been based on a real ex-post case study with which I worked in India. This empirical analysis focuses on an evaluation of one of the projects that a nongovernmental organization conducts to evaluate an additional subsistence option for one of the most underprivileged groups in India and the world. The evaluation of the project, whose objective is greater inclusive development for this type of population, was carried out in different ways: the project as such, its economic and social impact, and the demographic reality of the population was also analyzed. Firstly, for the evaluation of the project as such were used: a comparative yield, an analysis of the production process was executed, and the creation of profit/loss scenarios identifying improvements that the organization can implement in different areas. For the economic evaluation, the economic impact per household was estimated in both parts of the process: collection and production process, segmentation by Panchayat involved in the production process was also achieved. In addition, the scope of the impact on the social part involved working with women who are part of the self-help groups in the populations involved with the collection, thus

worked with the focus group methodology of discussions, due to them, the perceptions of women in relation to the project, to their lives, and the improvements within were identified. Meetings were also complemented with the husbands to identify the level of support they provide their women with the project. Additionally, it has been possible to create a demographic base in three demographic indicators: age and marital status; fertility rate, and literacy rate. These results were contrasted with a relevant literary reference to confirm what progress could have been made. The evaluation of inclusive development as such is quite broad and constitutes an exemplification for researchers desiring to work in situ with similar populations in this field.

The thesis aims to be able to deepen the inclusion contributing to it from both fields: theoretical and empirical, thus articulating different tools and methodologies that are applied to be able to contribute to the knowledge of this area.

Keywords: inclusion, inclusive innovation, inclusive development

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List of acronyms and abbreviations

ASEAN: Association of Southeast Asian Nations

AT: Appropriate Technology

BoP: Bottom of the Pyramid

BPL: Below Poverty Line

CCC: Central Collection Center

CF: Community Facilitators

ESTD: early-stage technology development

FGD: Focus Group Discussion

HR: Human Resources

IFAD: International Fund for Agriculture Development

INR: Indian National Rupees

IPs: Innovation Platforms

IWMP: Integrated Watershed Management Program

GDP: Gross Domestic Product

GIMs: Grassroots innovation movements

GP: Gram Panchayat

Kg.: Kilogram (s)

ldp: low density polythene

MA: Meta-analysis

MPOWER: Mitigating Poverty in West Rajasthan

NIS: National Innovation Systems

NREGA: National Rural Employment Guarantee Act

NRM: Natural Resources Management
NTFP: Non timber fruit production
Oxfam: Oxford Committee for Famine Relief
PDS: Public Distribution System
POP: Package of Practice
PRI: *Panchayat* Raj Institution
Pvt. Ltd.: Private Limited
R&D: Research and Development
SC (chapter 2): Scopus
SC (chapter 3): Scheduled Castes
SG: Scholar from Google
SHG: Self Help Group
Sq. Km.: squared Kilometers
SRW: Scientific Resources Web
ST: Scheduled Tribes
SR: Systematic Review
UNDP: United Nations for Development Program
VLCC: Village Level Central Collecto

Chapter 1

Introduction

1.1. Inclusivity by means of development and innovation

Inclusiveness has been portrayed as a key element for diverse areas of work and analysis at development and growth¹; from the inclusive character of institutions as the core cause for a country's development (Acemoglu & Robinson, 2012), to what could other drivers such as geography can affect growth (Sachs, 2012). Nonetheless, the sheer inclusion of factors for the analysis of what can truly trigger development is not the main purpose of its relation currently. In this sense, is accurate to state up the features that define inclusivity, so when can it be assumed the inclusive aspect relies within a practice or a theory? As defined by the Cambridge Dictionary (2017), inclusive means: “an inclusive group or organization tries to include many different types of people and treat them all fairly and equally”; although the definition laid out the quality of the inclusiveness by implying the fair and equal treatment, the inclusion of “many different types of people” could be interpreted yet as uncertain.

According to the United Nations for Development Program (UNDP) the types of exclusion can tackle diverse angles such as gender, ethnicity, age, sexual orientation, disability or poverty (UNDP, 2014). Nonetheless, the quest of the convergence from development and inclusiveness has

¹ Throughout literature growth is generally linked with the economic expansion, while development is associated with the wellbeing; nonetheless, in some cases they are managed indistinctively. Additionally, development is often assumed to include the economic factor.

gone beyond among scholars to attain the inclusive development definition.

Box 1 : Organizational/Institutional definitions of inclusive development

Oxford Committee for Famine Relief (Oxfam) definition: “Inclusive development is a pro-poor approach that equally values and incorporates the contributions of all stakeholders –including marginalized groups– in addressing development issues. It promotes transparency and accountability, and enhances development cooperation outcomes through collaboration between civil society, governments and private sector actors” (Oxfam, N.D.).

UNDP definition: “Development can be inclusive –and reduce poverty– only if all groups of people contribute to creating opportunities, share the benefits of development and participate in decision-making. There are many elements for a nation to consider in pursuing inclusive development. A vital one is how to create productive and gainful employment. This should be paired with effective and efficient social safety nets to protect those who cannot work or who earn too little.” (UNDP, 2014)

OECD definition: “Inclusive development requires giving some consideration to different types of income inequality; but is also about equal opportunities (by reducing gender gaps, promoting decent work, giving the poor access to knowledge and information” (OECD, 2013).

In the previous box some organizations have defined inclusive development, the latter provides a perspective titling to inclusive growth and its distributional effect if it becomes inclusive. The inclusivity took relevance in the last decades at different contexts and organizations, thus inclusiveness has become an ultimate objective among diverse areas of work.

Notwithstanding, the progress related to the measurement of the inclusive development –which was also name inclusive growth– since not only the Gross Domestic Product (GDP) per capita entails an integrated and holistic picture a state of economic development in a country (World Economic Forum, 2017a). The indistinctive use of inclusive growth with inclusive development is due a possible ‘trickle down’ to all important segments of society and increase the wellbeing from inclusive growth (Johnson & Andersen (red.), 2012). The progress in fifteen of the most

relevant policy domains for inclusive growth had been compiled into a composite global index named Inclusive Development Index or IDI (Ídem)². In this sense, the Inclusion was portrayed as a National Key Performance Indicator, and underpinning inclusion there are key stones as: Median Household Income, Income Gini, Poverty Rate, and Wealth Gini (World Economic Forum, 2017a). Neither inclusive development in the strict sense of the analysis at the term's factor disaggregation is the main target of this thesis; nor do delving into an IDI calculation across countries; however schematizing the inclusion and development together, and the basic criteria for their measurement become a useful reference of the progress in this area.

Nonetheless, besides the fifteen components of the inclusive growth benchmarking tool for the countries, the pillars to each country assigned for the calculation were: education, employment, asset building, financial intermediation, corruption, basic services, and fiscal transfers (World Economic Forum, 2017a). Those available pillars for the tribal community will be unfolded for the analysis of inclusivity at the Adivasis targeted population hereon.

On the other hand, frequently innovation has been associated with business exclusively, whereas –as stated by Unicef– its role is minor by addressing issues as malnutrition, hunger or the lack of safe water (Sutz & Tomasini, 2013). As defined by Leeuwis and van den Ban (2004): “innovation in its broadest sense covers the activities and processes associated with the generation, distribution and use of knowledge, which can be technological, organizational, and institutional” (Swaans, Boogaard, Bendapudi, Taye, Hendrickx & Klerkx, 2014). Hence, how can an activity be classified as an innovative one while also being inclusive? Despite creating livelihood options can be classified as part of any of the developmental projects running at India through any type of organization, not any attempt to enhance and create sustainable options for the unprivileged is considered only as a part of a project itself, sometimes they similarly can be classified as an approach to inclusive innovation. Utz & Dahlman (2007) from the World Bank created a working paper on the topic of inclusive innovation wherein they proposed three approaches to promote inclusive innovation, on their first approach they tackle the “harness, increase and redirect formal creation efforts to better meet the needs of the economically weaker sections of Indian society”. Consequently, they highlighted the relevance of the commercialization at the formal sector and the collaboration among

² The Inclusive Development Global Index measured “the accumulated level as well as the most recent five-year trend of performance for the 109 countries for which such data is available” (World Economic Forum, 2017a).

entities, universities, NGOs –to name a few as key actor players– for this approach to succeed.

Therefore, the case of study that will be developed, besides being a developmental objective type of project pursuing inclusivity of the Adivasis, can also be classified from determined angles as an inclusive innovation on a first type of approach according to the categorization from Utz & Dahlman (2007). Nevertheless, as the definition will be pinpointed hereafter, the complexity of its outreach arguably creates as a debate on this matter.

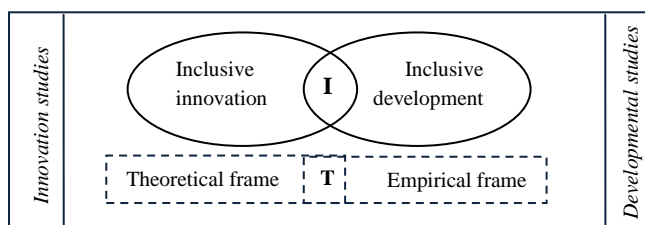
Complementary, an historical review of the origins of inclusive innovation was elaborated by authors like Heeks, Foster & Nugroho (2014), and also more extensively by Chataway, Hanlin & Kaplinsky (2016); these former authors encompassed the backgrounds of inclusive innovation through: the Appropriate Technology (AT) movement, Gandhi's ideas developed by Schumacher (1973), and the miscellaneous stages in time of support along organizations currently with inclusive innovation. Correspondingly, these authors identified four major strands for the analysis at inclusive innovation, at one of them labeled as: the dynamic of not-for-profit and community-based 'innovation from below', the project carried out at India can as well performed as inclusive innovation based, as described by the authors the participation of non-governmental organizations (NGOs) are the ones who undertake the innovation from below. Thus, independently from their branch at development, the innovation might be the core complement for any inclusive development project.

In fact, there must be a link amid social policies and innovation for an inclusive development (Arocena & Sutz, 2012), so they are intrinsically interrelated. Conversely, the European Commission has formed the 'Innovation for Growth Group' in 2011 incorporating the inclusive innovation at their policy paper N° 15 (Sengupta, 2016).

Additionally, in common for both, innovation and development areas, there is an actor suggested to be considered: the environment. At inclusive innovation the environment is suggested as an actor or beneficiary (Weber & Rohracher, 2012; Amaro-Rosales & De Gortari-Rabiela, 2016); while at the inclusive development it has been highlighted as an actor whereas encouraging the operationalization of the concept itself (Gupta, Pouw & Ros-Tonen, 2015).

The project that was developed at India can be related to development and all its angles jointly to its objectives; while on the other side can be classified across some approaches towards inclusive innovation, in fact,

the inclusivity factor is the ultimate goal of both definitions: inclusiveness and its effectiveness hinges on development projects and innovation targeting inclusiveness. As mentioned above by the authors, the developing of the development area at inclusivity may not represent the only pathway to achieve inclusion since the mainstream technology and its alignment can play a key role to also operationalize inclusivity in development; evermore they become allies to achieve sustainable solutions at the field of inclusion itself. In this sense, the thesis explores the inclusivity at both flanks: innovation and development.



Source: Own elaboration

Figure 1: Schematizing the principal strands of investigation

The breadth in which inclusivity can be addressed is vast; nonetheless, the inclusivity is being tackled at the developmental area (inclusive developmental) and at the innovative area (inclusive innovation), both areas with inclusivity as a common intersection within specific thresholds in each sector. In fact, the schema displays how inclusivity can be settled in theory and practice through the lens of development and innovation. The present thesis rolls out this convergence considering two of the core aspects: the theoretical aspect with inclusive innovation and in situ work for the empirical frame.

1.2. Research questions

The research questions for the thesis direct the investigation into two sections: the inclusive innovation definition and the empirical work at the inclusive development area.

The concept of inclusive innovation will be the main concern and an overhaul of its nuances, characteristics and possible shortfalls will be addressed. The research questions to achieve an enhancement of a solid definition are:

What are the core elements of the inclusive innovation's definition across literature? How is scattered the typology and evidence from the inclusive innovation?

How is the geographical distribution of inclusive innovation across literature? What are the main conclusive strands from authors?

The inclusiveness in the development field is going to be tackled in situ with the Adivasis population; this work will raise the next research questions:

How can this project be measured and qualified in order to achieve sustainability?

What are the repercussions of the project at the involved Adivasis population on the economic and social side? What is the demographic current data from this population?

All the above detailed research questions will guide the development of the thesis; thereupon they are also associated with the specific objectives, hypothesis and they will be addressed by a specific methodology.

1.3. Objectives

The present doctoral thesis aims to deepen the comprehension of inclusiveness. The inclusivity will be tackled from two different yet complementary flanks: theoretical and empirical.

To achieve this objective the thesis has the following specific objectives:

O1. To enhance the theoretical knowledge of inclusive innovation's definition by identifying convergences/divergences at the conceptualization and the typology of the studies.

O2. To explore the inclusive innovation definition's frame while ascertaining the general geographical coverage and the strands of relevant conclusions.

O3. To analyze the new livelihood option provided to the Adivasis group and its sustainability.

O4. To examine inclusive development through an in situ field work for the *Adivasis* at India.

The hypothesis directly associated with the specific objectives are:

H1. Has there been a major convergence among authors at the conceptualization and typology at studies from inclusive innovation?

H2. Is there a specific geographical coverage for inclusive innovation or an orientation at the significant strands of conclusions for inclusive innovation?

H3. Has the new livelihood option entails sustainability for the Adivasis population?

H4. Does the inclusive development at the economic and social sectors entail an expected level of achievement at both areas for this population?

1.4. Methodology

The methodology will be set forth accordingly to the hypothesis. For the H1 and the H2 the methodology will be a Systematic Review (SR). For the H3 the Production Analysis will be the selected methodology, this will trickle down consequently to each part of the analysis to: comparative yield performance, process of production, and the profit/loss scenarios. Lastly, the H4 holds a dissimilar and mixed methodology in function of the type of repercussion at the inclusive development field (the UNDP definition was the guide for this bifurcation); additionally, the demographic scope will be also analyzed. The sequential methodology for the economic repercussion is: elaboration of averages method, the design of Scenarios Method; then, the segmentation of Panchayat and finally the contrast by economic segmentation. Complementarily, the methodology for the social: first the selection of sample calculation with a statistical formula with known population and then work in situ with Focus Group Discussion (FGD). Finally, the demographic methodology will address the estimation of: age, marital status, fertility rate, and literacy rate; all will be contrasted with Véron (2008).

Table 1: Summary of objectives, research questions, hypotheses and methodology

MAIN OBJECTIVE	RESEARCH QUESTIONS	SPECIFIC OBJECTIVES	HYPOTHESIS	METHODOLOGY
To deepen the comprehension of inclusiveness from two different yet complementary flanks: theoretical and empirical	What are the core elements of the inclusive innovation's definition across literature? How is scattered the typology and evidence from the inclusive innovation?	O1. To enhance the theoretical knowledge of inclusive innovation's definition by identifying convergences/divergences at the conceptualization and the typology of the studies.	H1. Has there been a major convergence among authors at the conceptualization and typology at studies from inclusive innovation?	Systematic Review
	How is the geographical distribution of inclusive innovation across literature? What are the main conclusive strands from authors?	O2. To explore the inclusive innovation definition's frame by ascertaining the general geographical coverage and the strands of relevant conclusions.	H2. Is there a specific geographical coverage for inclusive innovation or an orientation at the significant strands of conclusions for inclusive innovation?	Systematic Review
	How can this project can be measured and qualified in order to achieve sustainability?	O3. To analyze the new livelihood option provided to the Adivasis group and its sustainability	H3. Has the new livelihood option entails sustainability for the Adivasis population?	Production Analysis: comparative yield performance, process of production, profit/loss scenarios
	What are the repercussions of the project at the involved Adivasis population on the economic and social side? What is the demographic current data from this population?	O4. To examine inclusive development through an in situ field work for the Adivasis in India	H4. Does the inclusive development at the economic and social sectors entail an expected level of achievement at both areas for this population?	For the economic: elaboration of averages method, the design of Scenarios Method. Also the segmentation of Panchayat and contrast by economic segmentation For the social: selection of sample calculation with statistical formula with known population and work in situ with Focus Group Discussion (FGD) For the demographic: estimation of age, marital status, fertility rate, and literacy rate, all contrasted with Véron (2008)

Source: Own elaboration

1.5. Structure by chapters

Further to this chapter, the following three chapters also compose the thesis. The second chapter represents an article which has postulated and officially accepted to be part of this year's 15th Globelics Conference to be held at Athens- Greece (see Appendix 1Chapter 2) wherein innovation and development are the core themes. This chapter will provide a notion that clarifies how inclusive innovation is perceived along specified relevant literature. The main target of this chapter brings out the theoretical framework for the inclusiveness-innovation intersection; thereby the first theoretical glimpses of how to reinforce the conception of inclusive innovation through an analysis that becomes a pathfinder at this field.

Consecutively, the third chapter is an empirical monograph represented by a case of study. The developed work that was the basis for the case of study and its approach to inclusive development, this took place at India where I lived for a couple of months in 2014 while working for an NGO whose current or ancient sponsorships are recognized worldwide entities such as "Ford Foundation; International Trade Center or World Bank" (Self-Reliant Initiatives through Joint Action, 2015). This chapter entails the work in situ at India while focusing all endeavors deployed to inclusive development to structure a multi-pronged breakdown: first, the demographic area (described at the diagnosis of the business whereas it is contrasted with some previous data of Adivasis). Then, the diagnosis of the business itself is detailed in order to identify possible shortfalls to improve the project while pursuing its sustainability. Additionally, the chapter presents the evaluations correspondingly to the UNDP's (2014) definition of inclusive development cores i.e. at the economic and social aspects.

The fourth chapter sets the discussion with main findings from the inclusive innovation theoretical framework and the inclusive development in situ case of study. Lastly, the fifth chapter sums up the main conclusions of the thesis while portraying as well the limitations and future lines of investigation.

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Chapter 2

Inclusive innovation: definition framework

2.1. Introduction

Erstwhile to the introduction of the term 'inclusive innovation' amid the spectrum of the innovation and the development fields (Heeks, Foster & Nugroho, 2014), there were studies and streams addressing the scientific, technological and communicational strands related to the innovation itself (Freeman & Soete, 1997; Dosi, 1988), and scoping innovation from a system analysis perspective (Edquist & Hommen, 1999; Lundvall, Johnson, Andersen, & Dalum, 2002); innovation at this flank is undoubtedly broaden and still currently an object of study (Etzkowitz & Leydesdorff, 2000; Binz, Truffer, & Coenen, 2014; Bergek, Hekkert, Jacobsson, Markard, Sandén, & Truffer, 2015). Innovation was generally embedded to progress at those fields (Alzugaray, Mederos & Sutz 2013; Foster & Heeks, 2013a); it has been tackled up at diverse areas, populations, and has been widely studied across literature since the dawn of the industrial revolution (Conceição, Gibson, Heitor, & Sirilli, 2001).

Nonetheless, 'inclusive innovation' pretends to disentangle some standpoints of the mainstream understanding and to expand the scope of innovation: proposes a shift unto targeted populations (Prahalad & Mashelkar, 2010), to allow specific features to be part of the creation, the process, and diffusion of innovations (Foster & Heeks, 2013b); all without excluding the possible positive spillover effects of social transformation from these type of innovations (Utz & Dahlman, 2007). Moreover, what can be understood as an additional purpose of this nascent area is to broaden what has been sketched out at this wide-ranging field, according to the increased reality of inequality and poverty in the world.

In spite of the advances in relation to the reduction of gaps of poverty worldwide, for 2010 around the 40 % of the world population: approximately 2.6 billion of persons live with less than two American dollars per day (2 \$us./day); as billions of persons continues living with less than one American dollar per day (1 \$us./day); nevertheless, the privation for this population goes beyond the monetary aspect and the lack of assets, they are also deprived of the most essential services: as the health, the education, the social protection, and the access to the infrastructure –especially, roads, water and electricity– (World Bank, 2010). Currently, both the poverty and inequality persist; both became an object of analysis and arduous work of various international organizations. The concern by the United Nations has been reflected in the Millennium Development Goals 'MDGs' –also called MDG 'Millennium Development Goals'– which were replaced by SDG 'Sustainable Development Goals' after the Rio conference 2012 (United Nations Development Programme, 2016); agreeing to these new targets from 2015 countries gather direct efforts at different angles to relieve the needs of the world's poorest groups, to reduce inequalities and combat climate change, all ensuring that *'no one is left behind'* (United Nations, 2016). "Understanding the needs of the poor is the basis of inclusive innovation; some of the greatest needs are captured in the MDGs", and three axes oriented their movement on the agenda until 2030: poverty, inequality and climate change (World Bank, 2010). While addressing inclusive innovation, it explicitly suggests that nobody is excluded; as a consequence, there is a major challenge towards fulfilling a real inclusion of all marginalized sectors at multiple levels.

Although, inclusion must go beyond financial aspects, thus a comprehensive inclusion of the aforementioned groups does not refer exclusively to those who have been and continue to be affected in their abilities of income generation and access to various basic services; it also refers to underprivileged groups or whose access has been limited, or

abilities –those named firstly as capabilities by Sen (1999) – have not been fully developed, enhanced or have not been given. Therefore the spectrum within the inclusion is quite far-reaching: women, sectors, and groups inside society (Foster & Heeks, 2013b) that have been neglected in some way or have not been included to be part of the areas of the so-called development. Furthermore, the inclusive innovation has been also perceived as a possible tool for improvements at the ecological flank, taking in count the environment as actor or beneficiary (Weber & Rohrer, 2012; Amaro-Rosales & De Gortari-Rabiela, 2016); actually, in this regard, Bryden, Cavicchi, Kvakkestad, Prestvik, and Refsgaard (2015) referred to inclusive innovation as not a subject to be considered only in countries labeled with 'developing', in the same way must be treated in countries with inequalities at different levels. Similarly to the term 'inclusion' which entails complexity and an all-encompassing features consideration; the term development and its treatment –as its convergence over the same objective and the steps to achieve it– could be catalogued as indefinite, in fact it has being raised and discussed by the authors for decades (Lewis, 1954; Rosenstein-Rodan, 1957; Prebisch-Singer, 1940-1950).

During the last ten years, there has been an enlargement of authors, institutions and organizations that had focused their attention on the inclusive innovation. However, its definition, extent of plausible action, constraints and measurable opportunities could be still meager. In addition, the repeatedly discrepancy at the scopes and procedures (Bryden, Gezelius, Refsgaard and Sutz, 2017; Ngoc, 2017; Chataway, Hanlin & Kaplinsky, 2016); plus, in most of cases, the assorted indistinctive use of the term within the development field might foster an unclear framework in this field.

As a result, an unblemished understanding of the term is absent; as its implications and what should be considered on future investigation lines. Furthermore, what has been clearly achieved, or the possible gaps throughout literature in an organized review is a shortage at this area. Subsequently, this study proposes to enhance the knowledge of inclusive innovation and aims to nail down the knowledge and advances by schematizing the potential research to carry on at this specific area.

Thereby, the main objective of this study is to portrait the inclusive innovation through the identification of the possibilities' variety of this stream and to identify the progresses and current state within specific literature at this area. This study aims to contribute by means of a theoretical structure, thus to lay an enriched groundwork for any further investigation.

In the pursuit of this objective the study will define the outreach level within the inclusive innovation research; it will be disaggregated at four parts:

- First, the level of convergence or discrepancy at definition and methodologies to tackle inclusive innovation: is there a unique consensual definition for it? What are the common elements along the definitions?
- The second part will address the typology of applications of inclusive innovation: are there empirical studies?, is there a commonality among the empirical studies? If there are examples, what is the information they provide? Do we have an ex-ante ex-post type of studies? Can we measure the impact at the community?
- At the third part, the determination of the geographical coverage will be analyzed: are there geographical titling for this field? Is there a region of the world where it has been addressed the most? What are the specific countries of this study?
- While at the fourth, there will be classification and aggrupation for the main working/ conclusive strands of the studies.

In synthesis, inclusive innovation has been analyzed recently and diverse definitions are detailed through the literature in this field. As a consequence, the main objective of this work is to unravel the definition of inclusive innovation among all the stated possible concepts in this field and to set up a framework that sums up a basic guideline for this bourgeoning area. In order to address the study a methodology will be chosen as the methodology to follow up, while the main the research in general will include four flanks detailed in the previous paragraph, those will be carry out hereafter.

2.2. Methodology

In order to schematize the literature under the label of 'inclusive innovation' some methodologies were examined to achieve the main purpose for this study. As a consequence two methodological options were selected to outline this frame; both are generally used at medical sciences and psychology to confirm the suggested diagnosis of patients, dosage at specific groups or populations, and overall to resume results of those observed populations to enhance the assertiveness of their medical assistance. Both methodologies are considered great tools to summarize

the scientific evidence (Sánchez-Meca & Botella, 2010)³. Nonetheless, the present study aims to apply the mainstream aspects from either one or both methodologies at social and economic sciences, respecting their core but adapting some features unto this specific case.

The systematic review (SR) and the meta-analysis (MA) are both frequently used at psychology, medicine and sciences wherein the vast literature tend to accumulate final results of treatments, diagnosis, medical perspectives, etc. Formerly, there is an imperative requirement to consolidate the scientific methods applied, and the results of final treatments; all to test either a medicine or the result of a final treatment; consequently, the investigator ends up selecting one or both methodologies pursuing to summarize and properly order all the specifications and results; furthermore, what is intended through these research methodologies is to show '*the state of affairs*' by knowing what has been investigated aiming to systematically collect evidence from studies of the same problem (Sánchez-Meca & Botella, 2010; Morales, 1993).

The prominent author for the MA is Glass (1976), whom has also been denoted as the pioneer of MA across all literature. The meta-analysis stresses the statistical methods used to analyze the results of integrated studies on it (Sánchez-Meca & Botella, 2010; Sánchez-Meca, 2010). Nevertheless, for some authors like Morales (1993) its methodology is fundamentally quantitative, but 'not exclusively' quantitative. Likewise, Morales highlighted the relevance of the concrete and clear rules meant for the research. Moreover, there has been a strong emphasis over the quality of the studies as a required quality to be comparable among them (Sánchez-Meca, 2010). For Sánchez Meca & Botella (2010), the MA study quantifies the size-effect and applies statistical analysis techniques to obtain the essence contained by those. In this sense, the size-effect is a statistical index which is contained by each empirical statistical study and is unaffected by the sample size (Sánchez-Meca, 2010).

At first glimpse, both methodologies could address the inclusive innovation framework. Even so, all through the reviewed literature on 'inclusive innovation' there are diverse type of papers and documents; yet the scarcity of empirical studies is deemed as an unwavering impediment to relate the MA as methodology with an entire scientific sense. Most of

³ As previously stated the methodologies are generally applied at medical and psychological problems. Nonetheless, the application of both methodologies has extended to other science fields. The authors emphasized that the accumulation of information can block the implementation of Evidence Based Psychology (EBP) approach, therefore SR and MA are the best alternatives to keep off this situation to occur.

the papers containing examples of inclusive innovation studies, still among them there are no specific samples; thus there is an impossibility to calculate means or the size-effect of the studies in the majority of cases. Hence, for this particular case of study the selected methodology will be the systematic review (SR).

Therefore, for Meseguer Guaita (2012) revision is “the general term for any attempt to summarize the results and conclusions of two or more publications related to a given topic; in addition if it endeavors in the comprehensive identification all over literature, assessing their quality and synthetizing the result is a Systematic Review”. For her, the difference among the SR and the MA is just the latter methodology adds a specific strategy to sum up all the results at a statistical global estimation. Notwithstanding, from all the reviewed definitions of systematic review (SR), the following is the one that will be applied and support the present study:

It is a type of scientific research by which scientific literature on a topic is reviewed based on a formulated question in a clear and objective manner, using systematic and explicit methods to identify, select and critically appraise relevant research to that question and through the application of a systematic protocol for collecting data and information from such researches, with the aim of achieving valid and objective conclusions related to the stated topic (Sánchez-Meca, 2010, p. 54).

This methodology converge their stages in general terms with empirical methodologies, i.e. also with the MA. The majority of these detailed steps throughout the reviewed literature are associated at the MA methodology; however the authors coincided by explaining the SR has the same stages excepting the statistical phase (Sánchez-Meca, 2010; Giménez, 2012; Sánchez-Meca & Botella 2010). Thereupon, the stages will be managed indistinctively for the SR hereon excluding the statistical part; those stages are:

- formulation of the problem,
- selection of the studies,
- codification of the studies,
- analysis and interpretation;

- finally, the publication of the study⁴.

While addressing the protocol of the investigation at the first stage, the problem will be defined based on the main objective of the study; nonetheless, since the methodology underlined that the formulated question has to be very clear and specific –so any investigator could obtain a similar result based on the analogous conditions and approach foundations of the study– the parts of the main quest of investigation based on the SR (which has been selected as the methodology for the study) will be clearly detailed and break up correspondingly henceforth.

2.2.1. Formulation of the problem

The main problem is formulated as following: what are the main relevant features to take in consideration at the inclusive innovation field that could lead the field to a suggested guideline thru a systematic review of relevant literature for a research agenda? Those '*relevant features*' will be categorized according to the following four extents:

- in the first place, the identification of core elements at the definition, then the analysis of the convergence/divergence at elements' management of the definition,
- then, the classification of the type of evidence –if existed– from the studies or examples provided of the field,
- followed by the geographical coverage along the studies;
- finally, which are the main working/ conclusive strands of literature for inclusive?

The main question reveals the identification of the objective of the study. By developing the relevant features throughout the diverse stated four areas the framework for inclusive innovation the objective of the study will be accomplished.

2.2.2. Selection of the studies

In this phase is accurate to point out three aspects of the literature review that will be the filters or named as '*main selection criteria*' for the subsequent selected studies.

⁴ The steps of the methodology are in general terms consensual, however the exact words can vary from one author to other, and there are sub-steps which could be added or not depending the author. The sum-up of the stages was done taking in count the general objective of each stage and considering the statistical part as not feasible for the present study for what was stated above.

The first main selection criteria is the *source for the research*, it will be focused mainly on three main research bases: Scopus (SC), Scholar from Google (SG), and Scientific Resources Web (SRW)⁵; additionally the papers and documents for the study were transversely crossed among the stated sources. The considerations for this part are: at one hand the deepness; and at the other the academic/scientific scope; both reinforce the basis for their selection. Furthermore, for the first consideration, the number of citations on the web was not fully incorporated as a filter among all the sources, because the field is still emerging and the study seeks the comprehensiveness of the most relevant published literature on the field. However, at the most extended source will become an aspect to be considered. Reinforcing the board of the study, the second consideration implies that only documents matching the inclusivity sense amidst the management, economic, social and/or financial specified fields will be included.

Formerly, the second criteria titled as: *label* targets specific literature entitled with inclusive innovation⁶, those documents are the ones that will be considered for the study; yet there could be literature which implicitly mentions or refers to inclusive innovation in a minor or general manner; though if both words are present in the title of the document, there is an assumption about a major suitability of the document to the main field of the study.

Subsequently, the third aspect for the selection of the studies the documents is defined as *publication*. For this criterion those documents to be considered will be the ones that have been published: either at magazines of economic, social, financial or management sciences; or

⁵ The main referred sources for the research are: <https://www.scopus.com/>, <https://scholar.google.es/>; and <https://apps.webofknowledge.com/>. The second source is a vastly universe of information, therefore –and highlighting the first consideration that will be stated for this part in the following lines at the main document– the more referenced or more relevant documents are generally at the first pages of the web, as a consequence those appearing in the first eight pages of search will be the ones will be considered at the research for the consecutive filters (just documents not references or citations), the total number of pages of search reached to eighteen. The last source is hosted by the *Ministerio de Economía y Competitividad* from Spain at <https://www.recursoscientificos.fecyt.es/> in Web of Science; in order to access I had to request a registration at the system as a PhD student. Additionally to the main three sources, some of the articles and documents were complemented with some authorized documents for scholars at Research Gate on <https://www.researchgate.net/>. Thus, all those authorized from the additional source and the previously three main sources mentioned above will be included as well. Duplicated studies in the content despite the different title assignments are not going to be considered.

⁶ A label at this context implies the presence of 'inclusive innovation' at the title of the document. The specific approach on inclusive innovation will consider that if title refers to the studied field, then it will extendedly tackle inclusive innovation, though this consideration will be confirmed.

presented at conferences, even specific chapters of books could be included⁷. Although authors like Morales (1993), Meseguer Guaita (2012) and Sánchez-Meca (2010) suggested to include documents that had not been published across studies to avoid the publication bias, which sometimes the bias is present for those studies where the findings may be in contrast to what generally is found at the transversely results of the studies at medical or psychological sciences. Nonetheless, in this specific case of study the imperative requirement is to have a quite comprehensive approach of literature, but since the publication at a scientific magazine or the participation at a conference or seminar implies a strong filter that the author has passed through, meanwhile a previous revision of the work must be done. Correspondingly, this field can be considered as a nascent field, the filter *publication* is required in order to guarantee in some extent the quality of the documents that will be reviewed hereon. The previous condition undoubtedly provides a quality standard amid the documents; for that reason, the unpublished studies despite fulfilling the previous criteria won't be included for this SR.

To synthesize, the three main selection criteria were established, they were baptized as: source of research, label and publication. Each scope within the three criteria was meticulously justified establishing the three criteria for the selection of the studies that will guide the next stage of the systematic review process.

2.2.3. Codification of the studies

In the previous section, the three selection criteria were described to outline the next stage within the systematic review. The wide diverse documents coming from the stated sources were analyzed according to the three selective criteria, wherein the ones that fulfilled all the conditions have remained for the analysis. In the next table accounted the number of documents at the different stages of selection was portrayed.

⁷ All the previous criteria selection statements are valid. The number of papers published at the most relevant magazines of the field is still incipient compared to other fields, thus that was the main reasons to join all the papers and to not disaggregate the study in two: the one published at these magazines and the others published at other magazines (still relevant nor not the top most relevant). The documents cannot just be presentations on Power Point or similar formats. Nonetheless, the publications included thus detailed and analyzed in the basic articles will not be repeated. Even so, the chosen documents will be the ones which have complied with all the previous stated requirements and filters.

Table 2: Structure of the selective criteria

<i>Identification (1st criteria)</i>		<i>Eligibility (2nd and 3rd criteria)</i>		
N° of documents through database searching*		N° of documents with the 2nd eligibility criteria	N° of documents with the 3rd eligibility criteria	N° of documents for the SR**
SC	262	18	16	
SG	1940	210***	31	41
SRW	31	12	11	

* This was a general search with the words inclusive and innovation at any part of any document, even separated then not as the concept of inclusive innovation itself

** Those on the additional source were added directly to the total (4)

*** Sometimes it displayed the "inclusive innovation" as separated words inside the title implying another concept

Own elaboration based on Moher, Liberati, Tetzlaff, & Altman (2009)

The number of studies or documents which compiled all the three established criteria for the selection amounts to forty one documents between conference papers, book chapters, and/or articles (see Appendix 1). Each document was correlatively numerated, so each number will refer to the document at the following parts of analysis, especially on the tables and figures.

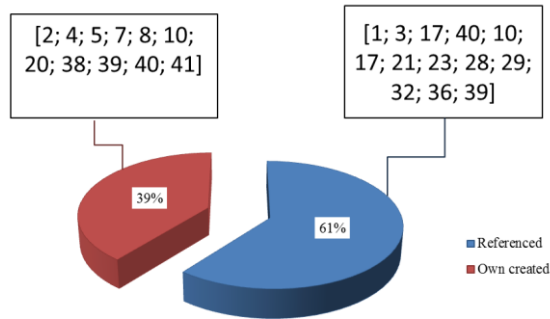
2.2.4. Analysis and interpretation

The first part of the analysis and interpretation will engage the core elements definitions and will test out if there is a convergence amid the definitions. The second part is going to address the classification and typology of the studies. Then, the third will check out the geographical coverage along the documents. Finally, the main conclusive strands will be developed.

2.2.4.1. Core elements of the definition

To start, among the 41 documents around twenty eight definitions of inclusive innovation were identified. These spotted definitions all over the literature were the ones concerning the analysis of what is inclusive innovation, and what are the key words or nuances involved for its conceptualization for each author.

Therefore, in this scrutiny, the 39% has created or provided a new definition for inclusive innovation, contrasted to the 61% which referred to another author to define it.



Source: Own elaboration

Figure 2: Definitions based on the source of creation

Along some documents –like Foster & Heeks (2013b), Sengupta (2016); Foster & Heeks (2014); Kimmitt & Munoz (2015), Foster & Heeks (2016); Amaro-Rosales & De Gortari-Rabiela (2016), also Ngoc (2017) – two or three definitions of inclusive innovation per document were identified.

Amid the 61% of referred authors there have been found trends of most cited or preferred referrals. In this sense, there are two definitions that stick out the rest, those definitions appeared in the paper of: George, McGahan & Prablu (2012), and Foster & Heeks (2013b), respectively.

Nearly 15% of the authors' referred definitions have entitled the definition from George, McGahan & Prablu (2012). These 15% is comprised of Aziz (2016), Tello-Rozas (2016), Kimmitt & Munoz (2015), and Amaro-Rosales & De Gortari-Rabiela (2016). On the other side, about the 14% of the authors' referred definitions have named Foster & Heeks (2013b). The authors selecting for this definition were: Heeks, Foster & Nugroho (2014), Foster & Heeks (2013a), and Sengupta (2016).

Table 3 Distribution of referred authors

Codified documents and their referenced authors to define inclusive innovation
1; 3; 17 (2); 40 (2)* George G., Mc Gahan, and Prablu (1)
10 (2) IDRC (2011) Innovation for Inclusive Development. Ottawa: IDRC.
10 (3) Codagnone, 2009
17 George G., Mc Gahan, and Prablu (2)**
21 Heeks et al 2013
23 Cozzens & Sutz 2012
28 (1) Altenburg 2009; Cozzens and Kaplinsky 2009; Foster and Heeks 2013a
28 (2) Heeks et al. 2013
Lorentzen 2011; Scerri and Lastres 2013; Scerri, Couto, and Maharajh
29 2014
32 (1) Piketty 2014 ; Stiglitz 2012 ; Wilkinson et al. 2011
32 (2) Cozzens and Sutz 2012
32 (3) Gault and Zhang 2010 ; STEPS Centre 2010
34 Heeks, Amalia, Kintu, & Shah, 2013; Sonne 2012
36 (1) CITED: Mohen and Stare, 2013:4
36 (2) Global Knowledge pool for Global Good
36 (3) Foster and Heeks, 2013:335
39 Mashelkar, 2011

* (2) at the column of encrypted documents implies the second definition of the document

** (2) in the column of the referred authors implies another concept or approach of the concept proposed by the same author (s)

Source: Own elaboration based on the coded documents

In the previous table the detailed of the authors was elaborated. Nonetheless, there is not a third definition that sticks out from the others, nor a fourth; thus, the rest of preferred definitions were distributed among diverse authors.

Above and beyond, all the definitions were also disaggregated in key words and key areas; those are embodied in the next table.

Table 4: Core areas within the definitions crossed with coded documents

Codified document (s)	Feature of what	Created or generated from	Process	What	For (verb)	In	To (Who)	Specific place/context	Comparison to some factor	Specific activity of the Who	Specific group within the Who
1; 3; 17 (2); 40 (2)*			development and implementation	new ideas	enhancing	social, economic and wellbeing	disfranchised				
2					widening		very small groups of innovating firms	emerging and developing countries			
4				critical factor	successful and sustainable based solutions						
5				innovation				relevant for needs and contexts	rather than simply cheap version		
7			create new services	potential	empower enable		poor			participation	
8				innovation	target	needs	specifically of low income populations				
10 (1)				means	developed	new goods and services	lowest incomes				women, youth, disabled at the minorities
10 (2); 21				inclusion		within some aspect of innovation	marginalized groups				
10 (3)							mostly the lowest incomes				
17 (1)	to failed top-down policy interventions		envisioned economic development	entrepreneurial response		in resource limited settings					
20			distinction between process and product innovation	holistic conception of innovation cycle	promote	less excluding patterns of growth	roles played by the poor				
23	appropriate to development needs of the innovation	involvement of poor community members in desing and develop	development, production and delivery	2 aspects: 1) process and output 2) innovation		goods and services	poor				

Codified document (s)	Feature of what	Created or generated from	Process	What	For (verb)	In	To (Who)	Specific place/context	Comparison to some factor	Specific activity of the Who	Specific group within the Who
28 (1)				innovation	provides	benefits	low income	developing countries			
28 (2)				positive impact			livelihoods of poor and member of low income communities				
29				applies knowledge		advance	economic development and social purposes				
32 (1)				interest on inequality not only as an ethical goal			economic and social cohesion	of nations			
32 (2)	connection to large oppennes of informal work	locally or indigenously		created innovations		build					
32 (3)	move beyond R+D and technology produced focused			more AT and equitable innovation policy	push		developing countries				
34				set of activities	foster	development	marginalized communities				
36 (1)		In the developing countries		developed	suffering	satisfaction of basic needs and benefitting from technology ad					
36 (2)			knowledge creation, acquisition, absorption, distribution efforts	targeted to	to meet the needs		low income or BoP				
36 (3)				conceives development		in terms of active inclusion	excluded from mainstream development				
38	by improving their productivity				creates	accessible products	by all classes				
39 (1)		activists and communities		ways to	develop	solutions	poor and disadvantaged				
39 (2)				more products and services from less resources			for more people				
40	besides to improve productivity			mechanism	contributes to improve	life conditions in economical and social level even environmental and empowerment	for communities				
41				new ways	improving	lives	most needy				

Source: Own elaboration based on the coded documents

Henceforth, the set of definitions of inclusive innovation –listed from referenced and own elaborated sources– will be managed grounded in the previous table, all directly linked to the authors’ coded document. There are different identified areas, implicit fields of analysis and concerns for that can be trickle down from it.

In this section, consequently to the objective of the study, the core elements grounded on key elements from the inclusive innovation definition are the ones that will be addressed.

The first core element is the *targeted group* of inclusive innovation. Those authors who specified it don’t fully converge on the approach of the inclusive innovation; in some cases the groups to be benefited from inclusive innovation tend to be directly related with poor –either accompanied by complements such as populations, or by another terms as excluded and disadvantaged– or low income, also needy. Another set of individuals refers to the disfranchised members of society. Similarly, the Bottom of the Pyramid (BoP) is another group, as the ones related and inequality affected. Those comprehended amid women, youth, disabled, and ethnic minorities have been specified as a separated group as well. Conversely, very small groups of innovating firms brought out a group related specifically with innovation; however the inclusivity factor of the definition has been left out.

Table 5: Involved beneficiaries/ targeted groups according to definitions

Coded document	Identified targeted groups along all definitions
1; 3; 17 (2); 40 (2)*	Disfranchised members of society
	2 Very small groups of innovating firms
7; 20**;	28 (2); 23 Poor
	36 (1) Poor and excluded
8; 10 (1); 28 (2)	Low income populations
	28 (1) Low income groups of developing countries
	10 (2); 21; 34 Marginalised groups
10 (3); 21***;	Women, youth, the disabled, and ethnic minorities
	28 (1) Inequality affected
	36 (2) BoP
	36 (3) Excluded
	38 All classes
	39 (1) Poor and disadvantaged
	39 (2) More people
4; 5; 29; 32 (2)	Not specified
	40 Communities
	41 Needy

* (2) at the column of encrypted documents implies the second definition of the document

**The author emphasized is not just that group

*** Reinforcing the identity issue in the concept

Source: Own elaboration based on the coded documents

The second nuance relevant to explore is the author's perceived field for the *inclusivity or its purpose area*, and how it was portrayed among the definitions in the studied literature⁸. The economic and social scope is predominant among the others. Notwithstanding, for one author there was a specification: for developing countries. An additional purpose of the inclusivity has been specified, it was the development and the benefits from the mainstream growth. Complementary, the gender, ethnicity, or disabilities reflect other sections for the inclusivity to take place. All the possible levels of inclusion are disaggregated in the next table.

⁸ The definition of inclusive innovation must have been provided in the document so the sense of inclusivity can be related in some point with the purpose of the identification of inclusive innovation features' in its definition.

Table 6: Field/level or purpose of inclusion

Coded document	Specific field (or purpose) of inclusion
1; 3; 17; 29; 40	Social and economical
2	Internet access
4	Sustainable sciences based solutions
5	Not cheap versions
8; 23	Economic
28 (1)	Economic from a develop country
28 (2); 34	Pursuing their development
10 (3); 21	Gender
10 (3); 21	Ethnicity
10 (3); 21	Disabilities
32 (3)	Economic and social cohesion of nations (purpose)
36 (2)	Needs (purpose)
36 (3)	Conceives inclusion in terms of those excluded from the mainstream of development
38	Accessibility
39	Benefits of mainstream growth

Source: Own elaboration based on the coded documents

Consequently, the third key element connoted in the definitions is the *process*: whether there is a process for the inclusive innovation and what type of process it involves or what aspect should be included. In some cases all of these aspects were specified, for other authors there weren't, or for others, just some qualities of the process were highlighted. At one of the definitions, there is a characteristic specifying fewer resources, which may trigger a frugal use of resources connotation in inclusive innovation. The involvement level of the actors throughout the process reflects another relevant complement to the process. On the other hand, a sequel specifying activities such as: knowledge creation, acquisition, absorption and distribution efforts are a fundamental; whereas for other author, the split up in a movement that goes beyond conventional R&D is also explicit. The holistic approach implies a whole among stakeholders and processes; however, it doesn't extend or point out specifically in the definition what does the holistic line covers. It is shown below the table where all the previously listed aspects of the process are detailed by author.

Table 7: Process, aspects to consider in the process of inclusive innovation

Coded document	Process or aspect/characteristic within the process
1; 3; 17; 29; 40	Development and implementation of new ideas
17	The involvement of the entrepreneurial side
20	Holistic approach
"Ladder of innovation": 1	inclusion of intention
2	inclusion of consumption
3	inclusion of impact
4	inclusion of process
5	inclusion of structure
6	post-structural inclusion
34	Activities
Inclusivity of the process (involvement of poor	
23	community members in design and development). This as one of the aspects of Inclusive Innovation.
36	Knowledge creation, acquisition, absorption and distribution efforts
39	From less resources
32	That moves beyond narrow R&D and technology product focused definitions
4; 5; 8; 10; 28 (1); 28 (2); 32 (1)	Not identified

Source: Own elaboration based on the coded documents

Ever since the core elements itemized above: *targeted group*, *inclusivity or its purpose area*, and *process* are the most important elements of the definition, the fulfillment of its parts' disaggregation has been achieved.

2.2.4.2. Evidence and typology from the studies

Subsequently, the classification and typology of the studies will be set forth. A classification was elaborated built on the level of accuracy from each document towards inclusive innovation and the aim of the study. Therefore, this taxonomy aims to classify the documents on the first stage in order to cluster them according to behave the inclusive innovation area taking in count the field itself (not just the utter sense to inclusion of something), and to attain the majority of assertive fulfillments to the study's main objective.

As a result, four categories of division (I, II, III, and IV) were established for this section to delimitate the coded documents as presented in the next Table 1.7. Those coded document whose target was merely inclusive innovation –without extensively inquiring at other fields or concepts as poverty, inequality or similar concepts amidst the innovation field, too– and explored the central concept while they may also expose some examples on the field, those were included on the category I. The amount of involvement on inclusive innovation reflected also at the conclusions'

segment of the documents entails the placement of the documents in the categories II and III. Contrariwise, the documents in the category IV reflect the lack of conclusions in the document related to inclusive innovation, in addition of not complying with one or more of the classification' requirements.

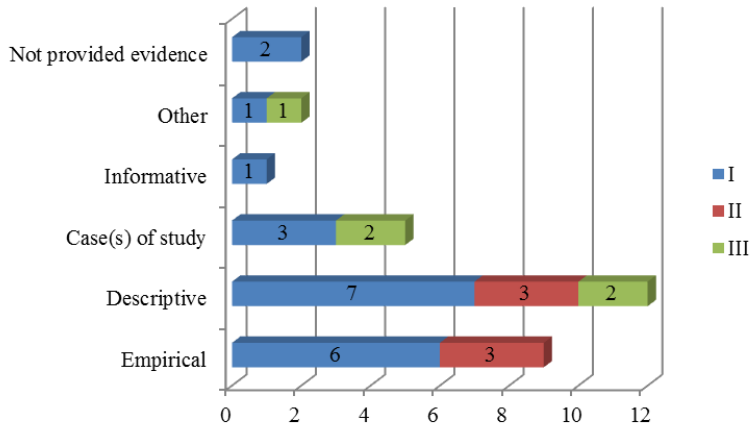
As a consequence, the category IV will be detached of the analysis for the next section; some remarks of these coded documents appear in the Appendix 2 instead.

Table 8. Evidence/text provided connected to inclusive innovation

Evidence provided related directly to inclusive innovation (I)	Evidence provided related in some extent to inclusive innovation (II)	Evidence provided not related to inclusive innovation but aiming it or trying to tackle it with other concepts 'approach (III)	Evidence provided not related to inclusive innovation per se (just the sense of inclusiveness somehow) (IV)
[1; 2; 3; 4; 5; 6; 10; 17; 18; 20; 21; 22; 23; 28; 29; 32; 34; 35; 36; 39; 40; 41]	[7; 8; 9; 36; 41]	[12; 15; 16; 25; 26]	[6; 11; 13; 14; 20; 27; 29; 33; 34; 40]

Source: Own elaboration based on coded documents

Consequently, an additional categorization of the studies to also typify them according to their main structure was elaborated. In the next chart the predominant structure among documents of inclusive innovation studies is descriptive; this is followed by an empirical type of documents, and then, in a minor proportion the group of case of studies.



Source: Own elaboration based on coded documents

Chart 1. Type of document associated to the evidence/text type

Nonetheless, is accurate to mention that there are documents whose type, despite an appertaining to a specific set, did not imply that the document belongs entirely to that category. Thereby, the predominant type in the structure of the coded document is the one that was considered.

Additionally, there are documents wherein the provided examples despite being named by the authors as inclusive innovation's examples are still hard to confirm whether they fully belong to this field or not. Likewise, there are authors whom managed inclusive innovation and other terms as equivalents; some others as complements.

Similarly, all the terms stated along the coded documents in which they have been compared, equated, or even mentioned to other related concepts are detailed in the next Table 1.8.

Table 9 Concepts compared/mentioned/complemented with inclusive innovation

Coded document	Other related concepts for the author(s)
1; 7; 8; 18 (I); 35	BoP
	18 Further innovation type to reduce costs
	3 Social innovations and its empowerment
	3 Inclusive social innovation
9; 36; 38	Frugal innovation
	36 Pro poor
	9 Inclusive growth
	9 Social inclusion
16	Socially integrative innovation policy proposition (his paper targets this)
	3 Inclusive social innovation
	Frugal innovation
	9 Inclusive growth
	17 Capabilities approach to inclusive innovation (social justice)
9; 18 (II); 22; 33	Grassroots innovation
	33 Rural innovation
	19 Social responsibility in strategy and operations in organizations
	3 approaches to inclusive innovation: " <i>Pro-poor</i> early stage
	18 technology development, <i>grassroots</i> entrepreneurs, and to absorb existing knowlegde"
	33 Indigenous innovation

(I) and (II) are the approaches of the coded document

* This paper targeted the socially integrative innovation policy

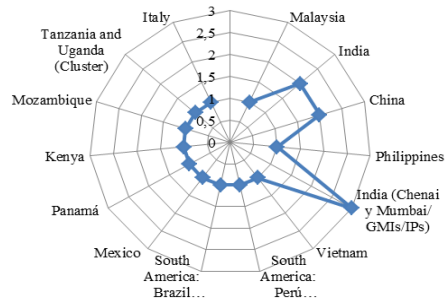
Source: Own elaboration based on the coded documents

2.2.4.3. Geographical distribution

In relation to the geographical coverage, there is a continent wherein the inclusive innovation has been more encompassed: Asia, which comprised studies and/or examples over countries such as India, China, or some specific ASEAN countries as Vietnam, Malaysia, and Philippines (these were merely stated examples). The Asiatic continent is seconded by Africa covering countries like Kenya, Mozambique and Uganda. The third place is occupied by Latin American countries as Peru, Brazil, Mexico and Panama. Only Italy has been studied as reference in Europe for this field.

India clearly has taken the lead at the inclusive innovation studies with concrete (Chenai, Mumbai and Grassroots innovation movements

(GIMs)/Innovation Platforms also named as IPs) and general examples. This country is followed by China, though in a considerably slight expanse. The appearance of the rest of the listed countries is equally scattered.



Source: Own elaboration based on the coded documents

Chart 2. Geographical coverage of inclusive innovation coded studies

2.2.4.4. Main working/conclusive strands

There are several scopes among the working lines and conclusive sections of the coded documents. Notwithstanding, the section of conclusions is where the conclusive strands mostly will be obtained. Clearly, the amount of possible conclusions themselves could exceed the length of this study. Consequently, the most relevant parts towards the main objectives of the study were the ones that guided the classification of the most associated conclusions.

Consequently, what are the main working lines and conclusive trends at the inclusive innovation field? The *policy making* occupies an important role: there is little work of policies that support inclusive innovation (23). In the development of their work three stages took place “for an analytical approach, at the second one the components of inclusive innovation were portrayed as sector specific, sector significant and sector foundational”. The policy makers should also “be aware of difficulties and resistance of this specific type of models” in inclusive innovation (22).

Following the policy area, the authors highlighted the importance of policies for faster targeting the inclusivity factor (32). In the same line, “the complexity of alignment and implementation” was exposed as well

(23). For (8) *government policies* shall encourage top-down policies for society and private sector towards the achievement of inclusive innovation; whereas for (29) governments should “move towards R&D activities and social policy goals”.

One of the main aspects is the indistinctively *concept management* among documents. Among the approaches to promote inclusive innovation the “pro poor early-stage technology development (ESTD), and the grassroots entrepreneurs” as diffusors emerge as two possible approaches (18). For (32), the grassroots innovations are useful to “potentially undertake small-scale innovations and adaptations based on their knowledge of marginal groups”, thus they are very useful for inclusive innovations which look to “marginalized groups”. So, this type of innovation can become a nurturing source for inclusive innovations. Conversely, for (33) rural development is the one that should drive inclusive innovation; while National Innovation Systems (NIS) for (33) may represent “the path for rural ideas to markets offering a policy perspective to increase collaboration”. Complementing this notion, (28) refers to BoP, as emphasizing how literature prizes a top-down innovation when there is a need to encompass the particular nature for low income consumers. Reinforcing a top down criticism (36) highlighted that marginalized and civil society should be able to “speak for themselves”.

The *holistic approach* stated by (20) certainly may comprehend as a key factor the relation of the *stakeholders* (1), and *actors* (36) for the inclusive innovation. The latter element involved an operationalization with IPs and highlighted their dependence (24). Thus, a great coordination among actors represents the basic to provide “food, health, education and dignity” according to (36).

In addition, the *difference from mainstream innovation* was pointed out by (16) and (23), the impact for *community* as a whole (3), even the requirement of the community’s involvement for its success (40).

Related to the how inclusive innovation is seen, its *vision* of was analyzed as a “new type of innovation to face inequality” (18), or as the “recouple of growth and development” (20) leads by some means to the quest of its nature, when according to (24) “many inclusive innovations are not necessarily new, but they are new in context”.

Complementarily, the *models and levels of inclusive innovation* framing their possible outreach were spotted by (21), the authors have included the grassroots innovation, the frugal innovation, cluster innovation, and innovation platforms as *models*; while proposing a ladder of 6 levels for inclusive innovation. Similarly, (24) concerned the IPs as a “promising

model for inclusive innovation” becoming a way to operationalize it; whereas (22) excelled the lessons from the “encounters between GIMs and STI institutions for the inclusive innovation models”. Whereas, for (21) cluster innovation represented one of the proposed models of inclusive innovation, for (25) clusters are “useful to fill gaps in emerging innovations systems, towards a more inclusive process”. This author underlined his peers’ contributions about inclusive innovation strategies and how important they are, while “those approaches resemble the empirical findings in the cluster program”. Moreover, (22) outlined the frames (ingenuity/ empowerment/ transformation) and modes of engagement (insertion/mobilization), and suggested Grassroots Innovation Movements (GIMs) as a source to propose models and ideas for inclusive innovation. Contrariwise, (39) conceived concepts as frugal innovation, grassroots innovation or BoP innovations are “multiple facets depending the context and specific conditions of various economies and societies”. Even more, the author targeted inclusive development as the aim of inclusive innovation, and referred to creation implying all should be actors.

The *process of inclusive innovation* involves different flanks: (22) remarked a process based approach as an imperative method to advance more compared to the outcome-based. Part of the process could start with the consideration of the drivers, those are tackled by (34) in as: “formal institutions, organizational context, commercial and non-commercial market forces in which they participate; and informal institutions like norms or beliefs”.

About *measurement of inclusive innovation* (35) presented a regional inclusive innovation capacity indicator system, it has contemplated “innovation input, innovation actors and innovation output”. The author stressed the factors that could lead to the “long-term lock of inclusive innovation capacity gap among regions”.

An element identified by (29) that can be the *outlier factor* was the “*informal sector* and how innovation works there since it represents the main source of income for a large proportion of the population”.

2.3. Main findings and discussion

Contextualizing inclusive innovation due the rich and quite diverse types of literature contributions and positions was challenging⁹. To start, the systematic review unveiled a 24% part of literature contained in the search titled with “inclusive innovation” as not pertinent to the field itself, and more oriented to an inclusive study within some factor, just focusing on the inclusiveness at some point. One inquiry could arise from this result: does the “inclusive innovation” definition is a strong concept yet since almost a quarter of the studied documents do not apply the total sense of this field? Even if there is a shift in the research outlines such as including words of “inclusive innovation” in the abstract or the entire document, will the result differ considerably? Inclusiveness by itself has an important bearing across social and developmental studies; nonetheless, what should be pursued by scholars in this area is the immediate and direct consolidation of the term to any future use.

Since the selected methodology for this study was a SR, a qualitative type of study was elaborated due the absence of the substantial quantity and significant statistical studies on the field. As a qualitative category of study, there are phases that can differ slightly from another author who may perform the same study; though, the procedure to attain the main objective and all the encompassing steps were detailed and carefully reviewed. The research resources and the selective process can differ grounded on the principal aims of the author.

Through the coded documents’ typology a vast 51% corresponds to descriptive, and empirical structures account nearly a 29%. The major type is descriptive, in which some theories on development are mentioned jointly to inclusive innovation. Notwithstanding, amid the empirical studies spectrum it may be difficult to confirm whether are exclusively inclusive innovation type of empirical models, despite the assignment of this title by the authors. The different perspectives related to the models, to the similarity of terms and the ease of replacement in term management makes this part hard to confirm.

⁹ In order to sum up the main findings hereafter the methodology there are two considerations to mention: first, the selected studies to tackle were based on a previous consideration made by the author; thus, some other studies could be included based on the considerations and targets the author would seek with the type of study. The second consideration to mention prior of the discussion is that the qualification of each item and its explanation were exposed; however it may differ according to the value the author might give to each aspect to be valued; therefore it could slightly vary as well.

The management of terms invite to a further deeper investigation based on the understanding, limits and fully comprehension of each one's boundaries and scopes of the concepts involved and related with inclusive innovation, and of the latter itself. Undoubtedly, inclusive innovation has ties with development and innovation (Heeks, Foster & Nugroho, 2014), but is not the field and its disciplinary foundations already covered by innovation for inclusive growth, for example? In this matter, does growth need to be linked to inclusiveness and innovation so the spread of the benefits for this growth can outreach its current sprawl? International organizations such as OCED enabled reports of inclusive innovation for growth as the major topic.

The discrepancy among authors was evident, as some concepts may overlap with others. As previously analyzed, terms as grassroots innovation, frugal innovation, rural innovation, or cluster innovation are sometimes allied to inclusive innovation in different ways: as tools, as models, as complements, as equals depending the context (Sutz & Tomasini, 2013; Ngoc, 2017; Heeks et al., 2014; Mathew, 2010). A wide-ranging exploration of the relation among all these concepts with inclusive innovation may well enrich enormously the theoretical framework. Effectively, a complete establishment of actors, roles, and required levels of involvements into the innovation process amidst the members is also crucial to avoid the fuzziness on inclusive innovation's concept. Even the definition of innovation in this field may trigger some other aspects to take in count in order to properly classify when an inclusive innovation can be considered and not just named as such.

Above and beyond this, the most significant nuances of the definition declare drifts over how inclusive innovation is conceptualized by authors. These distinctions can be classified in five groups according to their strands: innovation, inclusion, entrepreneurial/processes, less tangible factors, verb related activity and others. Around 21.4% defined inclusive innovation focusing on innovation; the character of the mainstream innovation remained strong as the guide for conceptualizing inclusive innovation. The complementary view of the preceding concept is the one beginning with inclusion or inequality overtone, both accounted 12.5%. Similarly, the relation with the entrepreneurial side and processes implied a 16%. The view of inclusive innovation as a less tangible aspect such as a factor, a potential or an impact implied a 14.3%. The verb related activity 10.7%; while roughly 25% was distributed amid others.

To reinforce the final results regarding the source of the definitions is accurate to state that around the 39% has own elaborated a definition for inclusive innovation, contrasted to the 61% of the referred authors. Within the referred authors two definitions are the most cited definitions

along the studied coded literature, those definitions were from George, McGahan & Prablu (2012), and Foster & Heeks (2013b). Similarly, the prevailing sense of inclusivity or purposed area in the literature mostly focused on the economic and social aspect; yet to spread the benefits from mainstream growth has been named as well. If this is the case, is not the growth-inclusiveness-innovation contemplated already at the innovation for inclusive growth? Once again this concept seemed embodied by the other.

In the same line of analysis within the definition, the sense of the process delimitation and possible edges of evaluation exposed the mindset of authors in this topic. Still, more examples and the convergence among procedures of evaluation are imminently required, since the stages of a process can become the basis for a possible unified measurement. Hence, an index aiming to calculate the regional inclusive innovation capacity was built up founded on: innovation input, the innovation output and the innovation actors (Yu, Gu, Zhao & Hu, 2016) – the lack of more studies and its measurement indirectly demonstrating the scarcity work in this field.

The continent leading the inclusive innovation was unarguably Asia, with India as the spearhead; so far China was at second place. Coincidentally, both countries occupied the first and third place (China and India respectively) at the published a list of the forecasted-top 32 economies which may become the most powerful by 2030 (World Economic Forum, 2017b). The fact these countries endeavors' are taking the lead on the inclusive innovation field may have some sort of correlation for this event to occur? Other six countries which had appeared at the geographical coverage studies on inclusive innovation also made this list –Brazil, Mexico, Italy, Malaysia, Philippines and Vietnam– as a result, almost a quarter of this list have had an inclusive innovation geographical study coverage. The inquiry over a possible relation is broad: the steadily distributed benefits from growth of a country will certainly have this type of impact at a long term analysis besides the impact of the mainstream growth? Indexes as the Social Progress Index can reflect through to their dimensions some aspects of this inclusivity; nevertheless, the inclusive innovation per se as a factor is not included.

Accordingly, the wide-diverse flanks of the conclusive strands enable a complete outlook of the highlighted areas from the authors: policy making as a core aspect of innovation, besides the concept management unveiled a clarification of the concepts, each author's definition inclusive innovation still evenly undefined. Along the literature the perspectives of inclusive innovation differed on the context and the goal of each study.

Furthermore, the gap of years from when the first time the World Bank used the term inclusive innovation (Chataway et al., 2016) contrasted to one of the two most cited references founded all through coded analyzed literature is 5 years. Consequently, this may have involved a striving process of definition's construction that even currently seems to continue. Does the inclusive innovation completely rely to the informal sector or to the baptized as developing countries? The complexity of its full contextualization might overtake the contemporary outreach of this field.

2.4. Conclusions

A strong uneasiness over the inclusivity and how it may intertwine with innovation spurred the research over the inclusive innovation field. Albeit there have been strides along literature in relation to the concept, its wide-diverse approach, the possible stages of a process, the level of actors' involvement and some guidelines for future research due identified gaps, yet there are some missed pinpoints at this emerging field. This study aimed to fill a void steering the inclusive innovation's theoretical area, focusing on the definition and how it has been tackled across literature. Thereupon, the significant features of the definition were clustered in four parts: core elements, classification of the evidence, geographical coverage and the major conclusive strands. Amid the core elements the economic and social are the prevailing aspects where inclusive innovation's action is heavily interlinked; whereas, there were studies about the disfranchised members of society and the suggested environmental aspect may becoming an active beneficiary; thereby while encompassing diverse purposed areas and potential beneficiaries broadly triggers a new scope for inclusive innovation to rearrange its primary scopes.

Notwithstanding, the sought pace to achieve this process also demands the fore-front for indexes' elaboration to attain a tangible measure the advances on inclusive innovation; more sheer empirical studies which may create a common staged analysis, so their achievements can be measured and compared. Hitherto the upshots of the concept management and related definitions to inclusive innovation differed according to contexts and perspectives; however, since they tend to overlap is necessary to drawn-up a schema taking in count their similarities, differences and commonalities. Undoubtedly, the lagging at the consolidation of inclusive innovation definition and framework hinders to expand and truly explore its potential.

Accordingly, at the geographical coverage studies of inclusive innovation Asia is ahead in the inclusive innovation studies; especially India, which has enhanced different institutions to encourage the participation of different stakeholders. Although, there are other countries which have address the inclusive innovation in a minor quantity. Yet in some documents was difficult to confirm whether the provided examples referred exclusively to this field or not. Consequently, the main strands throughout literature focused on the lack of consistent policies and the relevance of policy making in this area. The key role governments have to ensure inclusive innovation and the holistic approach were also consistently highlighted. Additionally, the proposed models and the IPs portrayed different options to operationalize inclusive innovation. On the other hand, the visions over the process for inclusive innovation still scattered.

Finally, the broad threshold for the inclusive innovation nuances' was commensurate with the main objective of this study; nonetheless, the increment of the number of studies arguably differs to the final proportions from the different segments.

2.5. Appendix

Appendix 1

Official letter from the Global Network for Economics of Learning, Innovation, and Competence Building Systems (GLOBELICS) Committee



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27/Jun/2017

Dear Prof. Paola Lorena Carrasco Rocha,

This is to confirm that **Prof. Paola Lorena Carrasco Rocha** is welcome to participate in **The 15th GLOBELICS International Conference 2017**, to be held in 11th - 13th October 2017, Athens, Greece, Athens, Grèce, October 11th-13th 2017.

Please note that registration fees, travel (unless travel support was granted), living and accommodation (unless otherwise stated in the acceptance notification) will not be supported by the conference.

Papers presented at Globelics are peer reviewed and accepted by the Scientific Committee for oral presentation.

According to Globelics publication policy, the papers accepted and presented at Globelics conferences are available only for the attendants of the Conference. In addition, abstracts of accepted contributions have the option to be listed with Scopus as conference proceedings. Prof. Paola Lorena Carrasco Rocha is author/co-author of the following presented contribution(s):

Inclusive innovation: definition framework
Author(s): Carrasco Rocha, Paola Lorena
Presenting Author: Carrasco Rocha, Paola Lorena

We look forward to seeing Prof. Paola Lorena Carrasco Rocha.

With kind regards

Yannis Caloghirou
Professor NTUA & Director of LIEE
Head of Globelics 2017 Local Organizing Committee

Appendix 2

List of coded documents

#	AUTHORS	TITLE
1	Aziz K. A.	Convergence and inclusive innovation in the communications sector
2	Paunov C. & Rollo V.	Has the internet fostered inclusive innovation in the developing world?
3	Tello-Rozas S.	Inclusive innovations through social and solidarity economy initiatives: a process analysis of a Peruvian Case Study
4	Muzyka D.	The power of inclusive innovation: critical success factors for science-based solutions
5	Mitchell, W. & McGahan, A. M.	Chapter 9: inclusive innovation from the book: Innovating for the Global South: towards an Inclusive Innovation Agenda
6	Kuramoto J.	Inclusive innovation against all odds: the case of Peru
7	Yadav V.	Unique identification project for 1.2 billion people in India: can it fill institutional voids and enable inclusive innovation?
8	Rui J.	Institution level, policy option and inclusive innovation in China
9	Peñalba L.M. & Elazegui D.D.	Opportunities and challenges in socially inclusive innovation: the case of genetically modified corn in the Philippines
10	Foster C. & Heeks R.	Conceptualizing inclusive innovation: modifying systems of innovation frameworks to understand diffusion of new technology to

		low-income consumers
11	Aoun Chadi, Vatanasakdakul Savanid	Social Media in the workplace: key drivers for inclusive innovation
12	Sonne L.	Innovative initiatives supporting inclusive innovation in India: social business incubation and micro venture capital
13	Hegger, Spaargaren, Van Vliet, Frijns	Consumer-inclusive innovation strategies for the Dutch water supply sector: opportunities for more sustainable products and services
14	Heiskanen, Hyysalo, Tanja, Repo	Constructing innovative users and user-inclusive innovation communities
15	Altenburg Tilman	Building inclusive innovation systems in developing countries - why it is necessary to rethink the policy agenda
16	Guth M.	Innovation, social inclusion and coherent regional development: a new diamond for a socially inclusive innovation policy in regions
17	Kimmit & Munoz	Re-thinking the ethics of inclusive innovation
18	Utz A. and Dahlman C.	Promoting inclusive innovation
19	Nijhof, Fisscher, Looise	Inclusive innovation: a research project on the inclusion of social responsibility
20	Chataway, Hanlin & Kaplinsky	Inclusive innovation: an architecture for policy development
21	Heeks, Foster &	New Models of inclusive innovation for

	Nugroho	development
22	Fressoli, Arond, Abrol, Smith, Ely & Dias	When grassroots innovation movements encounter mainstream institutions: implications for models of inclusive innovation
23	Foster & Heeks	Analyzing policy for inclusive innovation: the mobile sector and base of the pyramid markets in Kenya
24	Swaans, Boogaard, Bendapudi, Taye, Hendrick & Klerkx	Operationalizing inclusive innovation: lessons from innovation platforms and livestock value chains in India and Mozambique
25	Trojer et al	Inclusive innovation processes – experiences from Uganda and Tanzania
26	Johansson et al	Making a case for gender-inclusive innovation through the concept of creative imitation
27	Ola David & Oyelaran-Oyeyinka	Can FDI foster inclusive innovation and technology development in Africa?
28	Foster & Heeks	Nurturing user-producer interaction: inclusive innovation flows in a low-income mobile phone market
29	Phiri et al	Inclusive innovation and inequality in South Africa: a case for transformative social policy
30	Clifford et al	Engineering, global health, and inclusive innovation: focus on partnership, system strengthening and local impact for SDGs
31	Mendoza et Thelen	Innovations to make markets more inclusive for the poor

32	Foster & Heeks	Drivers of Inclusive Innovation in Developing County Markets: A Policy Perspective
33	Mathew G.E.	Enhancing rural GDP through inclusive innovation.
34	Mapelli F et al	Inclusive innovation and the role of partnerships: The case of Semi di Libertà (Book Chapter)
35	Yu, Gu, Zhao & Hu	Research on Evaluation of Regional Inclusive Innovation Capacity Based on Catastrophe Progression Method
36	Sengupta	How effective is inclusive innovation without participation
37	Krishnan et al	Inclusive Innovation: Broader Market Coverage for Innovative Products with Deliberate Supply Chain Leadership
38	Goyal A.	Growth drivers: ICT and Inclusive Innovations
39	Ngoc C. T.	Universities and inclusive innovation for development: concepts and practices in Vietnam
40	Amaro-Rosales M. and Gortari-Rabiela R.	Innovación inclusiva en el sector agrícola mexicano: los productores de café en Veracruz
41	Bryden, Gezelius Refsgaard & Sutz	Inclusive innovation in the bioeconomy: concepts and directions for research

Appendix 3

Table Group IV features

Refers to the concept of inclusive innovation?	Coded document	Author	Another specification
Does not apply the definition of inclusive innovation in the document nor implicitly	13	Hegger et al	
	14	Heiskanen et al	
	19	Nijhof et al	
	26	Johansson et al	
	27	Ola-David O. & Oyelaran-Oyeyinka O.	
	30	Clifford K. and Zaman M.	
	11	Aoun Chadi and Vatanasakdakul Savanid	
refers to a concept implicitly	9	Peñalba Linda and Elazegui Dulce	Not related totally to the inclusive innovation but more social inclusion through modern biotechnology management
	19	Nijhof et al	Inclusivity is more conceptualized over social responsibilities Not clear if it was just tackling poverty. More than studies are examples they present the characteristics of different stakeholders who tried to enhance the <i>inclusiveness</i> with business strategies that could improve market inclusivity
	31	Mendoza Ronald &Thelen Nina	Ex: mobile and card-based technologies for remittance transfers and payment, Also de retailing and pricing strategies
	37	Krishnan et al	Mangement and supply chain optimization paper: "inclusive innovation i.e. the alignment of the contract leader to be the investor in product development leads to the broadest market coverage as well as largest supply chain profits".

Source: Own elaboration based on the coded documents

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Chapter 3

A case of study with the *Adivasis*

3.1. General framework

In order to achieve the monograph's outline represented by an empiric type through a case of study, three other sections are encompassed in this section of the chapter. Firstly, the contextualization of the targeted population (i.e. the introduction of the Scheduled Tribes hereafter named as ST, which will be the objective of the study). Secondly, the overview of the organization's meaningful actions, main commitments, working areas, their structure, and briefly the structure to work towards the tribal rural women –insofar the majority of their contemporary projects are engaged for these populations. Finally, the third section will present the acknowledgement of the problematic, the main questions of the investigation then the objective, and the overview of the entire monograph.

3.1.1. The population: ST at India

India flaunts the word 'diversity' in dissimilar extents: religions, languages, and surely all over the caste system predominately at this country across its history. The most peculiar of the social institutions of India is the caste system –the word caste comes from the Portuguese word *casta* (breed or race) – which exhibits an extreme social segmentation; even so interwoven with Hinduism as to have certain

religious elements (Singh, 2005). Each member of the Hindu community belongs to one or other over 2'000 caste of groups arranged in a complex system of differentiation (Íbidem, 24). India is a unique and multifaceted country, where a glowing mention of its "4'635" largely endogamous communities were referenced by the Commerce Minister in the central government cabinet at 2007 speaking proudly of the approximately 3'990 caste groups and 645 "tribal" groups (Natrajan, 2011). Notwithstanding, four hierarchically major ranked castes –called *varnas*– classified according to occupation and determine access to wealth, power, and privilege (Galanter, 1963).

There are different explanatory theories of the castes system' establishment: from religious, mystical, biological, socio–historical (Íbidem, 33). The Scheduled Castes (SC or Dalits), and the Scheduled Tribes (ST) have been the two most deprived groups: the ST or 'Adivasis' lived in remote and isolated areas away from mainstream society; while the SCs, the lowest caste under the caste system suffered a denial of basic rights, including economic rights; moreover, SC, ST and 'others' have been the focus of many recent poverty studies in India (Das, 2010).

The present study evaluated the impact of a project for a tribal population at Rajasthan, thus the consequent stress on the term's comprehension. A tribe is a "loosely organized group of people, united by language and customs, living as a community under one or more chiefs; still they are generally classified on the basis of territory, language, occupation, physical characteristics, and cultural contracts"; while at the Indian example, none of the major Indian languages is spoken since each tribe has its own less developed language or dialect (Medhi, Athparia, & Jose, 2012). In 2005, Singh had conceptualized tribe as a forerunner of the caste (Íbidem, 43).

Tribes are scheduled and unscheduled, and had been in continuous identification: in the year 1967 around 314 acknowledged tribal communities were identified, though a large number of tribal communities were not included to the Scheduled Tribes, impeding the outreach of many welfare programs launched by the government (Medhi, Athparia, & Jose, 2012). There has been an evolution of identified STs: in 1981 census the tribal population comprised 427 communities, which implied 51'628'638 habitants representing 7.8% of India's total population; while at 1991 it is 67.8 million constituting 8.1% of total population; nevertheless ethnographic data on a number of tribes are still absent (Ídem). The Scheduled term means such "castes or tribes parts or groups within such castes, races or tribes as are deemed under Article 341 to be scheduled for the purpose of the Constitution of India" (Mishra, 2001).

In 2013, the Scheduled Tribes constituted the 8.2% of the country's population and occupied 15% of its geographical area; however it has remained relatively under serviced over years (Self-Reliant Initiatives through Joint Action, 2013a). "Roughly 84 million of India's people belong to Scheduled Tribes. While tribal populations make up only 8 percent of India's population, they account for over a quarter of the country's poorest people" (World Bank, 2011). The latter statement certainly confirms the astonishing level of exclusion of the ST, so the endeavors of the Non-Governmental Organization (NGO) to cope it have augmented.

3.1.2. The organization: Srijan at India and the Self Help Group form

Self-Reliant Initiatives through Joint Action (Srijan) is a Non-Governmental Organization working at India for fifteen years, in November 2000 the NGO started its first field project in Sagar district located at Madhya Pradesh state (Self-Reliant Initiatives through Joint Action, 2014a). The broad themes are: agriculture, due the essential economic activity carried out in rural India; secondly livestock, becoming mainly a mechanism to offset risk for the poor while supporting economic activities; the water resource management, as a third cornerstone due its preponderance for agriculture and quality of life of rural India; lastly, horticulture holding a considerable potential for being a constant source of income for the farmer (Self-Reliant Initiatives through Joint Action, 2013a). Srijan is presently engaged in implementing programs in: Chhattisgarh, Karnataka, Madhya Pradesh, Orissa and Rajasthan; inside the five chosen states the NGO is working with seventeen districts and with 38'951 families (Self-Reliant Initiatives through Joint Action, 2013a).

Srijan is pursuing the poverty alleviation of 100'000 Indian rural poor families through an enhancement of INR 25'000 in their annual income with by 2020; this mission implies empowering them through a process driven member centric approach; and by building replicable and scalable women led community institutions (Íbidem, 2013). Nonetheless, its vision is enhancing a rural society where there is dignity for all and citizens, whom are empowered to fight for their rights and entitlements (Self-Reliant Initiatives through Joint Action, 2014b).

Srijan basic objectives as a NGO as the most noteworthy are (Self-Reliant Initiatives through Joint Action Official, 2014c):

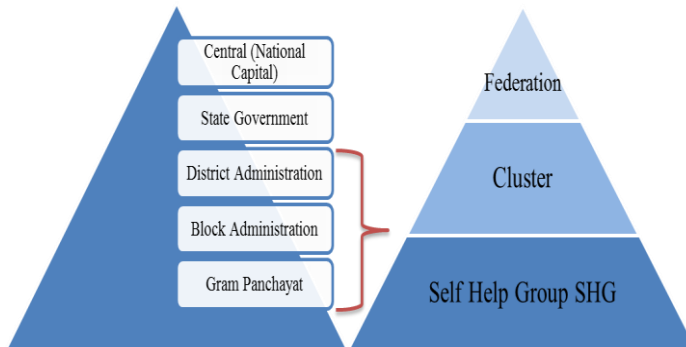
- To conduct research for advocacy for pro-poor policies,

- To provide policy and projects design support to donor agencies and recipient Governments,
- To build capacity of Government and NGOs in rural development programs
- To undertake grassroots action projects aiming at livelihood

Despite Srijan's structure distinctive levels, the organization does not have a strong sense of hierarchy; since it has been created just with the purpose to facilitate smooth role-play and maintain the coordination and accountability around members. Around 318 persons work for the NGO, among them 49 are professionals, 40 State level professionals, 197 village resource persons, and the last 33 are support staff; nevertheless an overwhelming 80% is composed by male members (Self-Reliant Initiatives through Joint Action Official, 2013a).

In all the broad engaged themes, the focus of the NGO remained to work with the socio-economically disadvantaged, particularly women, Dalits and tribal people (Self-Reliant Initiatives through Joint Action, 2014c); thus Srijan has decided to work extensively with women since 2004. They are engaged with women through the Self Help Groups (SHGs) which encourages them to develop savings habit; but more importantly, to help them find social and emotional support from other women in similar conditions (Self-Reliant Initiatives through Joint Action, 2013a).

The current structure applied by Srijan to manage the tribal women located over the project areas could be compared with the Indian Governmental Formation titling the District Administration at the Federation level, the Block Administration on the Cluster level and finally the *Panchayat* thru the SHG. Srijan is not working with the whole tribal population; the organization had been interacting with the women community using the Self Help Group (SHG).



Source: Own elaboration based on the interview of Mr. Tewary (Srijan Head Project)

Figure 3: India’s governmental structure vs. Three-tier sustainable community institution¹⁰

The base of the tier community is composed of ten or fifteen women maximum¹¹ named in honor to its commitment: “own help” starting at hamlet level. The *mahila mandals* or women’s circles however is an effort to improve the situation of rural women throughout India since 1956 who meet regularly to discuss and help each other with everyday problems; and the SHGs are set up through each *mahila manda* (Larsen, 2011).

“The purpose of the SHGs and *mahila mandals* is to raise women’s involvement in household decision making and to improve the collective voice of women in village matters” (Ibidem, 42). The form of cluster results from SHG leaders and Federation from Cluster representatives though Federation at Srijan has 2’673 members¹². The positive weighing and aspects of the SHGs are described by Purushothaman (1998) who highlighted the generic benefit in working through collectiveness instead of individuals; or Mishra (2001) based on the relevance of sharing with each other feelings, ideas, opinions and its effectiveness.

¹⁰ Mr. Satyajeet Tewary was the Head Project at Rajasthan. The interview took place at Nana at 05/04/2014.

¹¹ In case of more women the structure has to be registered legally; therefore maximum 20 women shaped the SHG.

¹² There are 20 clusters (each one composed of 5 or 10 SHG leaders as maximum) and Federation which despite having the leaders of the Clusters holds 2673 members (all three-tier community).

3.1.3. Acknowledged of the problematic and the questions of investigation

When Mr. Prateek Uniyal started the idea and the project of custard apple on 2011 with a survey, Srijan was exploring new sources of livelihood inside the region by agriculture or horticulture. In consequence, the idea of the fruit which is widely available in the region came up. India is well-known producer of fruits (mango, banana, citrus, grape, pineapple and apple are the major ones); India's share of mango for example –around 54%– is the highest in the world (Department of Agriculture Cooperation & Farmers Welfare, 2014)¹³. For the Indian College of Agriculture & Research the custard apple can become the “new mango” for India¹⁴.

The commercial relevance of fruits prompted the interest on the production and commercialization of this particular fruit in order to trigger a favorable economic impact on the tribal area of Pali. Custard apple is widely grown fruit crop in Rajasthan, Andhra Pradesh, Karnataka and Maharashtra states, cultivated or naturally found in tribal fields on an area of 20'000 hectares in Rajasthan and 115'000 hectares on national level; the average production at Rajasthan is approximately 1.3 tonnes¹⁵ (Department of Horticulture-Rajasthan College of Agriculture, 2012).

Srijan had operated with the production and commercialization of the custard apple fruit at Pali on 2013 for the first time. The households of the rural tribal population who have had collected the custard apple from the forests and have worked actively through the entire process have increased their total earnings; nonetheless, the exact impact was still unknown for Srijan. For the NGO, the sustainability of the project is one relevant goal; hence an inquiry of the year's operation was imperative. Nevertheless, the organization is in quest of shifting afterwards the entire administration of the “custard apple enterprise” to the Producer Company¹⁶.

Consequently, the NGO aims to create sources of livelihood to cope in some extent the extreme exclusion of these populations; thus, to measure

¹³ India has the richest collection of mango cultivars. Major mango growing States are Uttar Pradesh, Bihar, Andhra Pradesh, Orissa, West Bengal, Maharashtra, Gujarat, Karnataka, Kerala and Tamil Nadu. The main varieties of mango grown in the country are Alphanso, Dashehari, Langra, Fajli, Chausa, Totapuri, Neelum etc.

¹⁴ Interview with Mrs. Sunandita Banerjee (Srijan Project Executive training at Nana). The interview took place at Nana, made on 19/04/2014.

¹⁵ Wild custard apple is one important source of livelihood for tribals at Rajasthan and Andhra Pradesh.

¹⁶ *Ghoomar* is the name of the Federation, the highest level of community institution. The *Ghoomar* Federation is trying to create the Producer Company, this would be a legal figure registered as a parallel organ from the *Ghoomar* Federation. The main objective is to link the women from the organization bringing the initial operation techniques so later on they can run it by themselves.

an improvement into the inclusiveness of these groups by launching this project was one core aspect since its creation. Therefore, besides identifying possible measures to improve the process of custard apple's final product and the project itself; the tracking of some aspects within an aimed social inclusion will be also addressed.

The basis for measuring social inclusion and some of its significant aspects can be given through the report of the McClure on 2000, in which welfare equally aimed to lessen social and economic exclusion (Hayes, Gray & Edwards, 2008). Notwithstanding, neither a complete social inclusion measurement is the ultimate goal nor those guidelines from the report can be applied strictly to these populations since they do not attain the minimal requirements for it. Nonetheless, the repercussions of the progress at different flanks into inclusion at this field and to set up important indicators from the population whom were involved with the project which can be compared or evaluated towards a social inclusive process henceforth is an additional purpose besides evaluating the project itself; those will be embedded into the social evaluation of the project.

As stated above, the monograph aims to evaluate this project in two major areas: the possible shortfalls and to determine opportunities for improvements for future actions, and also to achieve a complete aftermath of this project at both the economic and social areas in the tribal households while getting involved with their outstanding demographic features in order to enable any future research over the same population.

The contribution to the literature in this field comes to be of an empirical type entails a work in situ, since apart from providing a specific perspective at one of the projects carried out by the NGO in India, it will grant up transcendental data at economic and social areas on a certain ST –whose reliable information tend to be very expensive to obtain–, so any further study on this type of populations can be also achieved. Additionally, the framework for the analysis at the project bolsters the social part towards an evaluation of the progress of social inclusion for this population.

As a consequence the main questions of investigation are presented as following:

- What are the shortfalls and/or possibilities of improvement the project holds?
- How much do the households incomes have increased within their relative total earnings due the custard apple business?

- What was the concrete impact of the custard apple business for these rural tribal households also at the social spectrum for those involved?
- What are the general demographic features of this population?

Since the whole project was concreted due funding, a measured improve in social welfare is entailed for organizations as Srijan to attain and maintain funders into the projects. Therefore, to determine the custard apple's real incidence over this population whom do not embrace a remarkable source of income named as 'Adivasis' (mainly agricultural or daily "unskilled" labor), is the main objective for this monograph.

The following structure of the present study has been divided in other three parts. The first part frames the descriptive situation at a macro stage with involved regions wherein the project took place, an overview of the stakeholders in the process of custard apple business and the socio-economic situation of tribal households at the *Panchayats* accompanied with a study *in situ* and owned elaborated of some demographic aspects. Subsequently, at the second part a break-down of the custard apple's business will take place systematically: the product exploration from the fruit to the final presentation is going to be complemented with the price material and the place exhaustive examination, jointly to the promotion of the product that Srijan had last year on its first operational, sprucing up the complete mix of the custard apple a comparative performance of the product underlying the same spot. This evaluation of the project is nurtured by the production process scrutiny and the optimum yield valuation. Additionally, some profit/loss scenarios mixed with the yield valuation were created.

Successively, the project's impact at economic and social flanks will be addressed. For the economic impact, the enclosed business' income calculation for the women whether at the production or/and the supply channels. A contrast of their monthly income is also part of this evaluation. On the other hand, the social outcome over the households will entail a direct interaction with the tribal women and their husbands through Focus Group Discussion (FGD) to capture not only their motivation towards this project but also some outstanding aspects within social are. Therefore, the sample estimation to concrete the FGD, including the field-work and the scope at the final results thru all its implications will be put forth. The demographic and social outstanding aspects of these groups will be set up. Lastly, on the same stage, a possible support effect of empowerment for these women will be questioned in these households. Finally, the conclusions synthesize the most outstanding aspects of the entire developed outline and the recommendations reinforced the work's main inquest.

Summing up the general framework, Srijan is an experienced NGO working at India all over 17 districts. The mission for Srijan is to alleviate poverty of 100'000 Indian rural poor families through an enhancement of INR 25'000 in their annual income with by 2020. Similarly, the form and relevance of the SHG for the present work was described. On the other side, Rajasthan is one of the states the NGO has been working and where my work took place for this project. As stated, the main demographic features were highlighted and the current projects of the NGO at this geographical space were also set out. Finally, the problematic was defined: the evaluation of the business and the impact evaluation of the custard apple business over the '*Adivasis*' population involved: the economic and social lines were considered for the complete examination.

3.2. Current situation

3.2.1. Involved regions and Stakeholders

The state wherein the development of several months of my work took place was Rajasthan. This state occupies nearly 10% of the country land and has only 1% of the country's water resources for agriculture, dairy, drinking and other purposes; furthermore, the human development indicators are the lowest in Southern Rajasthan where vulnerability to periodic drought cycles has led to significant seasonal out-migration (Self-Reliant Initiatives through Joint Action, 2013d).

Rajasthan currently has a total population of 68'621'012 showing a growth of 21.4% related to the Census of 2001; the male population is 51.9% while the female population reaches the 48.1%, the state forms 5.7 percent of the entire country's population. The literacy rate is 67%, while the male literacy (80.5%) bears up the female literacy rate (52.7%) (Maps of India, N.D.).

The largest population of STs in the country is located at Rajasthan, constituting over 12 percent of the state's population; more than a half of this is concentrated in seven or eight southern districts namely: Dungarpur, Banswara, Pali, Sirohi, Udaipur, Rajsamand, Pratapgrah and Chittorgrah; these southern districts are among the poorest in the state (Self-Reliant Initiatives through Joint Action, 2013d), thus the particular interest of Srijan to run projects at this region. The detail of the projects at Rajasthan can be found at Appendix 1.

Specifically, the area of Pali comprises 12'387 sq. Km.; wherein the population of 2'038'533 is divided 50.3% as male population and 49.7% as female population out of which SC population is approximately 18%,

and ST population is about 6%; holding a density of 165 per sq. Km., the sex ratio of the District is 987/1'000 whereas the literacy rate is 63.2 (Maps of India, N.D.). Pali is located at 25°46'N latitude and 73°20'E longitude and situated in central part of Rajasthan; the district has shared boundaries with neighbouring districts such as Jodhpur, Nagaur, Ajmer, Rajsamand, Udaipur, Sirohi and Jalore (Official Website of Pali District Administration, N.D.).

Bali block belongs to the Pali District, inside the state of Rajasthan. This block holds a large number of SC and ST populations (nearly 43%); one third of the geographical area of the block is hilly and inhabited by diverse tribal communities like Bhils, Grasias, Mennas, etc.; additionally, the literacy rate in the entire block is 50.4%¹⁷.

Geographically, Bali block is divided in two regions: one is plain and the other is hilly terrain dominated by Grasia and Bhil tribes. Srijan is working intensively with tribal population over five GP (*Gram Panchayats*¹⁸):

- Amliya
- Bhimana
- Bhandar
- Koyalwaw
- Nana

The *Panchayats* which are involved with the custard apple business investigation are Bhimana and Koyalwaw; both are going to be scrutinized over exploration separately herein after. Nonetheless, there is also a forest area near Chopa Ki nal¹⁹. Nana is a big point for market and connectivity, the main office is set up there.

Apart from these *Panchayats*, Srijan holds a private Orchard of 1'600 sq. meters with about 110 plants which were given to a tribal woman at Bothara (Amliya *Panchayat*). Similarly, Srijan has brought some improved varieties of custard apple plants from Solapur and Maharashtra, constructing at Nana on 2013 a poly house to properly keep them inside. Part of these plants had been given to the SHGs' members for transplantation and had been handing over to different *Panchayats*: ninety

¹⁷ Mr. Satyajeet Tewary was the Head Project at Rajasthan. The interview took place at Nana at 05/04/2014. His information was contrasted with the Self- Reliant Initiatives through Joint Action. "Proposal to SRTT for Pali", April 2013. Pg. 5-6.

¹⁸ Gram is a term used to refer village. Village *Panchayat* is an institution at the village level.

¹⁹ This Chopa Ki Nal is located outside the collection area mapped by Srijan –as others which will be develop later–, is another Chopa Ki Nal; however this area provided a good amount of fruits last year. Additionally, a scarce amount of fruit is also available in some other parts as: Bhagla Khuna and Chintabhata. At Bhimana: Tani, Kalibore and Upla Bhimana were involved.

seven farmers were benefited with 363 plants of the improved variety at Bhimana, 265 at Koyalwaw, 35 at Nana, 39 at Bhandar and 165 at Amliya 165 plants. The farmer who gave his plot to construct the poly house is taking care of the plants by giving irrigation, applying pesticides, etc.; for these activities he is constantly remunerated²⁰. A visit to the poly house took place to know the farmer and the entire plot (see next plate). From the third year the harvested fruit of these trees should be included into the estimations of the Producer Company.

On other hand, the involved stakeholders for the custard apple business in these *Panchayats* are:

- ABF: represented the financial support for this project in the year 2013-14.
- Rajasthan College of Agriculture: provided the technical support for the process of extraction of pulp. Besides the technical support, training for the community was done. They are also involved with the market placement of the product.
- Forest Department, State government of Rajasthan: implied the fruit, since the collected custard apple is widely grown in the forest area.
- Sugam Bio Foods Pvt. Ltd.: was principal client of the processed pulp in 2013-14.
- Tribal Community: suppliers of the custard apple fruit.

²⁰ The payments' amount was not considered inside the global impact to the tribal population, since is a specific person who is benefited and the amount is known. Moreover is not related directly with the evaluated process that occurred last year.



Source: Own caption at Bhel Basti (hamlet inside Nana *Panchayat*)

Plate 1: Poly House at Bhel Basti

3.2.2 Situation of the rural tribal families

Due to a strategic decision the NGO is working at tribal districts, since the poverty at the tribal regions remains at exceptional high levels; moreover, the decline of poverty has been much slower than in the entire country (Self-Reliant Initiatives through Joint Action, 2013a). “This may be attributed to the fact that most of ST populations reside in remote locations, making it challenging for traditional channels of development services (government schemes and programs) to reach them, representing a unique space for NGOs to contribute” (Ídem, 2013a).

At India, the poverty incidence of tribal households is double of general caste households; additionally, literacy levels are one-third the state’s average; likewise, nearly two-thirds of households in Pali region have family members who migrate in search of work (Self- Reliant Initiatives through Joint Action, 2013b). The research done by Srijan in 2013 has covered around 12% of the tribal SHGs across *Panchayats* at Pali District to frame the tribal household features (Appendix 2). The distribution of the 1'828 covered tribal households was predominantly concreted at Bhimana *Panchayat* (462 households), Aamlia *Panchayat* followed Bhimana in the study (with 243 households), while Nana *Panchayat* occupied the third place (177 households); the rest of the interviewed households were distributed among the other *Panchayats* as Amliya

(109), Bedal (21), Bhandar (121), Bhimda (53), Bisalpur (125), Koplav (56), Koyal Bab (108), Koyalwa (74), Koyalwav (99), Mana (52), and Perwa (44), respectively (Self- Reliant Initiatives through Joint Action, 2013c)²¹.

The literacy rate amid adult population oscillates from 5% to 10%, making them more vulnerable to social and economic deprivation. Looking upon the composition, the 91.5% belong to Scheduled Tribes, while the difference is distributed equally among Schedules Castes and other castes. Nearly a 90% has received the ration card, whereas 93% received the NREGA card; conversely 95% have not received the caste certificate²².

An overwhelming 85.6% of Scheduled Tribes are marginal farmers, 12.5% are considered landless, 1.7% small farmers and the scarce 0.2% owns a medium or large farm. Tackling the income, 49.2% of them earned an annual income upto 27'000 INR, 31% are framed in the second rank: more than 27'000 INR until 45'000 INR; while the rest of these tribal households got more than 45'000 INR; this information assembles 900 households, 566 households and 361 respectively. Therefore, the average income was 34'971 INR per year (Self- Reliant Initiatives through Joint Action, 2013c). Considering the relation with the American Dollar (US\$) at August of 2014 for example: 27'000 INR represent 442.8 US\$, and 45'000 INR the equivalent of 738 US\$; furthermore, the average income implies 573.6 US\$ accounting 1.6 US\$ per day/per household²³.

²¹ The households covered were among the denominated Self Help Group households which the organization has worked intensively.

²² Own elaboration based on Self- Reliant Initiatives through Joint Action. (2013c). At the "SPSS *Panchayat* Report", April 2013. Pg. 1-2. With the Ration Card every month the BPL family is getting some cereals, sugar and fuel at low rate from the government and they are getting it from a shop that is open in a village known as a Public Distribution System (PDS) with about 75-80% of discount.

²³ This was calculated through the conversion rate an "Official Currency Site" at "Cálculo rápido de tipos de cambio cruzados en XE". Note: all the further conversions will be concreted with this reference.



Source: Own caption and combined plate elaboration

Plate 2: Tribal house at Bhimana Panchayat

3.2.3. In situ demographic generated information on Custard Apple workers

To portrait the demographic flank of tribal women whom worked directly with the custard apple project, a three-cornered frame was addressed: first, age and marital status; then fertility rate, and to finish literacy rate; while the interlaced comparison/evaluation was based in groups and by individuals. Although, some considerations will be set up previously: firstly, there was a pilot test which has been launched to identify possible improvements in the questionnaire (all not just focused on the demographic flank, also centered on the main problematic of the work: the social aspect evaluation of the tribal women which hereinafter will be entirely tackled). As a consequence, the question related to age had been modified from its original form; since at this specific inquiry the given answers did not entail integral accuracy due the hesitation about its truthfulness amid the respondents. Women with ages surpassing the 40 years ought a stronger possibility of lacking the birth certificate or not

having a proper birth date registration; thus some of them made estimations, which resulted in regrouping age in ranks of five years length. The relevance of this information attained at the pilot test had set distinctively this question and its treatment.

On the other hand, is accurate to state there were five groups for this demographic scope. Each group accounted 22, 9, 17, 16 and 7 women respectively. Despite major features of each group (which are going to be the main objective of the next part), their demographic characteristics will be scoped and developed referring to a code for each group (first column of the following table):

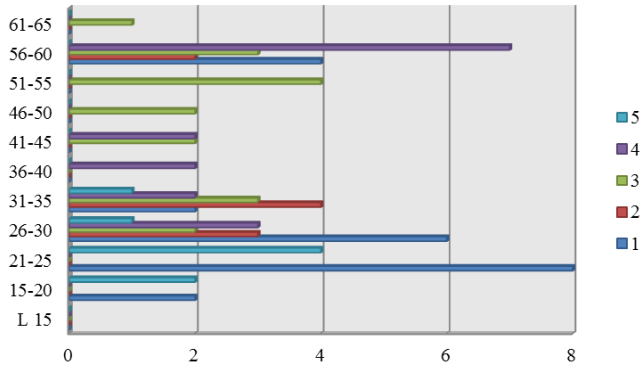
Table 10: Groups for the demographic scope

Group number	Number of members
1	22
2	9
3	17
4	16
5	7

Source: Own elaboration based on groups outcome

3.2.3.1. Age and marital status

The age was distributed predominantly among the rank of 21-25 and 56-60, both hold about 44% of the total tribal women. The rank of 56-60 was mainly influenced by the group “4”, whereas the group 21-25 was clearly driven by the coded group “1”. The women among 15-20 account 6%, while the age group 26-30 implies a 17%. Therefore, the 3 ranks of women under 30 amount nearly 45%. On the opposite, the ranks between 31 and 55 years old account 34% in total, scattered in 17% (for the rank of 31-35), 3% (36-40), 6% (41-45), 3% (46-50) and 6% (51-55). The drop to the last rank is evident: 1% for the age group of 61-65.



Source: Own elaboration and process based groups outcome

Chart 3: Age groups (number of women by group)

The marital status demonstrates an unquestionable preponderance for married women: 98.6%, a common aspect at India, since at 2006 the average age for a woman to get married was 17.2 years old (Verón, 2008), at this study 19.4 years old was obtained; thus early marriage is still dominant. From the total, about 5.6% which can be considered early marriage appertains to the group between 15-20 years old. The subsequent groups obtain 16.9% (21-25), 21.1% (26-30), 16.9% (31-35), 2.8% (36-40), 5.6% (41-45), 2.8% (46-50), 5.6% (51-55), 22.5% (56-60), and 1.4% (61-65) respectively.

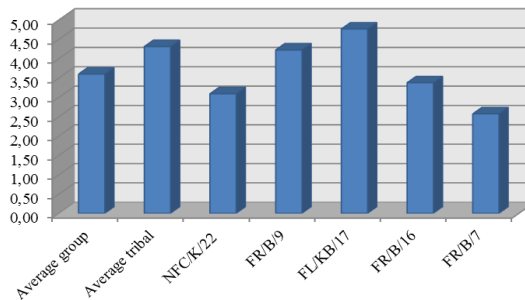
3.2.3.2. Fertility rate

The fertility rate of the tribal women at the SHG groups is 3.6 children per woman. This rate has been raised by the group “3”. Since these women barely culminated their reproductive age, the rate for this group is higher than the others: 4.8 children per woman. Nevertheless, the group “2” in spite of its younger composition presents a similar fertility rate than the group “3”: 4.2 children per woman. Contrariwise, the group “5” is composed mainly by women amidst 21 and 25; as a result the attained fertility is still less than the average.

Rural women at India during the years 2005-2006 hold 2.98 children per women; thus the fertility rate is higher for the analphabet group: 3.55 children per women (Verón, 2008). Coincidentally, the upshots barely the

same as the one of the tribal sample; however is expected, especially considering the ST condition at various features.

In general terms, India has registered a downward trend in the birth rate in half a century, though it remains below the desired of each Indian government during each five-year plan, therefore the objectives of birth and fertility rate are frequently reviewed (Ídem, 2008). Furthermore, the Indian youth population has become an obstacle to decline the birth rate due the effect of age structure (the number of women of childbearing age children is high), explaining that the decline in overall fertility that does not result partly declining birthrate (Verón, 2008).



Source: Own elaboration based on groups outcome and data base from Srijan

Chart 4: Fertility rate comparison

The population growth at India in general has experienced a tremendous growth since 1952 when it reached 400 million; thenceforth leaders invested more than 3 billion in programs to curb fertility but the country's population soared (Sims, 2010).

3.2.3.3. Literacy rate

Observed fertility is higher than the desired fertility, owing a limited access to contraception, particularly in the poorest regions where the population is less educated (Verón, 2008). The fertility rate is generally inversely associated also with late marriage²⁴ and the literacy rates of women. At the tribal population both strands are perfectly exemplified.

In spite of the mentioned low literacy oscillated range at this population (from 5% to 10% mid adult population), at the SHG involved with the

²⁴ The 100% of the women belong to the tribe Grasia.

study of custard apple the literacy rate of women scarcely attains 4.2%, and just two members have reached the 12th year of schooling. There are twelve years of schooling at India, thus around 2% of the sample have finished the school²⁵. Bali block has a 34.5% for females; therefore, the unprivileged position of this population group compared to the rest of the population is evident, as the actions towards its shift. Literacy rates among the descendants of these women (her sons and daughters) are better off: from the ones located at the age of schooling 51.4% are currently attending; the other 48.6% are not attending due some fieldwork, marriage or migration/work options. A little percentage –less than 4%– revealed their children do not need school according the family perception, as a consequence they do not send them to school, moreover if they are girls.

While interacting with one of the groups, the deficient medical assistance took the main stage: women were developing their health issues such as exclusion or their discrimination at a Medical Center lacking appropriate treatments, or explanations and proposals for contraception methods. Coincidentally, Acharya (2010) highlighted “the scarcity of studies constraining the capacity of the government to develop measures to overcome the obstacle created by caste discrimination in the delivery of public health services”.

Besides the control population programs that the NGO can develop or support aside, the family planning is though also crucial and it might be implemented in conjunction. Yet is questionable if it can take place at this population deep-rooted in tradition –or some preparation and additional institutional and community support is required–, since women rarely controlled the family size at the rural area foremost at the rural tribal population. Sidewise, newfangled is not how India has been focusing and trying to control and decelerate its population’s growth; though while focusing at livelihood projects –like tribal households– the outreach may lead to better results.

To resume the current situation, this second part of the work, implied the settlement on the involved regions: Bali block and the five *Panchayat* wherein Srijan has been working intensively: Amliya, Bhimana, Bhandar, Koyalwav, Nana; specifically over the ones related to the custard apple business. Additionally, an insight of the conditions at tribal population and some hints of their general specific information at the *Panchayats* were exposed; the mean characteristics of the tribal households –grounded on the study of Srijan at the year 2013– have exposed extreme

²⁵ While referring to the educational status of ST, between the years 1990 and 2004, there has been a general increased of ST in higher education on 2004 as a consequence of previous governmental policies as exposed by Chalam K.S. (2011) Pg 99.

conditions of their daily lives at these *Panchayats*: low health assistance, 85.6% of ST are marginal farmers; additionally, literacy levels are one-third the state's average. Complementary to the general, the specific demographic information of the women who probably worked for the custard apple business was entailed. This own elaborated material was based on the SHGs meetings; thus the generated information was obtained *in situ*. The tackled aspects were: age, marital status, fertility rate, and literacy rate. An emphasis over the compiled precise demographic data revealed a possible second approach to the main problematic and to set up further actions for the custard apple business.

3.3. The business and its diagnosis

3.3.1 Description of the core business

In order to analyze last year's operation several documents were carefully reviewed and interviews with the human resources whom were directly involved were done²⁶. To properly arrange the core business of custard apple four features were spotted to be developed; so the procedure directly interlinked with all the endeavors behind can be assimilated completely. Those four characteristics –managed generally at marketing projects– are product, price, place (from the collection to the market), and promotion; followed by all the costs and pulp process comparison –exploration and the description of the business including the technique approach (pursuing the deep-root understanding adjoining the upturn options); moreover the hermeneutics of Srijan for this particular product will be likewise set forth.

3.3.1.1. Product

Custard apple (*Annuna squamos L.*) is one of the finest fruits introduced in India from tropical America; it is cultivated in Andhra Pradesh, Maharashtra, Karnataka, Bihar, Orissa, Assam, and Tamil Nadu (Srijan, 2011). The custard apple fruit is taken but naturally from the custard apple tree, an evergreen plant that grows up to 6 meters; the custard apple plant bears flowers and fruits in the mature branches; nonetheless the fruit measures about 8-16 cm in diameter being able to take a round, heart-shaped or irregular form, generally green or brown in color; sugary and

²⁶ Nonetheless an entire report of Srijan containing all last year's integrated information was not found, moreover discrepancies there were some discrepancies among sources.

granular, it's this custard, like texture, that gives the fruit its name (Diet Health Club, 2014).

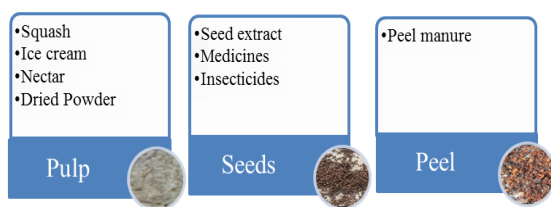
On the other hand, custard apple fruits are very perishable and have a short harvest life: ripe fruits can be stored only for 1-2 days without decay (Department of Horticulture-Rajasthan College of Agriculture, 2012). Srijan has worked with the custard apple fruit not as a final product; the organization sold the pulp of custard apple. The presentation of the product was one kilogram of pulp inside a low density polythene (ldp) bag packaged of 8 per 12 inches.



Source: Own caption of the remaining custard apple pulp

Plate 2: Presentation packaging of the final product

Despite Srijan only commercialized the pulp of custard apple, the other components of the fruit have a tremendous potential: from insecticides based on the seeds, nectar powder or dried powder of the pulp, and the peel as a fertilizer, those are detailed in the next Figure.



Source: Own elaboration based on Rajasthan College of Agriculture

Figure 4: Commercial potential of custard apple

3.3.1.2. Price

The average price of sold pulp was 84 INR/Kg. –from October 2013 to January 2014–; the total amount of sold pulp reached 323'330 INR, while in the same period 3'851 packages were sold. Since the storage pulp was sold in different quantities and to diverse minor clients, the prices

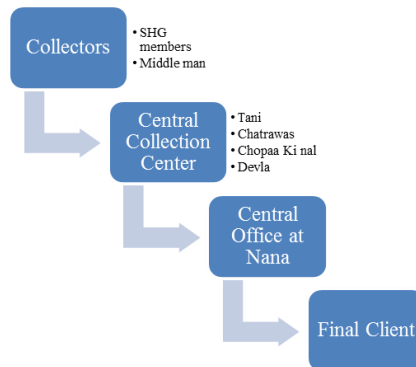
oscillated from 80 INR to 144 INR. The remaining pulp (final product) is around 143 Kg. /package that would be sold at minimum 80 INR.

Across the review of literature and market overview some future prices for the product might be considered as following²⁷:

- Improved presentation of the actual product: 190 INR.
- Improved variety of custard apple (NMK 1): 100 INR.
- Local market location at Gurgaon or at Delhi: 250 INR.

3.3.1.3. Place

The distribution and commercialization chain applied last year were the same due to the truly unexplored final clients of the product. Furthermore, a selective distribution was set with predetermined clients. The description of the chain used starts with the suppliers (named collectors) followed by the Central Collection Center, and then the final client whom received the product. Each actor tangled with the product will be explained hereon.



Source: Own elaboration based on interviews and document review

Figure 5: Place of custard apple pulp

- Central Collection Center (CCC): according to the business plan one unit was supposed to be set up at the *Panchayat* level (VLCC), and one at the Central Level Center (CCC) at the Central Level (Nana Office); however this arrangement of the units at both *Panchayats* was never concreted. What really occurred last year included just pick up at specific points that could be assimilated as CCC; however no processing took

²⁷ Some of the prices were estimated through a previous organization's business plan.

place there. The truck recollected from Tani 7 times (average of each the minor amount was 700 Kg.), 6 visits to Chitrawas (outside this region, it was a pick up for middle man), 4 visits to Chopa Ki nal (middle men pick up as well), and lastly one pick up from Devla. All these locations but Tani are at Kotda Block.

- Final Client: the total processed fruit was 16'275.7 Kg. and the extracted pulp reached 4'099 Kg. The distribution to the final clients was made directly by trucks which had been sent either by the clients or Srijan hired it to deliver the final product. The pulp that was not sold currently remained stored in one blasting refrigerator at -30° C.

Table 11: Final Clients Custard Apple²⁸

Client	Location	Total pulp sold (Kg.)
Sugam Bio Foods Pvt. Ltd	Udaipur	3470
Deep fresh frozen fruits	Gujrat	194
Dairy Rich G	Bhopal	100
Rajasthan College of Agriculture	Udaipur	90
Others		25

Source: Own elaboration based on the interview with Mrs. Banerjee

Considering Srijan had only worked with one major client and one final product –custard apple’s pulp–, the organization had used an undifferentiated channel of distribution. Nevertheless, as aforementioned, every part of the fruit can become a profitable independent business unit allowing the organization to extend the number of clients –peel, seeds and pulp; thus differentiated channels must be considered from now on to attain the accurate clients for each final product (users like dairy and food processing industry, ice-cream industry, bakery and confectionary industry –among others– could be taken in count). Moreover, relying with such an overwhelming quantity on one client is not advisable.

Regarding human resources, nearly 64 persons participated actively of the custard apple’s first year business production at the office of Nana (all SHG members), all of them women whom belong to Scheduled Tribe. Only three persons had pertained Srijan members, though they had not received an additional payment for this project.

²⁸ Mrs. Sunandita Banerjee was Srijan Project Executive training at Nana. The interview took place at Nana, made on 19/04/2014. She has highlighted the capacity of the refrigerator: is “just” for 20'000 liters.

3.3.1.4. Promotion

No promotion has been applied for their first year of operation. The creation of a brand is highly desirable; it may be related to the *Ghoomar* Producer Company. One possible option for the logo and the suggested new brand is to gather the shape of the custard apple like a water background to overlap the capital letter of the word *Ghoomar*.

The use of media for each final chosen product will be ideal once the expertise of the organization and the level of production rise to reach a considerable portion of the market. The ability to find new customers and to create lasting relationships with them will enable the organization to endure the brand.

3.3.2. Diagnosis of the business

In this part, the identification of the process stages will entail the possible improvement opportunities for the product on the first scope. Then, at the same line, the production yield optimization may be a clear option for Srijan while comparing similar yields of the fruit established by professional entities; finally, the acute final objective addresses the profit/loss scenario settlement.

3.3.2.1. Production evaluation

The process itself required nearly 9 hours to process the custard apple: half of an hour for the inflow session, the grading unit and sorting unit²⁹; one and a half hour at the processing unit and around six or seven hours for packaging and hardening. The production process was detailed in the next table.

²⁹ This considers that at the sorting unit the fruit was ripe.

Table 12: Process to obtain the pulp³⁰

Process Label	Human Resources	Activity	Particularities	Considerations/ improvement possibilities
Inflow session	From 2 to 3	Reception of the fruit	Not a systematic frequency of reception	The truck which delivered the fruit is not a propriety of the organization
Grading Unit	From 3 to 4	Selection of the fruit according to its size	Grading criteria: A: above 250 gr. per fruit B: below 250 gr. per fruit C: below 150 gr. per fruit	Rooms simply notified as storage rooms at Nana Office
Sorting Unit	From 4 to 5	Verification of ripeness	If the fruit was ripe or not (store for 2 -3 days maximum)	If is not ripe, the fruit remained at storage occupying a lot of space. Clearly, an improvement of time could take place in this part of the process
Processing Unit (PU)	From 10 to 15			
	From 7 to 8	1) Scooping	Weighting Separation of the content and the peel	The scooping was made by hand and the peel was thrown to the back yard as fertilizing (40-50% of the fruit is peel)
	From 2 to 3	2) Pulp extraction	Introduction of the fruit in the machine Separation of the pulp and the seeds Reprocess in case it was needed Weighting of the seeds and the extracted pulp	If the pulp was remained attached to the seed a second round of processing is needed (however fiber is good for the product and is highly valuable). One of the HR was ensuring the reception buckets were clean. Nearly 25 Kg. of the fruit per hour was processed The seeds were carried out, washed and remained stocked until now since they can be sell when the quantity attains a higher number
	From 1 to 2		Addition of preservatives to the extracted pulp	
Packaging Unit	From 3 to 4	Packaging of the pulp	Weighting Packaging Hardening Storing	If the sale of the product was made that same day it went to the blast freezing unit, otherwise it was transported to a normal unit, thus it was sent to Udaipur Cold storage temperature required for this pulp is -20 C° with -30 degree C° in the beginning (Blast freezing)

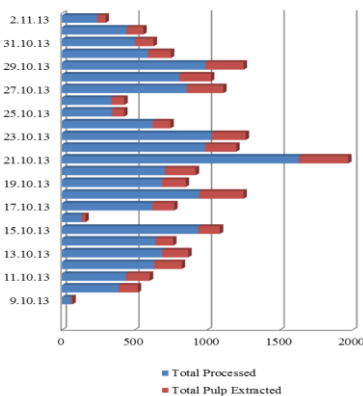
Source: Own elaboration based on contrasted interviews of HR at Nana

³⁰ The chart shows the average per day in the process.

The hindsight of the process brought out some considerations for enhancement: an investment on the trucks and the principal machine must be taken in count. If the sustainability of this business is pursued, the divisibility of the Producer Company might come off, and a physic space/staff exclusively for this and other possible fruits –stationary or not at other periods of the year– are greatly recommended. The storage of the supplied custard apple requires certain type of treatment regarding temperature and manipulation to avoid any possible spoilage of the fruit. Moreover, the pursuit of a sanitary certification is advisable as well.

3.3.2.2. Comparative yield performance

While aiming to compare the production standards Srijan hold last year is accurate to examine the production. The cycle of production started the 8th of October 2013 (yet no processing was concreted), the 9th was a learning processing day (those do not count as real processing days though are included for the initiation of the activity which lasted until the 2nd of November). The final product’s quantity oscillated amidst 29 Kg. and 340 Kg. per day³¹ (Appendix 3); the huge gap owed some constraints like inexperience and uncontrolled or unregulated inflow of the fruit.



Source: Own elaboration and analysis based on Srijan's general information

Chart 5: Processed fruit vs. Extracted Pulp (in Kg.)

³¹ The minor product quantity was 12 Kg. This quantity was registered the second day, though since it was not considered as real production day for the organization, it was not mentioned as the least amount of daily final product.

An average yield of 25.2% was the result of the first year's activity. Towards the confirmation of the custard apple's return as normal or optimal a professional assessment in this field is compulsory. Consequently, an interview towards an expert to nail down this part was suggested. After a reunion in April of 2014 with Mr. Tewary –Head Project at Rajasthan– a visit to the Rajasthan College of Agriculture (RCA) was agreed, and concreted after three weeks. This institution was located at another district: the district of Udaipur at 190 Km. from Pali District, my location at that time. The meeting was materialized with the Head of the Department of Horticulture: Dr. R.A. Kaushik, who provided a valuable explanation for the yearned yield comparison (Appendix 4).

Srijan has worked with the wild custard apple, thus around 30% of pulp should be obtained per fruit. With the improved varieties such as *Balanagari* the yield of the fruit can overcome the 30% and with the NMK 1 stretches the 40%. The current difference of 4.8% thus could imply inefficiencies during the process.

The price the Horticulture Department managed for each Kg. of custard apple pulp was a given price of 125 INR/ Kg. (considering the sale at the market), for his estimations he considered a yield of 29% and a payment of 10 INR/Kg. to the collectors; furthermore a base of 1'000 Kg. was used. Grounded on all the estimations of the Horticulture Department and comparing the final product as an outcome of the pulping machine –with the complete process of scooping and pulping– and the manual profit/loss situation was included in the analysis.

3.3.2.3. Comparative performance of the product: price and yield factors

Complementary to the previous analysis, an examination of Srijan situation was prepared though the contrasting of costs herein is considerable: the first part illustrates the stated Horticulture Department's calculation; whereas on the second part the NGO numbers were scoped initially with 2013's situation. Then, at the first scenario the price the market price of Horticulture Department was applied attaining 125 INR/Kg. For the second scenario, the upturned of the yield was done keeping an unchanged average price of 84 INR/Kg; lastly, at the third scenario, both price and yield were increased: the price was leveled to the price of the Horticulture Department (125 INR/Kg.), and the yield to 29%. All the calculations are resumed in the next table.

Table 13: Profit/Loss scenarios³²

Horticulture Department	Pulp		Seed		Profit through machine	Profit through hands
	Costs of Pulping and chemicals		Price at the market (INR/Kg.)	Price at the market (INR/Kg.)		
	By Machine	By Hand				
Based on 1,000 Kg.	250	1750	125	500	2875	1375
With Srijan's total processed fruit					467927	223791

Srijan	Total processing cost	Average price	Sales Profit	Net Loss/Gain
	363237	84	323960	-39277
By leveling the price	363237	125	518585	155348
By leveling the yield (same price)	363237	84	396477	33240
By leveling the price and the yield	363237	125	589995	226758

Source: Own analysis and elaboration based on Rajasthan College of Agriculture and Srijan price data information

Certainly, some considerations should be underlined. The machine used at the Horticulture Department includes scooping and pulping, while the machine used at Srijan only did the pulping and the scooping was made by hand. Even so, the proximity of profit with Horticulture Department's estimation and Srijan's second scenario suggests a better control in productivity terms and a yield possibility for Srijan to obtain a better final return.

Above and beyond, the inquiry of the applied prices on last year's operation showed up they differed among clients. Supported on the certified quality of the product, the added value in the presentation, a better control in the supply chain, an improvement on the quality (specially scooping and packaging³³), and client post-sale service the Producer Company could also consider an upturn of the price from this year.

Recapitulating this third part, the custard apple business was structured in two parts: the first sprouts the fruit, the description of the core business i.e. the custard apple. This explanation has been done in a systematic manner starting with the product description, and some nutritional benefits accompanied the final presentation details used last year by the

³² The basis was a power point presentation of the Rajasthan College of Agriculture named: "A value chain on Commercial exploitation of underutilized fruits of tribal zones of Rajasthan". The data of prices was manually obtained on Srijan data. This part of the process was done without an optimal environment and the closure of the packages was done without any type of quality control.

³³ This part of the process was done without an optimal environment and the closure of the packages was done without any type of quality control.

NGO; then, the price was deemed contrasting average prices of clients at different sales; whereas the scheduled prices at different stages were stated. At third division, the place was carefully revised, developing every actor throughout the process was spotted upto the final clients and their respective participation among the total sales. The promotion was the last exploration in the core business title; therefore I portrayed this aspect as an enormous deficiency on the period 2013. Additionally, the diagnosis of the business amplified the improvement scope at the custard apple business tackling: on the first hand the production evaluation in each stage, then a comparative yield performance, and the general performance of the product regarding price and yield as key factors creating scenarios grounded on their upwards/downwards in order to broad the scope of analysis and propositions for the NGO at this particular business. The latter part provided standpoints for the yield optimization (around 4.8%), and an analysis for the price alignment reaching 124 INR/Kg.

3.4. Methodology and evaluated impact on tribal families

As previously detailed, Srijan launched the project of custard apple among other projects. The NGO also entrusted me the impact evaluation of the custard apple business on the tribal women whom were working with this project during the months of October and November of 2013. Nevertheless, no particular method was referred or asked by Srijan. Thus, the measure of the project's impact and its procedure was my inquiry during the first weeks at India; while thinking over and knowing the organization, the place, the team; and overall while getting fully involved with the project.

One of the two major objectives at the field work was to measure the impact of the first year of operation over the tribal households; therefore, I decided to tackle two approaches: the economic and social outcomes. Thus, both are part of the inclusive development definition from UNDP. On the first side, the economic effect for the tribal women involved into this business last year's operation regarding also the incidence on their income; while at the other side, the social aspect expressed by the generated welfare, perception and final human outcome of the project entailing succeeding improvement opportunities according the implicated women, and ultimately their households.

3.4.1. Economic impact examination

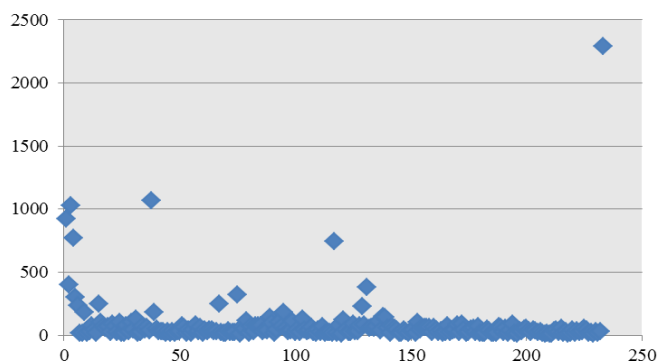
Focusing on the economic side, there were two identified sources of income which directly affected the tribal households: tribal women performing as suppliers and tribal women working during the production process; both will be scrutinized separately.

3.4.1.1. Economic impact: suppliers

There were suppliers whom plucked the custard apple fruit, other type of suppliers who were more intermediaries, for all of them a straight payment was done. However, there were three types of suppliers for this process:

- The direct suppliers accounted 233 women (whom will be named as collectors since they grabbed the fruit and give it directly to Srijan).
- The second category of suppliers will be attributed to the middle men. This label obeys their activity since they bought the fruit from a *Panchayat* outside the working/collecting area. Unfortunately the NGO did not track this group, thus is not possible to figure out or estimate how many households or collectors were involved on this the impact of their share of the delivered fruit on 2013. Nevertheless, the calculated impact of them will be assumed as a positive impact for the whole tribal side (yet, purchases from middle men are still questionable because they reduce the total direct influence for tribal people).
- The third category is represented by “extra people”: the two or three other persons were not confirmed either as SHG’ member or tribal women, besides there is a strong possibility they were tribal, though they were not registered likewise either. Centered on all the preceding information several scenarios were created.

There are two methods of economic impact with three categories of suppliers:



Source: Own elaboration based on documentation of Srijan

Chart 6: Supplied fruit in Kg.

While pursuing the most precise estimation for the economic impact, *two means of calculations* will be set for the suppliers: first, the averages among quantities and prices; while on the other hand, four independent possible situations/scenarios are going to be estimated.

- The result of the first method of calculation is resumed in the next table:

Table 14: First approach over single collectors' impact³⁴

Average quantity (Kg.)	62,18
Average price (in INR.)	9
Average impact on a tribal household (INR.)	560

Source: Own elaboration based on contrasted interviews and data examination

- As stated, the second method is grounded on four created situations or scenarios: from the optimal to the worse situation. The optimal situation was labeled as *Best*, then *Good*, the third scenario with *Middle* and the fourth with *Worse* respectively.

³⁴ The consideration of the possibility that two or more people can belong to the same household was included; but was discarded after confirming the database. However, as mentioned before, that impact will not be over a tribal household, instead over the tribal population.

For the collectors: the *Best* scenario shows up a paid price of 10 INR for 75 percent of the collectors and 9 INR to the 25 percent, the second scenario labeled as *Good* implies a payment of 9 INR to seventy five percent stated at the first scenario and 8 INR for the remaining 25 percent; equally distributed in percentages the third and fourth –named as *Middle* and *Worse*– will manage prices of 8 INR and 7 INR, and 7 INR to 6 INR respectively; meanwhile the least quantity was 6 INR and the highest 10 INR, the scenarios were settled also regarding the quantities' distribution.

The scenarios were created since there is not a unique price paid to the collectors. The disorder on the payment sheets and the omission of the payment amount at some cases lead to group and heterogeneous estimations for the payments, therefore to accurate them the creation of scenarios was introduced.

Whereas, for the middle men: the total fruit inflow provided came up to 6'145 Kg., thus most of the truck pick-ups were concreted predominantly outside the collecting area considered by Srijan; therefore their impact is going to be frame as a general impact for the tribal people. Additionally, the impossibility to measure exactly how many households were really suppliers for them was considered, as a consequence some possible scenarios were estimated of what happened last year. Along with the major scenarios of the collectors, the prices were established as 9 INR for the first two possible situations and 8 INR for the latter two. Notwithstanding, the whole price should not be assumed as positive for the tribal side: if the situation would be *Best* the benefit for the tribal people would reach 7 INR, for a *Good* scenario 6 INR, leaving the *Middle* and *Worse* with 4 INR and 4.5 INR per Kg. respectively³⁵.

Lastly, the other suppliers named as “extra” or “others” were not included either in the first group of collectors or into middle men's group. There was a statement almost ensuring they were tribal people (they were just three persons); hence the probabilities will be attached for: none, one, two or three as being part of the tribal community, so the effect on the tribal population can be measured as well.

Consequently, the final frame was displayed throughout final combined situations headed for measuring the impact over tribal population in general, and for a tribal household –in case this could be measured–. The sum-up of them is demonstrated in the next table:

³⁵ These were based on interviews and available data. More scenarios were evaluated and their combinations and permutations with the price brought some ranges, especially with the middle men due the incertitude over their motion among the tribes and also to the scarcity of tracking and registration at the organization.

Table 15: Second approach impact on the Suppliers³⁶

	Impact (INR)				
	Collectors	Best	Good	Middle	Worse
(Kg.)	12997	126720,75	113723,75	100726,75	87729,75
20000	Middle Men	Best	Good	Middle	Worse
Suppliers impact	6145	43690,95	37054,35	28021,2	24580
	Others	Best	Good	Middle	Worse
	858	8580	5662,8	2831,4	0
Total tribal possible supply impact (INR)		178991,7	156440,9	131579,35	112309,75
Effective Income for tribal household (INR.)		568	510	452	393

Source: Own elaboration and process based on contrasted interviews, field work and data of Srijan

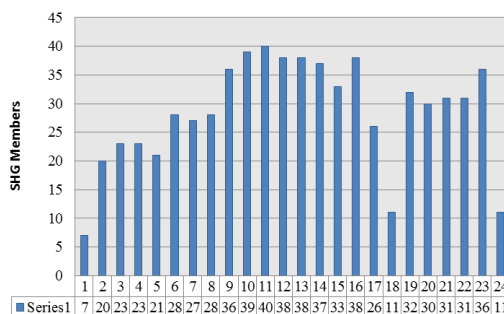
Summing up the economic impact for the suppliers, the optimal effective income for a tribal household would supplied the average quantity of the custard apple fruit had been around 560 INR (first method), contrasted to the 568 INR obtained ultimately (second method). Despite the trifling difference, there can be variations among collectors whom depending on the recollected quantity could have received just 65 INR for example; however the average impact would oscillate amidst 560 INR (average of the first approach), or 568 INR and 393 INR (best scenario and worst scenario from the second approach/method).

Contrariwise, the total tribal impact differs according the situation (four general setups were elaborated in the previous table). The variations are due the real payment middle men did with them, or if the “others” whom were not tracked were tribal or not influenced the total tribal supply impact fluctuating from 178'991.7 INR and 112'309.8 INR.

3.4.1.2. Economic repercussion of the production process

The central office of the production process for the project was at Nana *Panchayat*. Apart from the collectors, the identified tribal women (SHGs members) whom were involved in the production process received 105'015 INR in total for those 22 days. Less than 2% of the collectors had worked also in this production process, moreover they did not belong to a same family; henceforth there will not be overlaps at the final result of the impact on a tribal household.

³⁶ All the purchases that middle men could have done in crates are not taken in count for this calculation, just for the general final possibilities.



Source: Own elaboration and process based on available data

Chart 7: Distribution of the personnel thru production process³⁷

The payment for a daily labor day was 150 INR (from 9 a.m. to 17 p.m.), and 110 INR per night (from 20 p.m. to 23 or 24 p.m.)³⁸. If a tribal woman worked during the entire period, she has earned 3'560 INR as maximum; while a woman in a general average earned 1'667 INR³⁹. Nonetheless, the extend differences amid the provenance of the SHG members lead to examine the impacts separately; then the average of working days and received payments will converge in the next table.

³⁷ Note: the 8th of October was not considered for the staff as an official part of the production process, thus it was not included in the graph.

³⁸ There were just two overnights along the 22 days.

³⁹ Is not an average taking in count the total amount and the simple division by the number of persons (64 SHG members), the result of this would be 1'640 INR; it is the average of the payments.

Table 16: Relevant aspects of labor payment

HR	Provenance	Average INR	Average days of work
1	Amliya	2250	15
20	Bhilbasti	1290	9
2	Bothara	1463	10
11	Govardhanpura	2325	15
10	Kalibore	1979	13
19	Koyalwav	1509	10

Source: Own elaboration and process based on data from Srijan

Based on the previous table, the productive process allow a calculation per *Panchayat* of the tribal women tracked in this procedure; therefore, the total additional average income for a tribal household involved in the production process was 2'250 INR at Amliya, 1'290 INR at Bhilbasti, 1'463 INR at Bothara, 2'325 at Govardhanpura, 1'979 INR at Kalibore and 1'509 INR at Koyalwav.

Slightly a 2% –whom worked both for the collection and production process– had been benefited in total with amidst 2'539 INR (average of the suppliers first approach), or 2'547 INR and 2'372 INR (best and worse situation for the suppliers second approach). According the second method, the general total impact for the tribal people in general for all the *Panchayats* will be based on the elected scenario⁴⁰.

3.4.1.3. Final economic repercussions and the income contrast

Did the project prompt a major difference at the general income for the tribal households? To confirm the tangible impact over these households a comparison with their annual/monthly income is vital. These populations hold a differentiated income from the rest of the population; therefore Srijan –in order to work towards them accurately and differentially– completed a stated study in 2013 concentrating on tribal households of SHGs' members (inside the Pali District, Bali Block and at *Panchayat* level).

The average annual income for a tribal population household is around 34'971 INR; their monthly income would be around 2'914 INR. The influence of the business on a tribal household at monthly level would be

⁴⁰ This calculation took Bhimana (Kalibore location) as the example for the entire 2%; this variation will depend on the *Panchayat* of origin of the workers at the production process. However, an accurate assumption over the origin must be made to associate them.

widely diverse due constraints like time alongside the process a woman had invested, or the quantity of Kg. the household has achieved to collect.

The stated slightly 2% intricate between collection and the whole production process had been in total benefited with amidst 2'069 INR (average of the suppliers first approach), or an additional income oscillating among 2'077 INR and 1'902 INR (best and worse situation for the suppliers second approach); henceforth representing closely another monthly income for those households⁴¹.

Equally, for a woman who worked as just a supplier the average impact on her household's monthly income reaches the 19.2%, or the 19.5% descending to 13.5% in the second worst situation, inside the second approach for suppliers. On the production flank, the monthly impact would oscillate grounded on the *Panchayat* location direct impact from 44.3% climbing to 79.8%. The economic dissimilar effect on the tribal households across multifarious manners with the custard apple business might introduce some scope for integration in the process and direct communication with the tribal households hereafter.

3.4.2. Human outcome evaluation

The participants of the project were women. To comprehend a study above an effect over people, an insightful of the population's posture is compelled. Enriching standpoints of the women from the SHGs whom worked with custard apple last year undoubtedly help to tackle business' intricacies of the possible blunders; thus some improvements might come out.

To start, a sample was estimated according the existent SHG tribal women and members –this will be considered the entire population– for the *Panchayats* Bhimana and Koyalwav due the access to the forest where the fruit can be plugged of both *Panchayats*. Thereupon, the method to interact with them was addressed: Focus Group Discussions (and considering each one woman should represent a household). FGD is a:

Research methodology in which a small group of participants gather to discuss a specified topic or an issue to generate data, the interaction among the moderator and them is vital, and its

⁴¹ This calculation was made with Koyalwav as reference with 1'509 INR as earned in average in the production side, same was done for Bhimana showing 2'539 INR (average of the suppliers' first approach), or an additional income oscillating from 2'547 INR to 2'372 INR (best and worse situation for the suppliers' second approach).

objective is an understanding of the participants' perspective on the topic (Wong, 2008).

“FGD do not discriminate against people who cannot read or write and they can encourage participation from people reluctant to be interviewed on their own” (Kitzinger, 1995); as consequence it is an ideal methodology for this particular population.

For this section, the guideline was elaborated in order to obtain valuable information towards the answer of the problematic. Moreover, at the social impact the sort and cluster of questions, type of methodology, stratification of them was decided after an overview of the situation, the population, time, and features of the *in situ* study.

3.4.2.1. Sample estimation and fieldwork guidelines

The tribal population settled at the *Panchayats* of Bhimana and Koyalwaw was the purpose of this part of the work. These populations have direct access to the forest areas of custard apple and were supposed to be appertaining as principal actors into the collecting process⁴².

Currently, there are 2'673 SHG members; nearly 41% can have access to the forest of custard apple, which accounted to 1'095 as the known population⁴³. As specified, only 233 suppliers effectively delivered the fruit for the process last year; nonetheless, the majority was not traced in their membership of an SHG. The work field study will be executed with the SHG members of the *Panchayats* who have access to the forest of custard apple: Bhimana and Koyalwaw.

The entire universe of the SHG members along the *Panchayats* is known; consequently, the estimation of the number of households who can have access to the custard apple to be interviewed was made based on the following statistical formula for a known population:

⁴² Among the cited five *Panchayats* Srijan is working intensively with tribal population (Amliya, Bhimana, Bhandar, Koyalwaw and Nana), the two *Panchayats* having access to the forest are Bhimana and Koyalwaw. Besides this primordial aspect due the lack of tracking the origin of custard apple from the collectors side –is almost assured it came from outside the working area–; these populations hold a huge potential with fruit approachability, also due the SHG meetings and the straightforward communication with Srijan.

⁴³ Only the 30% of the households who had access to the custard apple's forests also have private fields of custard apple which relevance and distribution are going to be described subsequently. Thereupon 328 can have access to both (forest and private field). Moreover, the 1'120 SHG members distributed in Bhimana and Koyalwaw respectively almost perfectly coincide with the estimation of people who can have access to the forest: 1'095.

Equation 1: Sample calculation with a known population⁴⁴

$$n^* = \frac{K_{\alpha/2}^2 * S^2 * N}{(\epsilon^2 * N - 1) + K_{\alpha/2}^2 * S^2}$$

Where:

n^* = sample size

N = size of known population

S^2 = statistical variance

ϵ = absolute sampling error

$K_{\alpha/2}$ = value at tables depending on the level of significance (α)

$$n^* = \frac{1.96 * 1.96 * 0.95 * 0.05 * 1'095}{((0.05 * 0.05) * (1'095 - 1) + (1.96 * 1.96 * 0.95 * 0.05))}$$

$$n^* = 68,48 \sim 68 \text{ households}$$

The statistical variance is given by “p” and “q”, each one has evaluated with 0.95 and 0.05; i.e. 95% and 5%; “p” understood as the probability of “success” in this event which will be replaced by 95% due to the knowledge of this particular population, as several studies of the organization endorsing a continuous relation and involvement with their daily activities at these specific *Panchayats* and overall the direct accessibility to them through the SHG meetings. The statistical level of trust was 95% with an absolute sampling error of 5%. “Users of statistics emphasized standard levels of significance such as 10%, 5%, 1%”; however studies have tended to use and accept 5% as the most common level of significance (Moore, 2000), also named probability of success as previously stated; thus in this study that level of significance was similarly applied.

The fieldwork at both *Panchayats* was prepared under the FGD’s structure: the guide points of dialogue were leaded through the collaboration of one member of Srijan who was the translator, and

⁴⁴ These values are also used and known at these types of studies for known populations (Aguilar-Barojas, 2005). The author has referred to previous studies like: “Lwanga S K, Lemeshow S. (1991). Determinación del tamaño de las muestras en estudios sanitarios. Ginebra: Organización Mundial de la Salud (OMS). “It only applies if we know the total of the population like in this case”. This formula appears among different qualitative studies.

different number of persons whom usually were guiding each SHG meeting in a systematic line of discussion. Due to the inability to communicate neither in Hindi nor in their main dialect, the understanding of their corporal language during the debate and the close interaction with the tribal women during the encounters were the key to go beyond of what they were expressing by words, to gradually attempt to integrate myself into their community and their needs.

Nevertheless, some of the meetings were more difficult than others due the minimum or lack of communicative skills of the SHG members, taking more time than the expected for each reunion. These specific meetings were arranged with the NGO as part of the work towards the final objective: a complete evaluation of the tribal population –specifically the SHGs members from the 'Adivasis'– whom was involved with the custard apple project and their opinions about the project and to measure qualitatively the impact at the social part: their level of satisfaction, their feelings, their suggestions and overall key concerns for Srijan hereon (this latter will be included directly into the Appendix for any further inquiry since it was relevant for the NGO but is not much significant for main problematic).

The methodological framework started with the queries of information: either compatible to contrast obtained preceding results, or to underscore the inherent and deep-rooted structure of the custard apple pulp process. All the basic guidelines for the FGD were framed in diverse questions to settle the debate and steer the investigation (Appendix 5). Besides the meetings with SHG members, there were similarly arranged interactions with her husbands: this was crucial to reinforce some final statements about the main focus of the study and overall invaluable supplementary support for succeeding slants.

Table 17: FGD detail

General Code	Code for the group	Type of group	Panchayt	Meeting Place	Number of members	Number of Groups	Facilitators	Group composition	Groups
A	NFC/K/22	NFC	Koyalwav	Bhagla Khuna	22	2	3	12/10	F
B	FR/B/9	FR	Bhimana	Tani	9	1	3	9/9	F
C	FL/KB/17	FL	Nana	Nana Location	17	1	2	17/17	F
D	FR/B/16	FR	Bhimana	Kalbore	16	1	3	16/16	F
E	FR/B/17	FR	Bhimana	Kalbore	17	1	5	17/17	N*
F	FR/K/23	FR	Koyalwav	Chopa Ki Nal	23	1	2	23/23	M**
G	FR/B/7	FR	Bhimana	Tani	7	1	2	7/15	F
H	FR/B/8	FR	Bhimana	Tani	8	1	2	8/15	M**

* N implies the SHG meeting couldn't treat custard apple and social issues or similar were focused.

** M: are the intervention with the male, husbands of the SHG members; or as in the case of FR/B/8 male from that community who were available for the meeting.

Source: Own elaboration based on the own planning and design for the female SHG meetings and male meetings

As exposed in the previous table, the SHG meetings were codified to simplify their use later. A simple key code made reference to: effective forest collectors (FR), not forest effective collectors (NFR), or Federation

Leaders collectors (FL). The second term gives the name of the *Panchayat* using the first letter: B for Bhimana and K to Koyalwav. And lastly, the third character of the code implies the number of women whom participated of the SHG meeting. Notwithstanding, column portraying the alphabetical letters will be used to facilitate its reading at the next section replacing the main codes.

The column of facilitators is referring at Srijan members (these members usually go to a determined SHG meeting). The group's composition confirms if the group was divided to be managed or if it was entirely undertaken. At the column of groups, the letter F indicates is a female SHG meeting, M is a meeting conformed by men, and the letter N implies the meeting did not tackle custard apple in the discussion.

To start, a FGD pilot test was achieved contemplating 'Adivasis' women of the tribe Grasia at one SHG meeting in order to polish an already checked structure. Then, 5 effective FGD were conducted in heterogeneous groups with women of the SHG meetings: a total of 71 women were interviewed hereby; they interacted actively with an unswerving manner at the SHG meeting –like in the FR/B/9–, or were gingerly involved. At the FR/B/17 SHG meeting, the custard apple business was not focused due the scarcity of time to incorporate it into the meeting –health issues took the main stage–; consequently it was withdrawn from the FGD totally. Additionally, as exposed in the chart of the FGD detail, two FGD meetings with men were prepared.

The arrangements of the meetings were constrained by the availability of the members, the facilitators (Srijan current employers who are working with the SHG meetings) and the translator as well –consider as another facilitator in the previous elaborated chart–. The remoteness of the meeting places added additional contemplation in terms of time.



Source: Own caption while doing the FDG with the SHG women

Plate 3: Fieldwork at the Panchayats of Bhimana and Koyalwav⁴⁵

3.4.2.2. Scope at the results and relevant findings

Once the fieldwork was accomplished –lasting from 31st of March until 1st of May–, the results had been processed and scrutinized. Several revelations regarding the custard apple business came out. From the structured guideline used at the FGD groups, the creation of “related answers” was shaped to present them properly portraying the community situation for the custard apple business and parallel issues. These questions or guidelines were gathered in six groups grounded on a particular objective pursuing their comprehension and simplicity:

- Hermeneutics: defines the “who” (which person from the household grabbed the fruit), “where” (if the forest was near the household or if where it was grabbed), “when” (inquires the specific time of the day towards a possible hypothesis about scholar absenteeism), “how” (whether they are carrying just hanging a box over their head, or they were transporting them in another manner to their homes, also how long it takes for them to arrive at the commercial point), how many “trees” and how many “kilograms” (in order to prospect an average per person).
- Social norms: aims to identify if there are social norms involved (to freely grab the fruit or if they are not able to take it from any forest), also the exact locations of the available or restricted forests areas (specifically requested by Srijan to obtain this information at this part).

⁴⁵ SHG female meetings at Koyalwav (left) at Bhagla Khuna, and at Bhimana (right) at Tani.

- Commercial activity implication: specifications about the paid price, if they have sell the product in Kg. or crates, to what kind of client they have sold the fruit (intermediate or final as Srijan), in which months the collection took place mostly, if the custard apple had interfered in other activities, their way of transportation to the main Center.
- Dawn of some specific features: support from the family members (at the custard apple activities or the explanation of an inexistent support), decision making of the additional income (is personal or shared), general activities during the year (their feeling about them and some description).
- Strands for the custard apple business: main purchases (destination of the income), perception of the impact (compared at the annual income), perception about the profitability (the fruit collection and process are considered a profitable activity).
- Satisfaction and opportunities for improvement: suggestions (the project through their own standpoints and experiences), level of satisfaction (Likert ranking scale to measure their satisfaction)⁴⁶, specific needs (how to enhance their capabilities), significance of the income (repercussion of the income for their households).

The main problematic of the social evaluation side can be resumed in the development of the stated points and their concerned features. The group and their main focus was an own clustered elaboration.

Notwithstanding, the most pertinent ones to describe the impact of the business for the tribal women are the latter three groups: dawn of some specific features, satisfaction and opportunities for improvement and positivism of the custard apple business, the rest can complement the study and were similarly detailed by group (Appendix 6)⁴⁷.

⁴⁶ Likert ranking is a unidimensional scaling method. Usually you would use a 1-to-5 rating scale where: 1= strongly unfavorable to the concept, 2= somewhat unfavorable to the concept, 3=undecided, 4=somewhat favorable to the concept, 5= strongly favorable to the concept". Trochim M.K.W. (2006) on Research Methods Knowledge Base.

⁴⁷ In order to facilitate the reading –as mentioned– the code of the groups will be replaced by a correlative letter expressed in the previous table to avoid repetitions. The dawn of specific features was already used as a base for 4.2.3. The “strands for the custard apple business” and “satisfaction and opportunities for improvement” will be described in conjunction.

– Group A: NFC/K/22

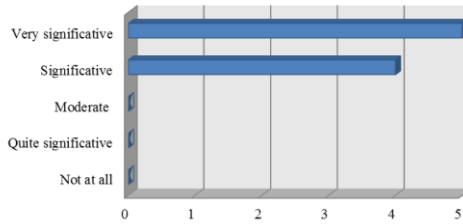
The group A was quite particular since all the collectors of this SHG plucked the fruit last year just for own consumption, therefore no analysis of impact of the business can be done since they were not actively involved working for Srijan. Despite this fact, it was inbuilt to the study at various sections: of “hermeneutics”, “social norms”, “commercial activity implication” and “dawn of some specific features” of their recollection⁴⁸.

– Group B: FR/B/9

Group B had daily gathered around 20 or 25 Kg. selling the fruit at an oscillating rate of 8 INR or 10 INR respectively (therefore 160 INR to 200 INR, or amidst 200 INR and 250 INR). The given collected quantity and prices are much almost the half of the founded average at the “Economic Evaluation” (around 560 INR for suppliers).

Furthermore, regarding the satisfaction, the group B shows most of women’s fulfillment with the project located the earning from custard apple for their households at the top and fourth level of the ranking: highly valuable (5) and valuable (4). Further, they consider the custard apple business has positively impacted their annual earning on 2013 and expressed their satisfaction with the paid price by Srijan. They mostly coincided about the use of that extra income: food, health and general expenditure.

⁴⁸ FGD worked with a fixed structure of main points and queries that served as a guide, thus for presenting the results several points were associated according to their main characteristics or field, they can vary from meeting to meeting. Since these groups are not part of the main goal of evaluation they were described also at the Appendix 6.



Source: Own elaboration based on SHG outcome

Chart 8: Significance of the earning

At the “improvement scope” their capability to grab the fruit can be enhanced by providing them some tools for this purpose, and by receiving trainings they are willing to have. Another aspect, this time at the production process, there has been a logistic failure highlighted from Srijan side: they complained about the lateness of the truck pick up indicating that the fruit can be damaged. Lastly, they think this can be a profitable activity.

– Group C: FL/KB/17

The fact of having the leaders of the SHG gathered at one meeting made this group C unique. The confidence expressed by these women was outstanding, even more there is a considerable difference of interaction among this meeting and the other meetings, since at the group C capturing more detailed information was captured.

Some of the SHGs leaders’ members had been collected per day earning from 150 INR to 300 INR. About the impact of this particular activity over their annual income the sort of variation is extensive: from 500 INR to 2’000 INR. The emerged information matched to the previous impact of custard apple in their households: 500 INR (captured at this social impact) compared to the 560 INR or 568 INR in average; likewise, for the stated 2’000 INR in average as most by the SHGs members showed up a diminished quantity from the 2’069 INR stated as average of the suppliers’ first approach at the “Economic Evaluation”.

In the Likert scale all agreed 5: high significance impact of custard apple business, considering the members whom participated actively of the production process. They have used the earning in different type of expenditures such as agriculture, food, payment of debts, and health of general expenditure.

This group has specified there is yet much to progress in the business: trainings and specific tools were highlighted as urgently required. By launching the option of custard apple as a profitable continuous activity an overwhelming “yes” was the reply; furthermore, they asseverated they can go to other *Panchayats* enlarging the network of women to work for this business.

– Group D: FR/B/16

To start, at group D, the collectors were paid from 5 INR reaching 10 INR per Kg selling to middle man and also to Srijan. The amount of fruit oscillated from 25 to 30 Kg. per day obtaining 500 INR or 4'500 INR as maximum during the season. The minor quantity coincided with my study's average estimated at the impact on the collector (first scenario of the “Economic Evaluation”).

Foremost, the perceptions are really important among actors, for these women the activity entailed a high (5) and very high significance (4) for their households (holding 59% and 41% respectively). The profits from the business were spent into agriculture, food and health. Additionally for them, the income from custard apple to their annual revenue tacked on with a positive impact.

Whereas regarding the improvement scope, they have had coincided with the group C; lastly they also concurred about the requirement of trainings, tools and their strong will to make this activity profitable for them.

– Group G: FR/B/7

This was the last FGD with tribal women. The quantities of custard apple diverged from the other FGD since they were collected less than four

crates per day were paid in crates, not in Kg⁴⁹. They sold each crate at 100 INR or 150 INR; thus the impact the business had for them in the Likert scale was not significant (they assigned just 2 among possible 5 grades). All the return from this activity was used at general expenditure without considering it highly representative.

An option for improvement at the business was centered at the quantity: a petition of trees was made. They would like to have private plants (with a better quality than the forest variety); in addition they would like to have them with no cost. These women are willing to involucrate more with this activity; though they thought is profitable by having a considerable quantity of the fruit.

- Group F: FR/K/23 and group H: FR/B/8

Despite women represented the main actors for the custard apple business last year, their households are also influenced by their husbands viewpoints. In effect, to interact with the group F and group H was important to shed light on the entire “picture” of a tribal household in the studied *Panchayats*. To ascertain about the upholder of these family members to the project and the activity of custard apple was the goal, consequently there were no structured FGD as the ones used for women at the SHG meetings, although some general inquiries remained.

The arranged meeting at Koyalwav held an outstanding participation of 23 men compared to the 8 men at Bhimana; still both meeting enriched the study. Group F was expressed over the “social norms” affirming the Forest Department had introduced some fences over determined areas of the fruit; as a result they were unable to access those areas (about 115 hectares).

They did not perceive the income as meaningful; yet they attributed the fact to the scarcity of the fruit in the region, and also its bad quality and low yield. Their predisposition to plant the custard apple is upward to their willing to make this activity a profitable source of revenue. They encouraged her wives and children to collect the fruit. Notwithstanding, this positive encouragement did not –and probably would not– combined a support during the collection since the male members were dedicated to other activities closing the maize (*Kharif*) season and initiating the wheat (*Rabi*) season.

⁴⁹ Is accurate to mention a in a crate more than 20 Kg. can be embedded; therefore sometimes they have may lose 3 or 4 Kg. per crate if the sold crate exceed that amount.

Upholding the same tendency during the debate the group H confirmed their members' willing to have custard apple plants and to improve the quality of the current fruit yield. In addition, the support to their family members –wives and children– to dedicate some hours to this activity during the harvest season of the fruit is totally consensual. The sort of backing for the business frames the same scheme as the group F.

3.4.2.3. The SHGs and the project: Women Empowerment and diaspora effect?

Another facet intended to be captured through the FGD was the level of women empowerment. The women who are below poverty line (BPL) facing situations of extreme poverty at India are benefited through SHGs, tackling problems such as medical issues, watershed management and also self-sufficient, due the significant contributions of SHG oriented to microfinance reducing costs of intermediation –for example– and “improving women’s livelihood and their ill-treatment and dependence on men” (Sunny, 2008). The SHGs aim to increase per capita output, savings and investments; thus encourage economic empowerment which can trigger poverty reduction or access to various socio-economic institutions headed for an attainment of gender equity (Íbidem, 114-115). On the other hand, currently at the present case of study, is this happening at SHGs? Do women boost their economic empowerment or/and their women empowerment? What about gender equity? The concept of empowerment is related to gender equality but distinct from it: “the core of empowerment relies in the ability of a woman to control her own destiny; therefore, to empowered a woman must not only have equal capabilities and equal access to resources and opportunities; they should also have the agency to use those rights, capabilities and resources to make strategic choices and decisions” (UN Millennium Project, 2005). After an *in situ* study and the FGD, two pivotal aspects can be address: the SHGs and their impact over empowerment, and the project’s impact on empowerment as it ambitions to provide another livelihood reliable option for tribal women; however it did not imply empowerment by itself directly.

Empowerment for Hulme and Turner (1990) evokes to exert greater influence in local and political arenas (Pazhani, 2008); coincidentally for Srivastava (2000) the consciousness of women’s identity implies their insertion in politics highlighting specially the imperative participation of SC. Certainly, the studied '*Adivasis*' stated no participation on politics, thereby there is no empowerment for them in that field.

Different aspects are stated for Pazhani (2008) for women empowerment: social empowerment, economic empowerment, awareness creation, and skill development (Ibidem, 143-145). All these mentioned above are strengthening through the SHG and with the custard apple project specially the second one; though the first two seemed maybe with a leaden feature. Nonetheless, a real empowerment for these tribal women remains distant.

Certain features were consulted as: the involvement of their husbands, the power of decision with the revenue, their attitude related to the SHG and related to the project were tried to capture during the FGDs. The final results are not encouraging. For example, the sort of management at the household in general, also with the income which proceeding from the custard apple business demonstrated a tendency wherein women have no action, opinion or decision power over money she –or her children– have earned. While regarding the attitude of the husbands and their predisposition for helping their women, the actions thru the process of collecting, carrying, and transporting did not involve much their husbands, rarely physical support was provided (less than 10% of the cases). Though this can be attributed to the work at the field they also do at the same period⁵⁰. Moreover, in order to participate of the SHGs permission was demanded to the husband in order to get “social” involved with other women. Thus, across certain actions and corporal expressions during the FGD at this matter the behavior of most of the tribal women was attributable a still remote empowerment.

Several theories could congregate to determine the main factors or contributions to attain women’s empowerment; undoubtedly, one of those focal aspects can be framed at the economical level. In order to highlight the SHGs’ impact is accurate to mention that the conscientiousness created for savings and the development at microfinance is positive for this commitment; foremost, enhancing the possibility on the first place to gather and share their social concerns, and on the other hand providing them an additional revenue with the custard apple business could for be the dawn at this level of empowerment for the tribal women of the studied *Panchayats*; nevertheless it might be accompanied with a noteworthy changed mindset. Larsen (2011)⁵¹ also confirmed the positive influence of SHGs for women at India standing out the sight of greater opportunities to influence their situation in ways that previously they have not seen before.

⁵⁰ The information about maize and wheat came out during the FDG.

⁵¹ His study aimed to determine however why the rate of fertility for girls was decreasing and was focused at Himachal Pradesh including just three selected districts: Kangra, Una, and Kullu.

To recapitulate this chapter, the evaluation of the tribal households addressed two flanks: economic impact and the social impact of the project. The economic side measured the suppliers divided in three categories: direct suppliers, middle men and “extra people”. The first type of economic valuation implied a method based on averages, this exposed 560 INR of impact for a tribal family. The second method launched series for the total impact on tribal population from 178'992.7 INR to 112'309.8 INR, besides them an impact for the household grounded on four scenarios was calculated, demonstrating a similar result as the first method: 568 INR (Best scenario) and 393 INR (Worst scenario). The calculation of the impact on the process of pulping of custard apple was also detangled; nonetheless, the possibility to track the provenance of the women led a result per *Panchayat*.

Underlying the human outcome, the investigation equally provided valuable information towards the problematic solution. To start, the sample estimation was calculated on the basis of the total population of the two *Panchayats* and the SHGs' households whom have access to the forest area (roughly 41% of SHG members) representing around 1'095 members. A statistical formula seeking a representative sample from the total estimated population was applied; as a result the number of households attained 68 women. Throughout the fieldwork no member was repeated, also the confirmation of independent households was made before each FGD. A pilot test was carried out on the first place. The arrangements of the meetings were constrained on the availability of the members and the facilitators. In total five FGD were concreted with women, and two meetings with men –additional to the sample of women– to complete the entire predisposition/situation about the custard apple business on the rural tribal households. The clustered groups developed were: “strands for the custard apple business” and “satisfaction and opportunities for improvement”, the “dawn of some specific features”. The first two clustered groups were developed in the social impact examination while the latter was the basis for the empowerment *in situ* analysis.

3.5. Conclusions and recommendations

Certainly, tribes and lower castes have a lengthy way to achieve self-reliance and sustainable development; although, government's interventions and NGOs' collaborations have helped to make tangible changes in their life (Medhi, Athparia, & Jose, 2012). The creation of sustainable livelihood options for disadvantaged populations entails a tremendous challenge. As contemplated among the strategies for 'Adivasis' development by Chalam (2011) “all the programs must be

streamlined and revamped to make them much more accountable and responsive” to the goals enunciated by UNDP. In this fieldwork, the evaluation of one alternative amid the horticulture spectrum was concentered. Thus, the custard apple is at first sight a targeted attractive business at the region due several reasons: the extraordinary nutritional proprieties, the availability of the fruit without a cost over the forest area, the natural pesticide unto its leaves and the seeds avoiding predators; moreover the lucrativeness opportunity at each component –pulp, seeds and peel–; though wide considerations must be taken in count for this project.

The monograph aimed to measure the impact for the '*Adivasis*', the tribal households of the custard apple business the NGO promoted for the first time on the year 2013 at Pali. This problematic tackled the economic and social aspect; both were considered for the complete examination. The complexity of the work was enhanced due the remoteness of Nana *Panchayat*, likewise the places where each SHG meeting took place; on the other hand, the high temperatures (around 45°C), the language, and the lack of certain information of the project, which has been created manually. Therefore, the contribution of the monograph targets especially the empirical aspect entailing the work in situ with one of the most excluded groups in the Indian society as worldwide.

An analysis of the business was concentered to achieve an integral proposal and sustain a real approach towards the fruit business and to extend the ambit of exploration for varied feedback-proposals for Srijan. In this part the inexperience of the procedure on their first year and the general process were exposed revealing shortfalls, thus improvement opportunities while working deeply with an analysis of costs, also an exhaustive examination of pulping procedure, the fruit yield breakdown, optimization of the price and yield; lastly leading to the creation of profit/loss scenarios. The yield should rise in 4.8% to level the expected yield of that type of custard apple; whereas, at the same scenario, the analysis of the price was identified as a weakness: Srijan used different prices and sometimes they were not tracked. The price per package was 84 INR (1.4 US\$); while at the closest market the standard price is 124 INR/Kg (2 US\$). Therefore, either the yield leveling or the price augmentation can be launched as proprietary aspect to obtain a favorable profit/loss scenario for the operation of the business henceforth –the loss of the activity in the year 2013 was around 40'000 INR (661.6 US\$)–. Notwithstanding, is also advisable the creation of a brand, similarly an improvement of the packaging (also to justify in some extent the rise of the price); additionally, the considerations over a sanitary registration and the quality control contemplations for the entire productive process (especially at the packaging part) are strongly encouraged.

On the other hand, while addressing the product, price, place and promotion (features which were not demanded by the NGO though extremely appreciated) the main findings were: firstly, the applied sort of price management which offered diverse prices –even downward to the same client– diminished the negotiation power for the Srijan and could lead into business informality. Secondly, to build stronger links with the actual clients without rely to just one client almost all the production; consequently, emphasizing the importance of a market exploration to assure the demand of the production. Furthermore, the creation of a brand is imperative for a medium term business; additionally, to boost the revenue of the final product is advisable an exploration of the distribution channels for the pulp of custard apple, also for the other parts of the fruit.

At the fourth part of the work, the impact of the custard apple over the households was tackled. While unsetting the possible effects two flanks were identified: first, the economic influence and the human outcome of this project; then, the social outcome. In order to unfurl the economic angle the possible sources of income for the women/tribal household were addressed: the people involved as a supplier and women who worked at the pulping processing.

Two methods of calculations were used to estimate the economic impact at the suppliers' side for each household of women who participated of this process. The first method was based on averages' estimation, thus the result was 560 INR per household (9.2 US\$). The second method launched 4 different results depending on the estimated price: around 568 INR at the best (9.4 US\$) and at the worst scenario 393 INR (6.5 US\$). Both methods converged barely to the same result: around 560 INR for the suppliers. There were identifications of possible impact of the supply channel as whole directly to the tribal population. Nevertheless, the lack of precise prices or the unawareness of the exact quantity given to the tribal households through middle men impeded an exact amount.

While focusing on the pulping process, the identified quantities of the women jointly to their work days were the cornerstone of this valuation (if they work during days and nights, and their *Panchayat* of provenance to obtain the economic impact per *Panchayat*: from 1'290 INR at Amliya to 2'325 at Govardhanpura). Notwithstanding, is not feasible to join the obtained results of these *Panchayats* with the suppliers results, since from the tracked first group of suppliers there existed some gaps amidst the suppliers provenance, hence the results have remained at a global level for the suppliers.

Finally, still at the economic impact evaluation scope, towards a round off in the economic impact, a comparison with the tribal income was made. Their annual income is around 34'971 INR, thus their monthly income

would be 2'914 INR; accordingly to the *Panchayat* for supplier/worker women an average impact at monthly analysis reached the 559.5 INR (equivalent to 19.2%), or the 568.2 INR (19.5%) descending to 393.4 INR (13.5%), yet the repercussion at their yearly revenue is closely imperceptible: from 1.6% to 1.1%. Is accurate to highlight that the pulping production has a stronger repercussion, its annual repercussion per household in average depends on the *Panchayat* of origin, nonetheless is more distinguishable: from 3.7% to 6.6% meanwhile the monthly approach impact was 44.3% rising to 79.8%.

Lastly, for the economic evaluation is accurate to conclude: the calculation revealed an impact which might have a different way of valuation. A reunion with the CEO of the NGO brought me the opportunity to suggest parallel horticulture projects, since the custard apple has a constrained cycle at the forest must be replaced with a sustainable line of fruits, also an encouragement of the private fields should be considered in order to boost the revenue for the tribal household whose collected quantities are limited. The rise on the price of paid to the collectors whom plucked fruit must be equally seriously well-thought-out.

Among total clustered features of the social impact evaluation, two were detailed since they were closely related to the problematic. On one hand, the perceptions over the custard apple business, which result was favorable, the impact over their incomes in a Likert scale was in general well positioned (around 4 and 5); and the predisposition is elevated from both sides: women as main actors and husbands as encouragers. They consider the custard apple as a profitable business, and in some cases have demand trees so they can expand this business. Each reunion was located at nearly 120-150 Km. away from Nana *Panchayat*, no roads were available.

Conversely, at the other aspect of the social evaluation which were included at the Appendix 6, no social norms were founded, just the respect of private propriety or the restrictions imposed by the Forest Department at some areas. Tackling the Forest Department, this entity was considered as a heavy-weighted stakeholder into the business; therefore my strenuous attempt of meetings' arrangement during nearly a month and a half. Two visits were concreted –one at Udaipur and the other at Pali–; however the persons whom compromised their presence were not there. Since one of the project primordial aspects certainly is the provision of custard apple (the guarantee and quantity of resources), the trend research supported on the actual plantations widely grown at the forest are recommended to complete the present study for future actions and previsions, also to estimate the mandatory quantity at the private fields.

Finally, while nailing-down the demographic side at the descriptive current situation of tribal households, severe problems to grapple have been exposed: barely inexistent education, high fertility rates which seemingly are still increasing and women lacking the sense of empowerment. My results barely matched to the ones obtained by Véron at 2008, whom portrayed 3.55 children for the analphabets group of India; whereas at the studied group I obtained 3.60. In a nutshell, certainly no source of additional income for livelihood will carry out a tangible improvement in tribes lives if their family still expanding each year, or each two years. Thereby is advisable for Srijan to involve a parallel project in this field, otherwise the projects for livelihood will not entail the expected superior achievement at the targeted population. Some programs tackling vital issues as familial planning, population growth and education should interact along with MPower at Rajasthan with the rural tribal populations; otherwise all the effort endeavored on the creation of livestock opportunities will trigger a minor impact as the potential-expected one. This population is object of tremendous marginalization at many levels; since development is a holistic approach, other angles should be tackled to promote a major welfare for them.

On the other side, the direct employment and the possibility of an additional income/ livelihood option for tribal women was surely contemplated as one of the main objectives while outlining the project; nonetheless when the Producer Company will start running by their own, what will be undertaken as a major issue? The revenue for the company or the major impact on their employees is going to be the priority? Are they are going to rely just on the wild fields or an industrialization is contemplated? Those aspects should be not elapsed for the NGO. Subsequently, the division of this unit is extremely advisable considering other horticulture options at the region, which can attain an entire year, preferably as a separate organizational structure from Srijan.

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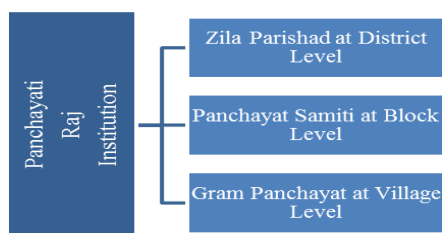
3.7. Appendix

Appendix 1

Projects at Rajasthan

The organization has two projects at Rajasthan: MPower and the Integrated Watershed Management Program.

- MPOWER: its main objective is to mitigate poverty by different livelihood intervention activities like agriculture, horticulture, livestock and Natural Resources Management (NRM) through building a three-tier sustainable community institution (SGH, Cluster and Federation)⁵². This tier system could be compared to the *Panchayati Raj* Institution (PRI) equally conformed with a triple structure: District Level with *Zila Parishad*, at the Block level *Panchayat Samiti* and the *Gram Panchayat* at village level. The function of this institution is to assure the effective implementation of different government program at the grass root level.



Source: Own elaboration based on the interview of Mr. Tewary

Figure: Structure of the *Panchayat Raj* Institution

The project is running at the western Rajasthan area considering six blocs: Baytu (Barmer District), Bali (Pali District), Baap (Jodhpur District) Sankra (Jaisalmer District), Jalore (Sanchore District) and Abu

⁵² These social figures are composed by women. The functioning of them will be described hereafter.

Road (Sirohi District). It has started from 2011, its culmination was supposed to come by the year 2014; nonetheless they had extend the project for one more year due goals' incomplete achievement. This project has been funded by IFAD (International Fund for Agriculture Development), SRTT (Sir Ratan Tata Trust) and the Government of Rajasthan.

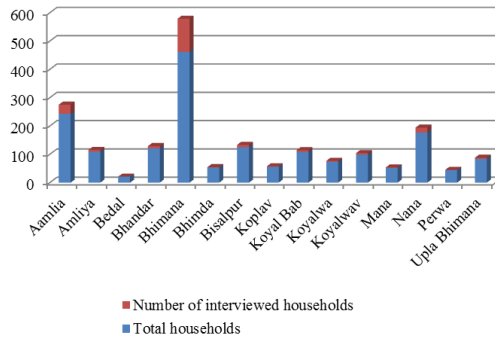
- IWMP (Integrated Watershed Management Program): Watershed Development Program is running in India for more than forty years and was recognized as the key instrument for holistic development of village. Srijan got the Watershed Project in 2012-13⁵³ however it was built originally at the year 2011-12. This is a flagship program covering the entire country focusing more on soil and water conservation work –which will provide support to agriculture and other allied activities–. Despite the engineering of the project was made for the whole state Srijan is reaching seven villages at Bali Block of Pali District (Rajasthan).

One of the main funding agencies is ABF (Axis Bank Foundation). This agency started giving funds from the year 2012-13 targeting organizational development, capacity building, community institution building and wide different livelihood intervention with poorest of poor families –at the bottom of the ones who are below the poverty line–. It also focuses on doing convergence with different government programmers for development.

⁵³ The financial year in India starts from April until March of the next year.

Appendix 2

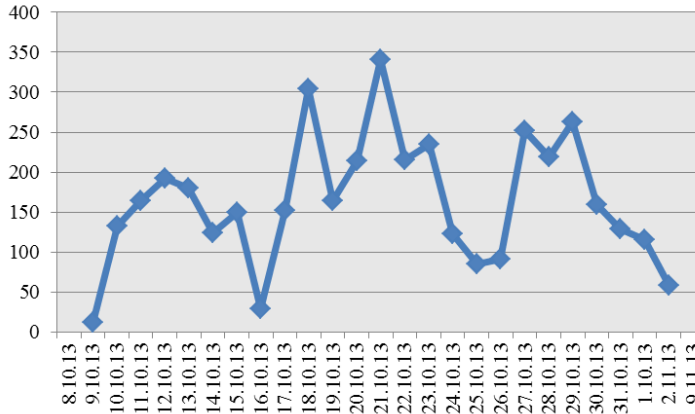
Households included in the study per Panchayat by Srijan



Source: Own elaboration based on Srijan Report

Appendix 3

Total extracted pulp during the processing period



Source: Own elaboration based on data of Srijan

Appendix 4

Visit to the Rajasthan College of Agriculture



Source: Own caption at the Rajasthan College of Agriculture

Appendix 5

Basic guideline for the FGD

1. Are you married?
a) Yes b) No

2. How old are you?
a) Less than 15
b) Between 15 and 20
c) Between 21 and 25
d) Between 26 and 30
e) Between 31 and 35
f) Between 36 and 40
g) Between 41 and 45
h) Between 46 and 50
i) Between 51 and 55
j) Between 56 and 60
k) Between 61 and 65
l) More than 65

3. Do you have children? (If No go the question 5)
a) Yes b) No
 3a) If yes how many?.....

4. Are your children older than 6 years?
a) Yes b) No
 4a) -If yes do they go to school? a) Yes b) No
 -If No why not?
 a) They don't need the school
 b) They help in the work field
 c) Both
 d) Other.....

5. Do you know how to read and write?

 Yes No

 If Yes what level of education did you reach?.....

6. Select your tribe
a) Grasia
b) Bhil

7. Did you grab the custard apple from:
 - a) Forest
Which forest?.....
 - b) Your private field
 - c) Both (please specify % for each).....

8. Do you have any private plantation of custard apple?
 - a) Yes How many trees?
 - b) No

9. How do you delimitate your region of grabbed fruit considering it was grabbed into the forest?
 - a) I will just go if it is close to my house
 - b) It's not determined, I can grab it wherever I want to
 - c) Other

10. Can you grab the fruit from a tree that is outside your region?
 - a) Yes Why?
If yes in which forest do you usually grab the fruit?.....
 - b) No Why?
B1) it's prohibited (explain please "Social Norms").....
B2) it's too far
B3) other

11. Are there other specific particular social norms regarding custard apple plantations?

12. Of how many trees in average have you collected the fruit last year?.....

13. Is there any area that's is prohibited by the government for custard apple?
 - a) Yes What's the name of that area/forest?.....
 - b) No

14. Who was the person engaged to this activity last year?
 - a) Just myself
 - b) Myself with the help of my children
 - c) Myself with the help of my husband
 - d) Myself with the help of my children and husband
 - e) Just my children
 - f) Just my husband
 - g) Other

15. How many hours per day did this person (the group of persons) dedicate to the custard apple collection last year?
 - a) Less than 3 hours
 - b) 3 hours
 - c) 4 hours
 - d) 5 hours
 - e) 6 hours
 - f) 7 hours
 - g) More than 8 hours

16. How much did you recollect per day in Kgr..... Or in crates.....?
17. How many INR have you earned *per day* (in average) of recollection?.....
18. How many INR have you made in the whole season with this particular activity?.....
19. How much did your HH earn in global last year with all your activities?.....
20. Were you selling the fruit at the rate for Kgr. Or crates?.....
21. At what rate per Kg. are you selling the fruit?.....
22. Do you think this earning is significant for your household?
 - 1 Not at all
 - 2 Quite significant
 - 3 Moderate
 - 4 Significant
 - 5 Very significant

23. What have you done with the earnings from custard apple you have gotten?
 - a) I had used them just for myself
 - b) I had given the money to my husband
 - c) We have a common pot at the household
 - d) Other
24. Your household has used the earnings from custard apple in:
 - a) Agriculture
 - b) Food
 - c) Payment of debts
 - d) Shelter improvements
 - e) Education
 - f) Health
 - g) General expenditure
 - h) All of them
 - i) I don't remember
 - j) Other

25. How much did this extra money (from custard apple production) impacted in your 2013 global earnings?
- 1 Nothing
 - 2 Not much
 - 3 Moderate impact
 - 4 Positively
 - 5 Highly positive impact
26. Were you satisfied with the payment for custard apple?
- a) Yes b) No
27. To whom do you sell?
- a) Directly (no middle men) in which market? Or where?
- b) Indirectly (not directly into the market)
- Ghoomar Mahila Mahasangh
28. How do you transport the collected C.A. from your house to the point where you sell it after?
- a) By walking (just hanging)
- b) By walking (box over the head)
- c) By cow or other type of animal
- d) By bicycle
- e) Other
29. Did you transport the fruit by yourself?
- a) Yes
- b) No, my children helped me
- c) No, my children carried it
- d) No, my husband helped me
- e) No, my husband carried it
- f) Other
30. How often did you transport the fruit you grab?
- a) End of the day always
- b) After two days
- c) By the third day
31. How much time does it take you to transport it to your nearest Local Center?
- a) Less than one hour
- b) One hour
- c) Two hours
- d) Three hours
- e) More than four hours

32. In which month did you collect the most? If they select one month in particular (why more in that particular month?)
- September
 - October
 - November
 - All the same in average
33. What are the activities you are doing for the household earnings during these three months?.....
34. What other activities do you usually do from December to August?
- Agricultural
 - Family farming
 - Unskilled labor (daily labor)
 - Both
 - Other
35. Does the maize cultivation timing and the custard apple fruiting period coincide?
- Yes
 - No
36. If they cultivate maize for around 6 months, does the custard apple production interfere with this yield?
- Yes, it interfered
 - They crossed but we can manage it
 - No, it didn't interfere
 - Custard apple has interfered with other type of yields
37. How do you think your capability to grab the fruit can be enhanced?
- If I have the chance to do it myself (not my children)
 - If I get trainings
 - If am I provided of some tools
 - Other
38. What can be your suggestion to improve the custard apple fruit production?
- More varieties of the fruit
 - More field to grab the fruit
 - Other
39. Do you think CA can become a profitable activity?
- Yes
 - No

Appendix 6

Complementary part for the Social Impact Evaluation

Group A: NFC/K/22

At “hermeneutics” the children went to pluck the fruit employing 4 to 5 hours collecting from 5 trees in average just for own ingesting; they only went to private fields or some nearby forest area –without specifying forests’ name–, two members have eight trees each (these trees were given by Srijan). For the “social norms” they should not go into a private field which is delimited, for most of them the forest wherein the fruit is more abundant is remote. Generally during the trimester of September, October and November they work in daily labor and household activities; on the other hand, they harvested the fruit during the latter two months; moreover, the unskilled labor, family farming and agricultural are their main activities during the rest of the year. They have affirmed that with some promotion they will set up the custard apple for next year’s production.

Group B: FR/B/9

Hindsight at the “hermeneutics” of this group revealed names of forests where they had obtained the custard apple last year: *Kala Takra* and *Dibh*, none of them held a private plantation. They have stated is prohibited to pluck the fruit from a neighbor community, they can only do it from their established area; however for “social norms” they do not exist for custard apple plantations. In average they collected from 20 to 30 trees every day around fifteen days last year. The women and her children were engaged to this activity last year dedicating 3 to 4 hours per day.

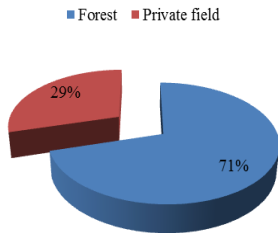
While structuring “hermeneutics”, they transported the custard apple fruit by walking with the box over their heads, mostly they did it (without the help of children or husband), they generally waited 2 or 3 days to transport it –once the fruit is ripped– and sold it to the Ghoomar Mahila Mahasangh (to Srijan). In addition, along the label “time-activities” they harvested the fruit during October and November; thus during the same months and also September they do the agricultural and household work, these activities are considered to remain for the entire year. Other types of

cereals or cultivations will not interfere with the custard apple production for them.

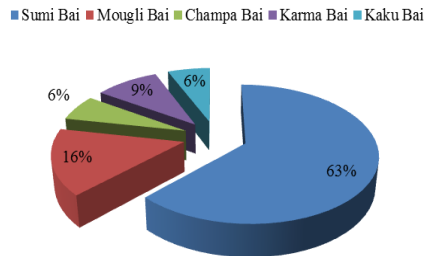
Group C: FL/KB/17

The “hermeneutics” highlighted that members grabbed the custard apple from the forest area and private field; however 30 percent of the leaders held private trees as well. Related to the person dedicated to this activity last year the answers had departed: less than 10% attributed just themselves the duty, while around 55% confirmed they received help either from her children or some from her husbands, the rest just corroborate the family member who got the time dedicated 3 to 4 hours per day, collecting from 30 to 40 trees in average to accomplish it. The plucked custard apple was always transported by the end of the day. Around 2 or 3 hours were employed for these women to bring the fruit to Nana; some of them were picked up though there was no difference on the paid price for them.

**Place where the fruit comes from
FL/KB/17**



Custard Apple Trees



Source: Own elaboration based on SHG group outcome

Chart: Private trees relation at the FL/KB/17

As stated on the previous SHG meeting FR/B/9, the fruit was sold to the *Ghoomar Mahila Mahasangh* (to Srijan) unless some children whom collected the fruit sold it to another buyer. The rank of prices varies from 6 INR to 10 INR, coincidentally 6 INR could have been the paid price to

the middle man or the bought from Koyalwav by Srijan (76 INR were paid for 12.7 Kg.).

The “social norms” part supports inexistence of them, they affirmed the custard apple can be harvest from the forest area (unless there is a specific area restricted by the Forest Department); they usually grabbed the fruit nearby their households. Inside the “time-activities”, the trimester for custard apple harvesting is done as a parallel activity to maize (*Kharif*) harvesting, wheat (*Rabi*) cultivation, also or fodder collection for example. The activities they usually do the rest of the year are firstly agricultural, then they are dedicated as unskilled labor. They had confirmed even they may have some cultivation coincidences with custard apple; somehow they can handle them perfectly.

Group D: FR/B/16

The “hermeneutics” evinced the fruit was plucked of both: forests and private areas (in a minor quantity at the latter). The name of the forests wasn't specified, they just named it *Magra* (in English means hill). The number of private trees held is higher compared to group “C” or FL/KB/17 – 440 contrasted to 320; while the member *Chopi Bai* has 250, while all the others reached together 190. On the other side, the plucking task involved all the family members (women, children and the husbands) dedicating four hours as maximum per day during 15 days of an average of 50-60 plants. The “social norms” for custard apple did not exist according to this group, is not determined the region to grab the fruit and they can harvest it wherever they want to; moreover, no area is prohibited by the government or the Forest Department.

In another subject, the way to transport the fruit was just carrying the harvested custard apple in sacks after one or two days of recollection, mostly with the help of their children. They engaged about two hours to transport it at the Local Center at Nana. Moreover, they have had exactly the same response as FL/KB/17 to the debate about the months of harvesting, the management of their activities including custard apple with them

Group G: FR/B/7

Immersed amid “hermeneutics” debate some differences related to the other FGD came out. This group did not have any private plantations, and the minor quantity is collected from the *Luk* Forest; nonetheless, into the “social norms” the group has affirmed there are restrictions in the forest where they could not pluck the custard apple, not government marks but village marking; conversely, they affirmed that there are also governmental restrictions in the forest and that to pluck the fruit implied they were barely stealing it. There is a total difference between their answers and the other FGD / SHG meetings in this topic. Backwards, at “hermeneutics” they collected from 50 to 60 trees in average last year and all the family members were involved in a manner dedicating 5 hours per days during 16 days.

They have sold to the middle men and Srijan. If the truck made the pick-up that day they sold it, otherwise they stored it for two days. If they delivered the fruit to the buyer it implied less than two hours of their time. They have plenty coincide with all the other FGD’s answers and standpoints at this part of the debate.

Chapter 4

Main findings and general discussion

Inclusiveness has been analyzed within two dissimilar though related areas of study: innovation and development. The theoretical chapter unveiled some crucial realities at the inclusive innovation definition. The final forty one documents were selected based on three different criteria baptized as: source of research, label and publication. Those documents were examined according to the two first objectives of the thesis.

1. Inclusive innovation's definition by identifying convergences/divergences at the conceptualization of the studies.

Aiming to enhance a theoretical knowledge at the inclusive innovation field, two research questions were raised; the first research question was: what are the core elements of the inclusive innovation's definition across literature? Both were tackled with the SR methodology. To address the first research question –i.e. the divergence at the conceptualization of inclusive innovation– can be analyzed from two perspectives: the general convergence of authors in general referenced authors, while at the other side there can be the exploration of elements that intervened to create this definition.

While tackling the convergence of authors is accurate to state the level of creation of inclusive innovation definitions: around 39% of the authors have contributed stating a version of their own for inclusive innovation. In contrast, 61% have cited some author's definition along their document. Nevertheless, two or three definitions of inclusive innovation per document were acknowledged in some documents: Ngoc (2017),

Amaro-Rosales & De Gortari-Rabiela (2016), Sengupta (2016), Foster & Heeks (2016), Kimmitt & Munoz (2015), Foster & Heeks (2014) and Foster & Heeks (2013b). Amid the 61% of authors there were two definitions referenced by nearly 30% of authors, those correspond to the definition of George, McGahan & Prablu (2012) holding the 15%, and Foster & Heeks (2013b) with 14%, respectively. The rest of the authors' definitions were scattered almost homogeneously, as a consequence no third definition sticks out from the rest.

As a consequence, instead of convergence of definitions for inclusive innovation there is preponderance of two definitions in comparison to the rest; though, no majority can be attributed to a unique or more definitions of inclusive innovation. Therefore, at the studies still there is not a consolidation of the term, additionally; at some cases the inclusive innovation is used indistinctively at literature to refer either at inclusiveness or innovation; or just the sheer sense of inclusion of factors, all the above were covered.

Some questioning might create a debate and a planning for scholars interested in this matter: if there is a heterogeneous of inclusive innovation's conception around stated ten years later from the first time the term was mentioned (Chataway et al., 2016), can this field be considered yet in development even at the basis for its definition? As suggested in the main findings and discussion at chapter 2, the consolidation of the term should be a priority among scholars; hence the futures stages of it can be settled.

The second part of exploration attains the elements of the definition. Those have varied containing a verb of action which entails the direction of the definition; the element which portrays the beneficiary was not detailed throughout all the definitions. The table displaying these core areas in Chapter 2 revealed the different elements authors have used to define this field; thus there were three relevant areas of examination: the targeted group, inclusivity or its purpose area, and the process. Notwithstanding, deepen in some elements of the analysis brings out some pinpoints of certain elements; for example, the statement of "what" at inclusive innovation's definition as new ways, new ideas, or simply ways can communicate a truly broad spectrum of possible action of this innovation: what can assume as "new"? New can be named if it is new in the context, in the country, amid the population, at the industry or in a geographic scope? How can the science track all this innovations at informal scenarios? Certainly, the outreach of the terms could have different directions of analysis of what can be considered as innovative or not, despite fulfilling the inclusivity factor. Another element to put down on the fore is the "who"; some authors emphasized the marginality of communities, broadly focused towards the low income and/or BoP; on the

other side, the poor, the disfranchised or low income communities are the most focused for inclusive innovation. Though the definitions have had a social and economic alignment, while exploring the sense of inclusion (UNDP, 2014), these can extend to other beneficiaries: as gender, ethnicity, age, sexual orientation, disability or poverty. Poverty has the main stage at the inclusive innovation definitions; the marginalized or disfranchised members have also an impact across the definitions yet in a minor manner, the latter definitions contemplate a broader extent which rises the UNDP vision. Should inclusive innovation cover all the sense of inclusion exposed by UNDP? Is this a hint for the following work on this area? Those considerations affect the route on the definition of inclusive innovation.

The second research question was: how is scattered the typology and evidence from the inclusive innovation? A division of four categories was built based on the level of accuracy from each document towards inclusive innovation itself and the aim of the study. The studies holding the first category type I had a major involvement and pertinence to inclusive innovation, the involvement to inclusive innovation at least in the conclusive part brought up the studies II and III, while the IV was not included due the lack of conclusions related to inclusive innovation; likewise, for not complying with one or more of the classification' requirements. Further, the typology of studies reflects the descriptive as the leading structure, in second place the empirical while the cases of studies are in the third place.

In spite of the prime structure which was the guide to classify the studies either at the groups reflecting pertinence to inclusive innovation or a specific type of study within this field; this result can differ for another evaluator, since in this part the appreciation of the evaluator to classify and categorize each type of study is a keystone. Many of them hinge on not only the extension of the underlined part's type: descriptive or empirical (to name the ones that stand out); similarly the documents can be perceived as mixed in some cases, due the combination of more than one type, plus its high permeability for one or other category at certain cases. Even more, for some studies it was still tough to ratify their strictly scoped at the inclusive innovation field, due their indistinctive management of some other terms as equivalents or complements. As a consequence this part might diverge according to the lens of the evaluator. Hitherto the inclusive innovation field has not taxonomy; therefore, its scope is yet not well defined.

2. The geographical coverage and the strands of relevant conclusions at the inclusive innovation definition's frame

Keeping up with the same SR methodology, there was an identification of the geographical zones where the studies titled with inclusive innovation took place. Two research questions set up this objective: first, how is the geographical distribution of inclusive innovation across literature?; then, what are the main conclusive strands from authors? Noticeably, at the geographical distribution there is a landmark for inclusive innovation tilting towards Asia; although, the studies over countries scattered at Asia are diverse (India, China, and Vietnam, Malaysia, or Philippines as countries members of ASEAN were mentioned as examples as well). Unquestionably, India leads the studies field followed by China. Then, countries as Kenya, Mozambique and Uganda positioned Africa at the second place. Consequently, Latin America was addressed by studies at Peru, Brazil, Mexico and Panama. Lastly, at Europe only Italy was covered. As implied into the main findings and discussion of the second chapter, the fact the leading countries endeavors' at inclusive innovation have privileged positions at the forecasted-top 32 economies which may become the most powerful by 2030, a list published by the World Economic Forum (2017b), and in addition other six countries wherein inclusive innovation was engaged also appeared in the list could represent an object of further study –combined with further variables– to confirm whether there is a relation amid inclusive innovation and a forecasted comprehensive development in a country.

Accordingly, for the second research question, the conclusive sections with relevance to the aims of the study were explored. For the main conclusive strands the own-elaborated aggrupation can be summed up based on the coded documents as follows:

- Concept management: two possible approaches with the pro-poor ESTD and the grassroots entrepreneurs (18), grassroots innovations as a beneficial for inclusive innovations (32), rural innovation a driver for inclusive innovations (33), BoP and top-down criticism (28), autonomy and top-down criticism (26), mainstream innovation differentiation (16 and 23).
- Holistic approach: as a key factor (20), stakeholders core participation (1), actors (36), operationalization of inclusive innovation in the means of IPs and its dependence (24).
- Policy making: scarce work on inclusive innovation policies support (23), contextualize inclusive innovation models (22)

and a faster targeting for the inclusivity factor (32), complexity for align and implementation (23).

- Government side: an encouragement of top-down policies for private sector and society (8), R&D activities and social policy should become a target for governments (29).
- Community: the impact over community as a whole (3), also the necessity of its participation for success (40).
- Envisioned of inclusive innovation: inequality-battled innovation (18), regroup threads of development and growth (20); while many inclusive innovations innovation varies within the context (24).
- Models of inclusive innovation: the possible outreach whereas including grassroots innovation, the frugal innovation, cluster innovation, and innovation platforms as models (21); the IPs as a “promising model for inclusive innovation” (24); the match of STI institutions and GIMs for models of inclusive innovation; for (21) cluster innovation as a proposed model, clusters are suitable for an inclusive process (25); GIMs represent a cradle to propose models (22).
- Facets of inclusive innovation: (39) conceived concepts as frugal innovation, grassroots innovation or BoP innovations are “multiple facets depending the context and specific conditions of various economies and societies”.
- Process of inclusive innovation: a process based approach (22), drivers of the process (34), measurement of inclusive innovation (35), and the informal sector as a considerable part of population (29).

Clearly, the scope each author brought up at the inclusive innovation field is diverse. Despite the main source was the conclusive section classified as pertinent to the aim of the thesis, there were also some considerations which the author may highlight along the document that were valuable and contributed to shape the conclusive strands.

3. The new livelihood option provided to the Adivasis group and its sustainability

While working at India there were several projects in which the NGO was engaged at, this particular project was created to become a livelihood option for the Adivasis. The research question for this specific objective

is: how can this project can be measured and qualified in order to achieve sustainability? Its measurement has entailed an entire evaluation of the process of production, the comparative yield performance, and a creation of profit/loss scenarios.

Firstly, the process of production was examined inquiring people who worked and likewise analyzing different documentation directly linked to the production process. The estimations for the entire process at each stage were described carefully at a table in Chapter 3; the entire process included: the inflow session, grading and sorting unit (about half on an hour), processing unit (one and a half hour), and the packaging and hardening (six or seven hours). Some recommendations came out after the analysis of the process and the records of the year's first production: dissociation of the human resources from the NGO involved in this process, since the project can thrive if the workers are fully committed to this task and not randomly working for it. Two investments must be considered: trucks and the principal machine for the process. Furthermore, the possibility to dedicate part of the headquarters at Nana office just for this project also must be put down to the fore of analysis due the positive implications for the productive cycle it can trigger (storage and time optimization at the development of the project). In addition, to obtain a sanitary certification is advisable, for which the process will have to adhere to certain rules, especially for the packaging section. At the comparative yield performance part, the lack of experience demonstrated the variability of the processed quantities similarly to the unregulated inflow of fruit. The obtained yield performance reached the 25.2%. Notwithstanding, to compare with the standard yield of the fruit an interview with the Head of the Department of Horticulture was achieved. The confirmation of the 30% minimum-yield performance of that specific variety unveiled some inefficiency during the process.

While nailing down the results of the business profitability, some the scenarios were created to identify in which scenario Srijan has worked, thus to finally state an uncertain aspect for the NGO: which has been the average price of the pulp per kilogram. Most of the payments to the suppliers and clients were unrestrictedly managed by Srijan, which has offset these payments sometimes. Identifying all these was challenging considering the scarce information, the contradictory documents they carried out at the exerted year. For the scenarios method, the machine for scooping and pulping was included as the first contrasted scenario. Nonetheless, why including a machine that may substitute some workers' job at scooping and pulping? If the *Ghoomar* Producer Company becomes a reality soon the profits may be equally distributed among the Adivasis women involved in the project, so the profitability will be pursued instead of their mere focused-participation, as a consequence the earnings should be their main concern for the process optimizing every

stage within it. Consistently, the complementary scenarios were made by managing explained variations at the price and/or the yield to find out stepwise how to manage both variables. In spite of not optimal results for Srijan at this project first year's operation, there are core aspects that spur the project to entrepreneurial level, thus it will benefit the Adivasis enormously at the medium run.

4. Inclusive development through an in situ work with the Adivasis

The inclusive development was evaluated considering two flanks: the economic and the social; both considered as crucial aspects of the UNDP's definition of inclusive development. Additionally, to complete the portrait of Adivasis inclusion data, the demographic scope was detailed.

At the economic side, the sources of income for the Adivasis were acknowledged: suppliers and production process. For the suppliers two methods of calculation were used with the three categories of suppliers. The result of the first method was 560 INR of impact for the tribal household. For the second method four scenarios: best, good, worse, and worst, which were settled oscillating the payment to the each type of collectors and the attributed percentages to each scenario. The best scenario was 568 INR of impact while the worst 393 INR. Nonetheless, as specified at Chapter 3, the total tribal impact will differ 178'991.7 INR and 112'309.8 INR. For the tribal women involved in the production process a total amount of 105'015 INR was paid. The possibility of an overlap was barely eliminated since less than 2% of tribal women participated both at the production and the supply part, and those did not belong to the same household. Consequently, the calculation of the payments human resources involved per *Panchayat* was concreted considering the differentiation between day and night payments, the quantity of women involved and the average days of work, the results of the average INR of economic impact per *Panchayat* were: 2'250 INR at Amliya, 1'290 INR at Bhilbasti, 1'463 INR at Bothara, 2'325 at Govardhanpura, 1'979 INR at Kalibore and 1'509 INR at Koyalwaw. Notwithstanding, to state the economic impact for the households an appraisal was done with the calculated yearly/monthly income; thus their income amounts to 2'914 INR. Only for the slight 2% (who were benefited at the collection and the production process) the benefit amounted closely to another monthly income for the household. For barely the entire population involved of suppliers the average impact on her household's monthly income reaches the 19.2% (first method), or the 19.5% descending to 13.5% (second method). On the other hand, for women who worked at the production, their monthly impact would oscillate grounded on the *Panchayat* from 44.3% ascending to 79.8%.

On the other side, the social valuation implied on the first phase the selection of a sample the women from the stated *Panchayats* with a statistical formula applied for finite and known populations. The sample of selected *Panchayats* accounted 68 households which were object of the FGD methodology (some considerations were highlighted based on the particularities of the place like the remoteness of each meeting, the population and the methodology itself). A schedule of the SHG meetings was elaborated based on the match of the members' meetings and the households number fulfillment; furthermore, the particular queries reflected the dawn of some specific features, the satisfaction and opportunities for improvement and concerns of the project, all were organized to guide each FGD meeting, these were divided in six groups oriented on a particular objective of "related answers". Each group was codified according to the type of collectors, the *Panchayat*, and the number of members. Thereby, two additional meetings were held with tribal men to obtain valuable supplementary perspective for the succeeding reinforced statements at the study. Another intended factor to be captured is the women's empowerment to complement the social valuation of the project at the *Adivasis*.

Whereas, on the demographic area, a three-cornered frame was elaborated: age and marital status, fertility rate, and literacy rate; all the outcome was contrasted with the results of a referenced investigator at this area: Véron (2008). Although, the results came exclusively from the SHG members and women who work with the project, the accounted number of women is a representative quantity for the obtained results. A 98.6% of the tribal women are married, the percentage of an early marriage in general was 5.6%; in addition, the percentages for eleven cohorts were determined. Véron's achieved average age for marriage was 17.2 years old; while this study obtained 19.4 years old. The fertility rate from Véron for the analphabet group at India was 3,55 per women at 2006; the rate of the study has attained was 3,6 children per women, demonstrating that at this particular population high fertility rates almost 18 years later continues to be a concern for any further policy making. Finally, the literacy rate strengthened the unprivileged situation of the tribal women; the literacy rate of Bali block was 34.5% for females while at the women from the *Grasia* tribe scarcely attained 4.2% and just two members have reached the 12th year of schooling. The demographic scope was introduced in the part of current situation at the Chapter; also to portrait the situation and reinforced some final declarations at the conclusive part of the chapter.

In the following table has been summarized all what have been stated above:

Table 18: Summary of objectives, research questions, hypotheses and main findings

MAIN OBJECTIVE	RESEARCH QUESTIONS	SPECIFIC OBJECTIVES	HYPOTHESIS	RESULTS
To deepen the comprehension of inclusiveness from two different yet complementary flanks: theoretical and empirical	What are the core elements of the inclusive innovation's definition across literature? How is scattered the typology and evidence from the inclusive innovation?	O1. To enhance the theoretical knowledge of inclusive innovation's definition by identifying convergences/divergences at the conceptualization and the typology of the studies.	H1. Has there been a major convergence among authors at the conceptualization and typology at studies from inclusive innovation?	The preponderance of two definitions was identified at the conceptualization; though there are different highlighted elements across the definitions which guided the research orientation at this field. Whereas at the typology of the documents the majority were framed at the descriptive and the empirical; nonetheless, the valuation may differ through conjunctions at the documents
	How is the geographical distribution of inclusive innovation across literature? What are the main conclusive strands from authors?	O2. To explore the inclusive innovation definition's frame by ascertaining the general geographical coverage and the strands of relevant conclusions.	H2. Is there a specific geographical coverage for inclusive innovation or an orientation at the significant strands of conclusions for inclusive innovation?	Noticeably, at the geographical distribution there is a landmark for inclusive innovation across studied literature tilting towards Asia, especially at India followed by China. Contrariwise, at the strands of conclusions there are diversification of the authors' focalizations from policy making to models of inclusive innovation.
	How can this project can be measured and qualified in order to achieve sustainability?	O3. To analyze the new livelihood option provided to the Adivasis group and its sustainability	H3. Has the new livelihood option entails sustainability for the Adivasis population?	Sustainability entailed a multi-approach analysis: the improvement at the process: both at the yield performance (a rise of 5%) or a migration to other type of machine for scooping and pulping; at the production process the inflow of fruit and some other stages should be reinforced in order to optimize it; whereas for the profit/loss scenario the price must play a relevant role while upgrading the packaging materials and procedure, also the creation of the society for women separated from the NGO must be taken in count.
	What are the repercussions of the project at the involved Adivasis population on the economic and social side? What is the demographic current data from this population?	O4. To examine inclusive development through an in situ field work for the Adivasis at India	H4. Does the inclusive development at the economic and social sectors entail an expected level of achievement at both areas for this population?	At the economic analysis a contrasting of the averages method and the scenarios method (second scenario) practically achieved the same result. Although the segmentation of Panchayat and contrast by economic segmentation brought up a differentiation per Panchayat which oscillated up to 37.2%. Whereas at the social there was the a sample calculation accounted around 68 households, thereby their women representatives at the SHG were part of the FGD methodology which demonstrates good levels of the social inclusion objective at the three studied categories. Additionally, the demographic categories: age, marital status, fertility rate, and literacy rate were contrasted to Véron (2008) evidencing slight differences despite the difference of the year of study.

Source: Own elaboration

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Chapter 5

Conclusions

Originally the general research was steering at the inclusive field; nevertheless, there was a focalization on the thesis over the innovation and development areas to structure the main objectives and hypothesis. Regardless of a relation amid innovation and development, the convergence of both fields was the target of the study. The thesis aims to deepen the comprehension of inclusiveness, which has been addressed theoretically and empirically over inclusive innovation and the inclusive development, respectively.

Primarily, the inclusive innovation was targeted at a theoretical flank through a streamlined process which was based on the SR methodology compiling different relevant literature and achieving the concrete identification of the definition's most important aspects. The upshots of this methodology can clearly orientate the future threads of investigation for scholars at the inclusive innovation field. While addressing the definition two specific objectives were raised: firstly, to enhance the theoretical knowledge of inclusive innovation's definition by identifying convergences/divergences at the conceptualization and the typology of the studies. For this objective the findings brought up numerous elements to set to the fore at the definition's analysis, whereas the typology of studies outcome can be vastly influenced by the evaluator's perspective. Consequently, a feeble consolidation of the definition was identified, thus the broad dissimilarity at the definition brought out more conceptualizations than definitions which can totally clarify inclusive innovation's extents, limits, and a plausible baseline. Furthermore, some authors introduced related concepts intrinsically embedded at inclusive innovation; while others might contemplate them as models or juts paths for its operationalization. Even the beneficiaries of this field are not

strictly grounded; they can differ from solely developing countries, to people who are excluded of a mainstream progress, to utterly relate on specific features which can trigger the exclusion. Not only the inclusive part of the definition is partially indeterminate, the innovation aspect of the concept also sort out as an untapped potential without a consistent registration, and deficiencies at the tracking of substantial examples at some studies to be categorized as inclusive innovation's illustrations.

Thereupon, the second specific objective drew up the map of inclusive innovation by countries and regions that have engaged with their documents in this particular field while also identifying the conclusive strands throughout the studies. Asia is leading the inclusive innovation with number of studies and depth of them. India is the prominent country in this area followed by China (coincidentally the inclusive development study took place at this country). The allocation of countries for inclusive innovation was predominantly at developing countries; however, as aforementioned detailed for some authors wherever inequality or exclusion exists inclusive innovation must take part, similarly even the environmental factor must be included at the spectrum as a beneficiary. Then, at the conclusive strands was challenging to frame the highlighted pinpoints since often they were intertwined. About nine categories were summarized from the coded documents; especially those which were fulfilling the orientation towards the goals of the thesis. Among the assorted conclusive strands, policy making is one of the starting points by authors at this field to be enhanced; the holistic approach was equally greatly recommended; while at the other side, there were more discrepancies on the concrete models of inclusive innovation, the process of construction, and how the field is envisioned.

The former two specific objectives were attained yet they contemplate some limitations and also future lines of further investigations. For both objectives the possibility for the results' variability exists due certain stages of the methodology: at the research the logarithm applied for the first main selection criteria may differ according the year, country wherein the search may take place, and preferences the programmers of the web apply to the specific source; as a consequence, not only the documents included at the list can diverge, also their order, their final amount, thus their display across the pages. The second criteria clearly embedded the spanning of the research; nonetheless, it may have represented a strong restriction for the number of documents. Notwithstanding, the searching and the identification of the documents entitled with inclusive innovation was the target under the premise of an exclusive and also "extensive" inclusive innovation's approach. Conversely, about 24% of the studied literature seemingly was not entirely pertinent to the field itself, and was more oriented to an inclusive study within some factor, just focusing on the inclusiveness at some

point. Further investigations might explore also inclusive innovation along the entire document, abstracts and/or keywords, for example. The filters applied at those phases were created on quest of a delimitation i.e. a concrete studies' sample over specific basis; however, if those would be modified, the numbers of studies and the orientation of the study might stem into a bigger coverage into this field. Likewise, for the first specific objective, the core elements of the definition can attain major deepness into other possible scopes already stated at the Chapter 2. Similarly, at the second specific objective, the predominantly qualitative type of the coded documents hampered a precise trace out amid limits among the types of studies; those boundaries can be object of supplementary study for an acrimonious delimitation. In addition, the related concepts with inclusive innovation must be urgently set on at a distinctive breakdown.

Subsequently, the third and fourth specific objectives were connected to assess the inclusive development by means of an empiric work in situ at India. Thereby, the third specific objective settled the scrutiny of the production process of the new livelihood's option for the *Adivasis*, in order to assess the project at India and its sustainability. A multi-approach involved the achievement of this objective: a comparative yield performance, the process of production analysis, and the profit/loss scenarios. First, the comparative yield performance of the pulp was developed by comparing the obtained pulp by hand scooping or by machine, while the regular yield for this specific fruit's type was confirmed for the comparison; in a nutshell around 5% was missed at the yield performance, this squandering can be certainly improved. Furthermore, the production process unveiled some shortfalls at fruit's inflow and detailed stages which will optimize the final product. At the creation of profit/loss scenarios the price was the oscillating factor whereas the yield also was monitored at each scenario. To achieve a business that operates in a short-medium run the competitiveness must be enhanced by key factors as: the stakeholders' potentiation, so the product can be part of bigger commercial networks, the boost of the production process based on the acquired know-how of the first year's operation, an improvement of the product by a value-added packaging, and a monitored staged process for the pulp's yield optimization. For future research lines of the study: the organizational aspects for direct support on the payments procedures, the trend research supported on the actual plantations widely grown at the forest are recommended to complete the present study for future actions and previsions, and the consideration of the *Ghoomar* Producer Company is recommended. Most of the what has been worked on and processed has been constructed on information from databases – mostly made by hand– by the people involved in the process, this can be considered a limitation of the study since only an ex-post evaluation has been concreted.

Accordingly, the fourth specific objective explored the inclusive development through an in situ work with the *Adivasis*. To start, the economic valuation of the project's impact towards the inclusive development over the households was thoroughly elaborated. Hence, two methods of calculations were used to estimate the economic impact at the suppliers' side for each household: the first method was based on the estimation of averages, the result was 560 INR per household (9.2 US\$); while the second method launched four different scenarios and their results oscillated in function of the estimated price: best (around 568 INR or 9.4 US\$) and the worst scenario (393 INR or 6.5 US\$). Both methods converged to a similar result for the suppliers. In addition, the impact for the workers at the pulping process was differentiated by *Panchayat*: a 35.5% is the percentage gap from the *Panchayat* wherein the economic impact was bigger to the minor *Panchayat* compared to the monthly income of the population. Finally, a contrast with their calculated monthly income was achieved: the impact over the households per *Panchayat* for supplier an average impact at monthly analysis a 19.2% (equivalent to 559.5 INR), or 19.5% (568.2 INR) descending to 13.5% (393.4 INR). Still, the pulping process outpaced the impact of the suppliers: from 44.3% rising to 79.8% per *Panchayat*. The limitation for a joint economic evaluation was the gaps or uncertain suppliers' provenance due the mixed type of information the human resources from the NGO managed during the project. Certainly, for future years, the lines of research will focus directly to a better tracking of the workers, so the total contrast per *Panchayat* can be achieved.

Lastly, at the social valuation, the FGD was the methodology and the number of significant households to be engaged was calculated based on a statistical formula for finite universe. A total of 68 households represented by the women at each SHG were part of the study which clustered the guidelines in six groups leaning on particular objectives. The perceptions of the business were favorable to the socialization they have had, and the enhancement of self-awareness for the women involved in the project. A perceived impact over their incomes in a Likert scale was in general well positioned: around 4 and 5; and there was a high predisposition of women and husbands as encouragers to continue and expand the business. For further lines of investigation a measurement of an empowerment for women can be settled to complement the study; nonetheless, the women confirmed initial positive strides owed to the project's outcome. Albeit the demographic scope was not specified for the inclusive development, this type of population may reflect the advances of specific policies or projects also at the demographic area, so the inquiry over their current situation was imperious. The results were contrasted to Véron's results on certain demographic categories such as age, marital status, fertility rate, and literacy rate; consequently, slight

differences despite the difference of the year of both studies portrait a slow evolution for this particular population in almost 20 years.

To conclude, the thesis aims to contribute at the inclusiveness field integrating the innovation and the development. Accordingly, the inclusivity has been tackled by the means of inclusive innovation and inclusive development; both fields were developed at the theoretical and empirical areas correspondingly. The analysis for inclusive innovation was based on the relevant literature at the field, and has revealed numerous possibilities for the definition's enhancement towards to its consolidation. Secondly, the inclusive development was addressed at the empirical work at India and the valuation of a business to become a livelihood option for one of the most unprivileged populations in the world.

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