

Access to Resources and Markets for Sustainable and Inclusive Value Chains:  
Towards Locally Adapted Institutions for Strengthening the Chain Position of  
Brazil nut Gatherers in the Brazilian Amazon  
Marcelo Inácio da Cunha

front cover (only photograph): Cracking Brazil nut pod at a traditionally occupied land by the Trombetas River Biological Reserve, Brazil  
back cover (photograph at the top left): Middleman showing Brazil nuts stored in his family's home  
back cover (photograph at the top right): Brazil nut gatherer on his way to remote Brazil nut stand  
back cover (photograph at the bottom): Local value addition? Brazil nut processing mill in Óbidos, Brazil

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# **Access to Resources and Markets for Sustainable and Inclusive Value Chains:**

Towards Locally Adapted Institutions for Strengthening the Chain  
Position of Brazil nut Gatherers in the Brazilian Amazon

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## Abstract

Given the lack of access of forest dependent rural dwellers to resources and markets as well as the lack of an institutional environment that is conducive for reconciling biodiversity conservation and livelihood strategies in the Brazilian Amazon, the main and sub-research questions are respectively:

How do informal and formal institutions affect the access to Brazil nuts and markets by buyers and, especially, by gatherers within the Brazil nut value chain in the Lower Amazon basin?

How are institutions – that affect resource and market access – institutionalized and formalized?

By identifying self-declared informal and formal institutions filtering resource and market access of upstream value chain actors, it is scoped for leverage points towards locally adapted institutions to overcome such access limitations in the realm of strengthening Brazil nut gatherers' chain position.

The following institutions in use have been found to be crucial for determining the (lack of) access to livelihood relevant resources (Brazil nuts) and markets in the Lower Amazon basin. The informal institution analyzed is the debt-peonage system *aviamento* and the formal one is the 'Term of Compromise' (TdC, per acronyms in Portuguese) in Brazil. The TdC is a legally-based instrument for overcoming conflicts between the Chico Mendes Institute for Biodiversity Conservation (ICMBio, per acronyms in Portuguese) – as responsible branch of the Brazilian Ministry of Environment (MMA, per acronyms in Portuguese) for managing federal Protected Areas (PAs) – and traditional populations over natural resources in such areas.

The innovative analytical framework developed herein captures how both informal and formal institutions (determinants) as well as related formalization and institutionalization (processes) affect the resource and market access by upstream value chain actors. This framework helps capturing institution-based access restrictions affecting the chain position of Brazil nut gatherers (corresponding to the main research question). It builds the groundwork for constructing a model to help understand what is behind empirical phenomena pertaining to the institutionalization and formalization of access limiting institutions (corresponding to the sub-research question herein). The proposed 'model on analytical ingredients for self-sustained strengthening of upstream value chain nodes' is built for transforming locally reported institution-based access problems towards the outcome of adapted access enabling institutions for strengthened upstream nodes of food chains.

Quantitative and, particularly, qualitative data were collected from 'community' to national level (2012–2015). In order to quantify socioeconomic conditions and resource as well as market access, a survey was conducted with 185 households in four municipalities of the Lower Amazon region. Detailed qualitative data was gathered mainly through narrative, problem-centered and key-informant interviews with the already quantitatively assessed households accounting for a respective sample of 89 actors in two of these municipalities (Oriximiná and Óbidos): mainly the ones directly involved in upstream nodes of the Brazil nut value chain (Brazil nut gatherers and buyers) yet also indirectly involved actors at all administrative levels, including representatives of

the Brazilian government (e.g. from ICMBio, from MMA, from the Ministry of Agrarian Development (SEAD (formerly, MDA), per acronyms in Portuguese), the Ministry of Development, Industry and Trade (MDIC, per acronyms in Portuguese)); from the private sector (including all three Brazil nut processing mills in the subnational region at stake) as well as from NGOs (e.g. from the Amazon Institute of People and the Environment (IMAZON, per acronyms in Portuguese), from the Institute for the Management and Certification of Forests and Agriculture (IMAFLOA, per acronyms in Portuguese), and from the Pro-Indigenous People Commission of the state of São Paulo (CPI-SP, per acronyms in Portuguese).

Results including leverage points for strengthening the chain position of economically and geographically marginalized value chain actors on a sustainable basis show: (i) formalization of resource and market access restrictions per TdC has reinforced unbalanced patron-client relations among Brazil nut gatherers and buyers already institutionalized per debt-peonage; (ii) self-reliant sustainable Brazil nut value chain development depends on democratic participation in decision-making for locally adapted TdC by transforming the governance structures of councils for managing PAs from 'consultative' to 'deliberative' ones, while co-shaping a conducive context-sensitive institutional environment, policies and service provision; (iii) 'socioeconomic upgrading' of the position of upstream value chain actors builds on ability and self-organization of smallholders in 'well-managed' cooperatives (complying to widespread cooperative principles).

Further, suggestions for actions and policy recommendations based on analytical and empirical evidences are provided – for each one of the actors directly or indirectly involved in the Brazil nut value chain at stake – as are future research 'needs' in the realm of self-determined local environmentally sound development. All together, this thesis offers scientific input for an outcome pathway towards an enabling institutional environment in the realm of inclusive sustainable rural development.

Finally, this thesis' contribution lies mainly in an innovative problem-based and institution-sensitive approach to analyzing (the lack of) resource and market access towards strengthening the value chain position of marginalized upstream chain actors. The herewith developed model and, particularly, analytical framework can be applied for inclusive sustainable value chain development of agricultural and, especially, non-timber forest products (NTFPs) in different rural contexts.

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## List of Abbreviations and Acronyms

ACORQUE . . . . .	<i>Associação das Comunidades Remanescentes de Quilombos do Rio Erepecuru</i> (Association of the Remaining Communities of <i>Quilombos</i> from the Erepecuru River)
AGU . . . . .	<i>Advocacia Geral da União</i> (Brazilian General Advocacy of the Union)
AMOCREQ . . . . .	<i>Associação dos Moradores da Comunidade Remanescente de Quilombo de Cachoeira Porteira</i> (Association of the Remaining Communities of <i>Quilombos</i> of the Community of Cachoeira Porteira)
ANATER . . . . .	<i>Agência Nacional de Assistência Técnica e Extensão</i> (National Agency for Technical and Rural Extension Services)
APL . . . . .	<i>Arranjo Produtivo Local</i> (Local Production Arrangements)
ARPA . . . . .	<i>Programa Áreas Protegidas da Amazônia</i> (Amazon Region Protected Areas Program)
ARQMO . . . . .	<i>Associação das Comunidades Remanescentes de Quilombos do Município de Oriximiná</i> (Association of the Remaining Communities of <i>Quilombos</i> of the Municipality of Oriximiná)
ASCONB . . . . .	<i>Associação Comunitária de Nova Betel</i> (Community Association of Nova Betel)
BASA . . . . .	<i>Banco da Amazônia</i> (Regional Development Bank for the Brazilian Amazon)
BMZ . . . . .	<i>Bundesministerium für Wirtschaftliche Zusammenarbeit und Entwicklung</i> (German Federal Ministry of Economic Cooperation and Development)
BRL . . . . .	Brazilian Real
CAMTA . . . . .	<i>Cooperativa Agrícola Mista de Tomé-Açú</i> (Mixed Cooperative of Rural Producers of Tomé-Açú)
CAPES . . . . .	<i>Coordenação de Aperfeiçoamento de Pessoal de Nível Superior</i>
CBD . . . . .	Convention on Biological Diversity
CCPT . . . . .	<i>Comunidade de Cachoeira Porteira</i> (Community of Cachoeira Porteira)
CCT . . . . .	Conditional Cash Transfer
CEB . . . . .	<i>Comunidades Eclesiais de Base</i> (Grassroots Ecclesiastical Communities)
CEQMO . . . . .	<i>Cooperativa Mista Extrativista dos Quilombolas do Município de Oriximiná</i> ( <i>Quilombola</i> Extractivist Cooperative of the Municipality of Oriximiná)
CFS . . . . .	Committee on World Food Security
CIAT . . . . .	<i>Centro Internacional de Agricultura Tropical</i> (International Center for Tropical Agriculture)
CIFOR . . . . .	Center for International Forestry Research
CIP . . . . .	<i>Centro Internacional de la Papa</i> (International Potato Center)
CONAB . . . . .	<i>Companhia Nacional de Abastecimento</i> (National Food Supply Company)
CNS . . . . .	<i>Conselho Nacional das Populações Extrativistas</i> (National Council of Extractivist Populations)
Cooperacre . . . . .	<i>Cooperativa Central de Comercialização Extrativista do Acre</i> (Central Cooperative of Extractivist Commercialization of Acre)
c.p. . . . .	<i>ceteris paribus</i>

CPI-SP	. <i>Comissão Pró-Índio de São Paulo</i> (Pro-Indigenous Peoples Commission of the state of São Paulo)
CPT	. <i>Comissão Pastoral da Terra</i> (Pastoral Commission of the Land)
CSO	.Civil Society Organization
DAAD	. <i>Deutscher Akademischer Austauschdienst</i> (German Academic Exchange Service)
DAP	. <i>Declaração de Aptidão ao Programa Nacional de Fortalecimento da Agricultura Familiar</i> (Declaration of Eligibility to the National Program for Strengthening Family Agriculture)
DFID	.United Kingdom Department for International Development
DOU	. <i>Diário Oficial da União</i> (Official Diary of the Union)
e.g.	. <i>exempli gratia</i>
Emater	. <i>Empresa de Assistência Técnica e Extensão Rural</i> (Enterprise of Technical and Rural Extension Services)
et al.	. <i>et alia</i>
EU	.European Union
EUR	.Euro
FAO	.Food and Agriculture Organization of the United Nations
FCP	. <i>Fundação Cultural Palmares</i> (Palmares Cultural Foundation)
FLONA	. <i>Floresta Nacional</i> (National Forest)
FNO	. <i>Fundo Constitucional de Financiamento do Norte</i> (Constitutional Fund for Financial Services in the Northern Region of Brazil)
FUG	.Forest User Group
FUNAI	. <i>Fundação Nacional do Índio</i> (National Foundation for Indigenous Peoples in Brazil)
GIZ	. <i>Gesellschaft für Internationale Zusammenarbeit</i> (German Corporation for International Cooperation)
GPN	.Global Production Network
GPS	.Global Positioning System
GVC	.Global Value Chain
ha	.hectare
HDI	.Human Development Index
IBAMA	. <i>Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis</i> (Brazilian Institute of Environment and Renewable Resources)
IBDF	. <i>Instituto Brasileiro de Desenvolvimento Florestal</i> (Brazilian Institute for Forest Development)
IBGE	. <i>Instituto Brasileiro de Geografia e Estatística</i> (Brazilian Institute of Geography and Statistics)
ibid.	. <i>Ibidem</i>
ICMBio	. <i>Instituto Chico Mendes de Conservação da Biodiversidade</i> (Chico Mendes Institute for Biodiversity Conservation)
ICRAF	.World Agroforestry Centre
IDESP	. <i>Instituto de Desenvolvimento Social, Econômico e Ambiental do Pará</i> (Research and Policy Institute of Socioeconomic Development of the state of Pará)
IDS	.Institute for Development Studies

i.e.	<i>id est</i>
IFAD	International Fund for Agricultural Development
IIED	International Institute for Environment and Development
ILO	International Labour Organization
IMAFLORA	<i>Instituto de Manejo e Certificação Florestal e Agrícola</i> (Institute for the Management and Certification of Forests and Agriculture)
IMAZON	<i>Instituto do Homem e Meio Ambiente da Amazônia</i> (Amazon Institute of People and the Environment)
IN	<i>Instrução Normativa</i> (Normative Instruction)
INCRA	<i>Instituto Nacional de Colonização e Reforma Agrária</i> (National Institute for Colonization and Agrarian Reform)
IoS	Institutions of Sustainability
IPAM	<i>Instituto de Pesquisa Ambiental da Amazônia</i> (Amazon Environmental Research Institute)
ISA	<i>Instituto Socioambiental</i> (Socio-Environmental Institute)
ITERPA	<i>Instituto de Terras do Pará</i> (Institute of Land of the state of Pará)
IUCN	International Union for Conservation of Nature
Malungo	<i>Coordenação das Associações das Comunidades Remanescentes de Quilombo do Pará</i> (Coordination of the Associations of Communities of Remaining <i>Quilombos</i> of the state of Pará)
MAPA	<i>Ministério da Agricultura, Pecuária e Abastecimento</i> (Ministry of Agriculture of Brazil)
MDA	<i>Ministério do Desenvolvimento Agrário</i> (Brazilian Ministry of Agrarian Development)
MDGs	Millenium Development Goals
MDIC	<i>Ministério da Indústria, Comércio Exterior e Serviços</i> (Brazilian Ministry of Development, Industry and Trade)
MDS	<i>Ministério do Desenvolvimento Social</i> (Brazilian Ministry of Social Development)
MEC	<i>Ministério da Educação</i> (Brazilian Ministry of Education)
MMA	<i>Ministério do Meio Ambiente</i> (Brazilian Ministry of Environment)
MNC	Multi-national Corporation
MPE	<i>Ministério Público do Estado do Pará</i> (Prosecution Ministry from the state of Pará)
MPF	<i>Ministério Público Federal</i> (Federal Prosecution Ministry)
MRN	<i>Mineração Rio do Norte</i>
MS	Microsoft
NEXT	<i>Núcleo de Extensão Tecnológica</i>
NGO	Non-governmental Organization
NIE	New Institutional Economics
NoPa.	<i>Programa Novas Parcerias</i> (GIZ Program – New Partnerships for Innovation in Sustainable Development)
NTFP	Non-Timber Forest Product
PA	Protected Area
PAA	<i>Programa de Aquisição de Alimentos</i> (Program of Food Acquisition)
PAC	<i>Programa de Aceleração do Crescimento</i> (Growth Acceleration Program)

PEN	Poverty Environment Network
PGPM	<i>Política Nacional de Garantia de Preços Mínimos</i> (Policy for Assuring Minimum Prices)
PGPM-Bio	<i>Política Nacional de Garantia de Preços Mínimos para os Produtos da Sociobiodiversidade</i> (Policy for Assuring Minimum Prices for Products of the Socio-biodiversity)
PLANAPO	<i>Plano Nacional de Agroecologia e Produção Orgânica</i> (National Plan of Agroecology and Organic Production)
PNAE	<i>Programa Nacional de Alimentação Escolar</i> (National School Feeding Program)
PNAPO	<i>Política Nacional de Agroecologia e Produção Orgânica</i> (National Policy for Agroecology and Organic Production)
PNPSB	<i>Plano Nacional de Promoção das Cadeias de Produtos da Sociobiodiversidade</i> (National Plan to Promote Value Chains of Socio-biodiversity Products)
PRONAF	<i>Programa Nacional de Fortalecimento da Agricultura Familiar</i> (Program for Strengthening Family Agriculture)
PRONATEC	<i>Programa Nacional de Acesso ao Ensino Técnico e Emprego</i> (The National Program for Access to the Technical Education and Employment)
ODA	Official Development Assistance
R&D	Research and Development
RAVA	<i>Red Amazônica de Meios de Vida y Ambiente</i> (Amazon Network on Livelihoods and Environment)
RDS	<i>Reserva de Desenvolvimento Sustentável</i> (Reserve for Sustainable Development)
RedeSist	<i>Rede de Pesquisa em Sistemas Produtivos e Inovativos Locais</i> (Network on Local Production Arrangements and Innovation Systems)
RESEX	<i>Reserva Extrativista</i> (Extractivist Reserve)
SDGs	Sustainable Development Goals
SEAD	<i>Secretaria Especial de Agricultura Familiar e do Desenvolvimento Agrário</i> (Brazilian Special Secretariat of Family Farming and Agrarian Development)
SEBRAE	<i>Serviço Brasileiro de Apoio às Micro e Pequenas Empresas</i> (Brazilian Micro and Small Business Support Service)
SECTI	<i>Secretaria de Estado de Ciência, Tecnologia e Inovação</i> (Secretariat for Science, Technology and Innovation of the state of Pará)
SEICOM	<i>Secretaria de Indústria, Comércio e Mineração do Pará</i> (Secretariat of Industry, Trade and Mining of the state of Pará)
SEMA	<i>Secretaria do Meio Ambiente</i> (Secretariat for the Environment at state level in Brazil)
SEMMA	<i>Secretaria Municipal do Meio Ambiente</i> (Secretariat for the Environment at municipality level in Brazil)
SENAI	<i>Serviço Nacional de Aprendizagem Industrial</i> (National Service of Industrial Training)
SEPPIR	<i>Secretaria de Políticas de Promoção da Igualdade Racial</i> (Special Secretariat of Policies for the Promotion of Racial Equality)
SES	Socio-ecological system

SISBio	<i>Sistema de Autorização e Informação em Biodiversidade</i> (System of Authorization and Information on Biodiversity)
SME	Small and Medium Enterprise
SNUC	<i>Sistema Nacional de Unidades de Conservação</i> (National System of Units of Conservation)
STTR	<i>Sindicato dos Trabalhadores e Trabalhadoras Rurais</i> (Rural workers' union)
SWOT	Strengths Weaknesses Opportunities and Threats
TdC	<i>Termo de Compromisso</i> (Term of Compromise)
TQ	<i>Território Quilombola</i> (Quilombola Territory)
TRBR	<i>Reserva Biológica do Rio Trombetas</i> (Trombetas River Biological Reserve)
UFOPA	<i>Universidade Federal do Oeste do Pará</i> (Federal University of Western Pará)
UFPA	<i>Universidade Federal do Pará</i> (Federal University of Pará)
USAID	United States Agency for International Development
USFS	United States Forest Service
UN	United Nations
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNGA	United Nations General Assembly
UNIDO	United Nations Industrial Organization
USD	United States Dollar
VC	Value Chain
VCA	Value Chain Analysis
VCD	Value Chain Development
VGGT	Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security

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Thank you very much, Univ.-Prof. Dr. Martin Coy for being my second supervisor. Your research on the Brazilian Amazon over decades serves as a reference for me as well as for other geographers and researchers, particularly in German speaking countries and in Brazil.

## Dedication

To you, Johanna – my wife and partner for life – who not only provided critical suggestions for chapters of this PhD thesis, but also love and patience during numerous week days/ evenings as well as weekends I worked on this thesis.

To you, Iolanda – my grandmother and role model – who is intrinsically motivated to always go further and encourages me to strive to do my bit for people in this planet.

To you, Arioaldo, Maria Luiza, Rejane and Flávia – my parents and sisters – who inspire and encourage me unconditionally in every step I take.

To you, Beatriz – my newborn niece – may your future always shine.



## I. Introduction

### 1 This Thesis in a (Brazil) nutshell

#### Point of Departure

“[...] access becomes perhaps the most critical resource of all if people are to build sustainable, poverty alleviating rural livelihoods”. (Bebbington 1999: 2022)

The importance of environmentally sound access to resources by economically and geographically marginalized rural dwellers in the realm of sustainable development calls not only for investigating who accesses what and when. Yet also why, where and, particularly, how livelihood relevant<sup>1</sup> natural resources and markets are accessed along value chains<sup>2</sup> of agricultural goods and NTFPs<sup>3</sup>.

Sustainable natural resource management is broadly recognized as a strategy to reconcile biodiversity conservation and socioeconomic development – frequently desired by rural communities. However, long-term synergies among the maintenance of forests and respective livelihood strategies<sup>4</sup> remain underutilized. For this purpose, the potential contribution of strengthening NTFP value chains for sustainable inclusive rural development has neither been effectively explored nor thoroughly analyzed yet. Similarly, not only studies but also policies and governmental incentives for sustain-

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1 The term ‘livelihood relevant’ is employed to refer to resources whose use is important for subsistence and/ or income of non-timber forest product (NTFP) extractivist households. The same term is employed when referring to livelihood relevant market access. It further relates to ‘livelihood strategies’ embedded in human-environment relations and ‘sustainable livelihoods’ pertaining to assets within human, social, physical, natural and financial capitals, see Chambers & Conway (1992), Ellis (1998), Scoones (1998), Agrawal & Gibson (1999), Bebbington (1999), DFID (1999), Ostrom (2009), Wunder *et al.* (2014).

2 In value chains multiple actors negotiate with each other and create social networks for gathering/ producing a given product. These agents can be NTFP extractivists and/ or (small-scale) producers, processing mills and industries, providers of services, for instance rural extension and advisory services as well as technical assistance in addition to enabling access to policies (see e.g. Cunha 2014). For a detailed definition of value chains, see Chapter II.1.

3 The concept of NTFPs was first coined by DeBeer & McDermott (1989), who defined them as “all biological materials other than timber, which are extracted from forests for human use.” (ibid.: 17). For further reading on NTFP and forest dependency, including implications on livelihood strategies and environmental conservation at the global level, see e.g. Cavendish (2000), Belcher (2003), Belcher *et al.* (2005), Belcher & Schreckenberg (2007), Angelsen *et al.* (2011), Wunder *et al.* (2014).

4 For evidence-based literature on forest dependent livelihoods and poverty-environment relationships, see e.g. Cavendish (2000), Sunderlin *et al.* (2005), Angelsen *et al.* (2011), Wunder *et al.* (2014).

able value chain development<sup>5</sup> of NTFPs remain underrepresented<sup>6</sup> compared to other sectors<sup>7</sup>, such as large-scale agricultural production (of e.g. soy bean) and extensive cattle ranching in different countries. Whilst policies can play an important role for enhancing sector and actor-specific resource and market access, they are to be based on the local needs of extractivists<sup>8</sup> – in this case of NTFP gatherers<sup>9</sup> for them to be effective. This effectiveness further requires harmonized and simultaneous actions – among responsible ministries, including the Brazilian Ministry of Environment (MMA, per acronyms in Portuguese).

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- 5 The development of a (global) value chain commonly aims at stimulating economic growth (also called economic upgrading in the value chain research and development field) along up- and downstream nodes of the chain, while – in some cases – it is also strived to alleviate rural poverty (see e.g. Adler & Kwon 2002, Bernet *et al.* 2006). What is herein proposed is socioeconomic upgrading as a more inclusive approach to value chain analysis and development than mere economic upgrading (see Chapters II.1.3 and VI.1.1.2).
- 6 Although the NTFP sector is by far the less privately and publicly incentivized rural sector in Brazil, the government has initiated two federal plans to foster sustainable production of not only agricultural but also NTFPs through the National Plan of Agroecology and Organic Production (PLANAPO, per acronyms in Portuguese) in 2013. This Plan integrates *inter alia* the National Plan for the Promotion of the Value Chains of Socio-biodiversity Products (PNPSB, per acronyms in Portuguese), launched in 2009: in this context, ‘socio-biodiversity products’ can be understood as (traditionally gathered) NTFPs (detailed in Chapter II.1.5). In spite of these positive initiatives, little concrete progress has been made in terms of local sustainable rural development, particularly, in remote areas of the Brazilian Amazon where economically marginalized extractivist populations heavily rely on forest resources other than wood.
- 7 For an overview on socioeconomic and political challenges and opportunities of the NTFP sector in the Amazon (Peru and Bolivia, in addition to Brazil), see Escobal & Aldana (2003), LeTourneau & Greissing (2010), Shackleton & Pandey (2013), Shanley *et al.* (2015), Guariguata *et al.* (2017), Santana *et al.* (2017), Soriano *et al.* (2017).
- 8 Building on Almeida (2011), extractivists, as referred to herein, are NTFP gatherers who depend – for their subsistence and livelihood strategies – to a considerable extent on the collection and commercialization of such natural resources. While such extractivism is to be differentiated from large-scale extractivist activities such as mining, it is common for the small-scale NTFP gatherers – the extractivists at stake – to have at least one additional income source (e.g. cassava and/ or government transfers – detailed in Chapter V.1.6). Such rural dwellers – who live in and from forests – include traditional populations, rubber-tappers, riverines and Brazil nut gatherers (*seringueiros*, *ribeirinhos* and *castanheiros*, in Portuguese). The National Council of Extractivist Populations (CNS, per acronyms in Portuguese) is the Brazilian civil society organization – co-founded by Chico Mendes in 1985 – responsible for representing extractivists (including NTFP gatherers, fishermen and women as well as riverines – see Footnote 390) at the national level e.g. vis-à-vis ministries (e.g. Ministry of Environment) and other governmental entities.
- 9 Extractivists/ NTFP extractivists and gatherers are herein used interchangeably for the sake of simplifying and diversifying while maximizing respective understanding. All three names are used to refer to sustainable forest users as opposed to large-scale extractive industries (people and land degrading mining companies). An additional name is (agro)extractivists (*agroextrativistas*, in Portuguese), which is commonly used in Brazil, given most small-scale extractivist have at least one additional rural income source from agriculture – as is the case herein.

Further, debates around so-called local production arrangements have surged in Brazil in the late 1990s<sup>10</sup>, followed by policies for strengthening such clusters<sup>11</sup> a decade later. Attention paid to identifying and developing local production arrangements within value chains led to the consolidation of a National Cluster Policy as of 2004 (led by MDIC)<sup>12</sup>, and the National Plan to Promote Value Chains of Socio-biodiversity Products (MDA, MMA & MDS 2009). The latter has lost political importance in the last five years while having been integrated into PLANAPO as of 2013, in the frame of the previously, in 2012, founded National Policy for Agroecology and Organic Production (PNAPO, per acronyms in Portuguese).

Further, reduced or zero deforestation can be effectively pursued through poverty mitigating sustainable NTFP management by extractivists, as forest dependent rural dwellers, who can make their living and feed their families by sustainably managing these natural resources. Overall, promoting inclusive sustainable NTFP use and marketing at local and other levels is crucial not only for “conservation-through-use” (Guariguata *et al.* 2017: 2008), but also towards achieving Sustainable Development Goals (SDGs)<sup>13</sup> (see Chapter VII). The importance of environmentally sound access to livelihood relevant NTFPs is supported by the fact that 1,5 billion people use and/

10 The groundwork for such debates was laid in 1997 with the foundation of the Network on Local Production Arrangements and Innovation Systems (RedeSist, per abbreviation in Portuguese) – which started off as a network of researchers, while having been joined by policy-makers, including from the Brazilian Ministry of Development, Industry and Trade (MDIC, per acronyms in Portuguese) as of 1999 when this ministry was founded. Since its inception, RedeSist has been engaged in the science-policy interface mapping clusters and identifying leverage points for strengthening such local production arrangements.

11 *Arranjo Produtivo Local* (APL), in Portuguese.

12 Related policies with synergistic potential for co-benefiting clusters within given value chains are, for instance, the ones for so-called regional development since 2003, including ‘Territories of Citizenship’ (launched by the Ministry of Agrarian Development/ MDA, per acronyms in Portuguese), with participation of 22 ministries in 2008) and, more recently, the so-called ‘More Productive Brazil’ (launched by MDIC and the National Service of Industrial Training/ SENAI, per acronyms in Portuguese, in 2016). Specifically, the ‘Program for Strengthening Family Agriculture’ (PRONAF, per acronyms in Portuguese) for providing accessible credits – has not yet been adapted for extractivists in the realm of sustainable inclusive development of respective NTFP value chains, as opposed to the ‘Program of Food Acquisition’ (PAA, per acronyms in Portuguese) and the ‘National School Feeding Program’ (PNAE, per acronyms in Portuguese). The latter is supported by the ‘More Management Program’ (*Programa Mais Gestão*, in Portuguese) extension services for enhancing the ability of upstream chain actors to access markets through capacity building in collective marketing per cooperatives.

13 The 17 SDGs are the principal element of the 2030 Agenda for Sustainable Development. It is a universal agenda adopted by 193 Member States of the United Nations (UN) on 25<sup>th</sup> September, 2015, whose goals are to be pursued and implemented by all of these countries, from both the so-called ‘Global South’ and ‘Global North’ (United Nations 2015). Such global goals (as opposed to the Millennium Development Goals – MDGs, which were designed by the so-called ‘Global North’ for the so-called ‘Global South’ where they were implemented under the lead of the former), it comes with this larger pool of countries in which it is to be invested in sustainable development. More specifically, the so-called ‘global goals’ targeted through this research are SDGs 1, 2, 3, 4, 5, 8, 10, 12, 13, 15 and 17.

or trade NTFPs worldwide (Shanley *et al.* 2015: 2), whereby 2 million inhabitants of the Brazilian Amazon (see map in Annex VII) have NTFP gathering as their main rural income source (Toledo *et al.* 2016: 10). With over 37.000 tons, Brazil nut ranked third (after *açaí* and *babaçu*<sup>14</sup>) among the volumes of NTFPs gathered in Brazil in 2015 (IBGE 2015).

Without intending to promote polarizing debates on human-nature relations, respective constructive tensions constitute the background of this study when scoping for such balance through access to livelihood relevant natural resources and markets by upstream<sup>15</sup> value chain actors<sup>16</sup>. Asymmetric trade relations between Brazil nut gatherers and local buyers are herein addressed within the respective value chain in the Brazilian Amazon. While rural *Amazônia* is characterized by abundance of natural resources, a considerable number of its inhabitants (mostly so-called *agroextrativistas*, in Portuguese) face vulnerability, particularly due to lack of access to markets<sup>17</sup> for making a locally desired<sup>18</sup> sustainable living out of NTFPs (e.g. *açaí*, *babaçu* besides Brazil nut). Still a few NTFP extractivists – who are organized in associations or cooperatives while endowed with respective ability to comply to bureaucratic requirements – manage to have government-induced market access (see Footnote 12).

Brazil nut sold to all continents is seasonally gathered by forest dependent rural dwellers in the Bolivian, Brazilian and Peruvian Amazon. These are areas of high biodiversity and a low Human Development Index (HDI), including the Lower Amazon basin<sup>19</sup>, which has one of the highest concentrations of Brazil nut trees (*Bertholletia excelsa* Bonpl. *Lecythidaceae*) in the Brazilian Amazon (see Scoles & Gribel 2012).

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14 *Açaí* (*Euterpe oleracea*) and *babaçu* (*Attalea speciosa*), respectively, ranked higher than Brazil nut (*Bertholletia excelsa*).

15 Upstream value chain actors or nodes (also called lower tiers or segments) refer to the very beginning of a given value chain, i.e. to the first activities producers or extractivists conduct before further downstream chain actors process the respective natural resource/ product *in natura*.

16 For the definition of the notion of actor embedded in networks with contradicting interests yet committed to a cause, see Latour (2005), whereas for social actors acting in reciprocal actions, see e.g. Simmel (1908). Both fit well into the understanding of value chain actors used herein.

17 “[...] constraints range from restrictions to the access to land, property rights and credits – due to the lack of the so-called Declaration of Eligibility to the National Program for Strengthening Family Agriculture (*Declaração de Aptidão ao Programa Nacional de Fortalecimento da Agricultura Familiar* – DAP, per acronyms in Portuguese) [...] – to markets, information and education at the local level.” (Segebart *et al.* 2015: 52). Thereby, details on DAP and other conditions for accessing the Policy for Assuring Minimum Prices (PGPM, per acronyms in Portuguese) and the related Policy for Assuring Minimum Prices for Products of the Socio-biodiversity (PGPM-Bio, per acronyms in Portuguese) as well as PNAE and PAA are further referred to in Chapter II.1.5 as well as in Chapter VII.

18 ‘Locally desired’ meaning in line with self-declared interest including of Brazil nut gatherers.

19 Lower Amazon basin and Lower Amazon region are used interchangeably, as they refer to the same territory in the state of Pará, Brazil.

Brazil nut is the most important NTFP – in social, cultural and economic terms – of the Lower Amazon region<sup>20</sup> (see Nascimento Júnior *et al.* 2000, Scoles & Gribel 2012, Cunha 2014, Segebart *et al.* 2015). There the gross value of production of NTFPs was BRL 9,5 million in 2011 (IBGE 2011), while NTFP extractivists of this basin rely on Brazil nut gathering and marketing – having accounted for 91% of the gross value of production out of over 25 NTFPs used in this subnational region in 2009 (IDESP 2010: 233). This economic activity accounts for the largest share of income source (13,07%<sup>21</sup>) by product after government transfers (50,60%<sup>22</sup>) in 2012, which include public pension funds for ‘rural workers’ (*trabalhadoras e trabalhadores rurais*, in Portuguese) and, particularly, conditional cash-transfers<sup>23</sup>, e.g. *Bolsa Família*<sup>24</sup> (Fieldwork data 2012). The Lower Amazon basin is composed by one of the world’s largest mosaics of protected areas (PAs), accounting for over half of its total area (see Santos *et al.* 2012).

Overall, Brazil nut extraction can help reconcile livelihood needs and forest conservation through its sustainable management<sup>25</sup> (based on Peres *et al.* 2003, Filocreão 2007, Scoles & Gribel 2012, Guariguata *et al.* 2017, Santana *et al.* 2017, Soriano *et al.* 2017). However, a lack of connection between ‘locally desired socioeconomic development’ and biodiversity conservation per sustainable NTFP use prevails, including in the Lower Amazon basin. Against this background, the problem of lack of resource and market access – self-declared by upstream Brazil nut value chain actors (particularly, by gatherers) – is addressed herein (see Chapter I.4).

Whilst zooming in from the national level to the subnational region at stake – the Lower Amazon basin in the state of Pará –, the main study area is depicted in the following figure:

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20 Within the Lower Amazon basin, Oriximiná is the municipality with the highest concentration of naturally occurring *Bertholletia excelsa* Bonpl. *Lecythidaceae*.

21 This percentage is not higher, including due to harvest season of five to six months followed by another month for selling the rest of Brazil nuts.

22 This percentage is high, given restriction on gathering forest products and cleaning areas for production of agricultural goods, as compared to non-protected areas.

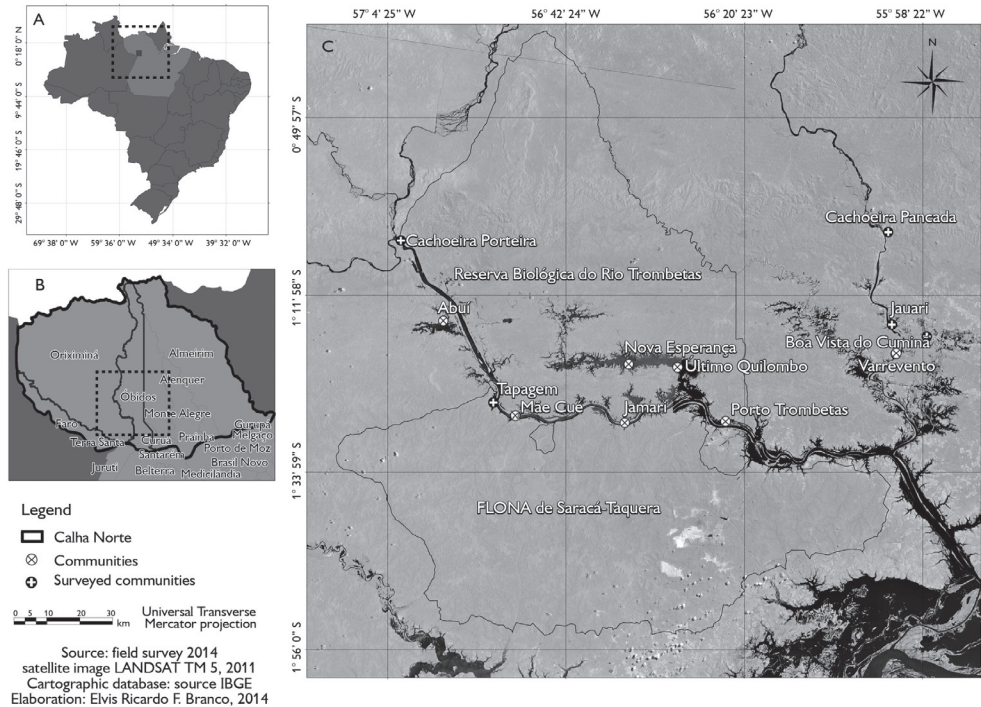
23 “Conditional Cash Transfer (CCT) programs aim to reduce poverty by making welfare programs conditional upon the receivers’ actions. [...] the government only transfers the money to persons who meet certain criteria. These criteria may include [...] investing in the human capital of their children.” (Fiszbein & Schady 2009: 1).

24 *Bolsa família* is the most prominent poverty alleviating CCT program in Brazil and has gained international recognition, while being applied similarly in other countries of the so-called ‘Global South’ (based on Miccolis *et al.* 2011: 4). This transfer has been created in 2003 by the Brazilian government and is coordinated by the Ministry of Social Development (MDS, per acronyms in Portuguese), under the condition that children of the so-called ‘registered beneficiary’ attend school and receive regular visits from community health agents (*ibid.*: 4).

25 For further reading on sustainable forest management, see e.g. Ros-Tonen *et al.* (2008).



**Figure 1: Map – Calha Norte<sup>26</sup> region, Pará, Brazil (A); Oriximiná and Óbidos (B); *Quilom-bola* communities by the TRBR<sup>27</sup> (C)**



Source: Map based on Global Positioning System (GPS) coordinates collected by the author during fieldwork in 2014

Building on the geographic focus as well as the background that makes up the point of departure of this research, its core lies in analyzing the access to livelihood relevant natural resources and markets by forest dependent (traditional) populations involved in gathering and trading NTFPs. It is conceived in the realm of understanding not only factors enabling but, particularly, the ones hampering this access by actors of a given value chain – in this case, the Brazil nut chain in the Lower Amazon region. In this frame, leverage points are identified for upstream value chain actors to co-shape

26 As part of the Lower Amazon basin, the Calha Norte region (see detailed map in Annex VIII) is referred to in this map, since it is commonly verbally stated and, thus, easily understood by respective readers. Zooming in – for two detailed maps of specific Brazil nut stands by surveyed communities along the Trombetas and Erepecuru rivers, see Annexes X and XI, respectively. Zooming out – for a map with the natural occurrence of Brazil nut trees in the Amazon region, including in Brazil, Bolivia and Peru, see Annex XII.

27 The Trombetas River Biological Reserve (TRBR) (*Reserva Biológica do Rio Trombetas*, in Portuguese) is located opposite to the Saracá-Taquera National Forest (FLONA Saracá-Taquera, in Portuguese). Both these PAs of full environmental protection are contained in Figure 1 (map C).

a conducive institutional environment as well as sustainable access to livelihood relevant resources and markets, including in and around PAs.

## 2 Research and Development Gaps, and Rationale

Before zooming in geographically and in the core of the analysis proposed herein – for obtaining concrete scientific insights aimed at sustainable rural development – it is fruitful to take one step back and reflect upon a key gap that is yet to be explored in research and development (R&D) terrains regarding environmentally sound access to livelihood relevant natural resources and markets. This access is particularly challenging for upstream value chain actors involved in the supply and procurement of agricultural products and NTFPs – the latter represent a sector with predominantly geographically and economically marginalized chain agents.

When scoping for key research and development gaps, which hold true for the rural context of the (Brazilian) Amazon, it was identified that: (i) overall value chain analysis as well as value chain development of agricultural products have been extensively dealt with in academia (see e.g. Kaplan & Kaplinsky 1999, Kaplinsky & Morris 2002) and practice (see e.g. Springer-Heinze 2008, USAID 2008) compared to the analysis and sustainable development of NTFP chains; as has been (ii) the access to natural resources, considering property rights<sup>28</sup> and land tenure (e.g. Alston *et al.* 1996, Sikor & Lund 2009); whereas the access ability<sup>29</sup> of value chain actors for sustainably accessing NTFPs and markets has mostly been neglected, which calls for prioritizing the analysis of (formal and informal) institutions affecting this access to fill the respective ‘research for development’ gap.

Academic and practice-oriented initiatives on value chain analysis and value chain development of NTFPs as well as agricultural products are all about agents from different chain nodes having access to respective resources. Yet, ‘how livelihood relevant natural resources and markets are accessed’ – based on concrete problems faced by upstream value chain actors due to lack of such access and the constraining institutional environment they are embedded in – in the case of NTFP chains has not yet been thoroughly analyzed.

The abovementioned gaps – captured through extensive literature review (e.g. Donovan *et al.* 2013, 2015, 2016), and experience in (inter)national development agencies while participating in respective debates (e.g. Segebart *et al.* 2015, FAO 2016/unpublished) as well as in the field (Cunha & Scoles 2013/unpublished) – show what is yet to be thoroughly analyzed. Thereby, the combination of (i) value chain analysis for strengthening upstream nodes of food chains and (ii) the access to natural resources and markets in an in-depth context-sensitive institutional analysis – having livelihood relevant access to a given NTFP as well as to markets by chain actors as the focus of the analysis – has not yet been effectively explored. Such analysis is useful for

28 The definition of ‘property rights’ in relation to resource and market access is provided in Chapter II.1.2.

29 The definition of ‘ability’ and related access is provided in Chapter III, which builds up on the one provided by Ribot & Peluso (2003). For literature on related concepts such as ‘capabilities’, see Sen (1981, 1984, 1985), Leach *et al.* (1999).

understanding how access to livelihood relevant natural resources and markets are influenced by certain formal and informal institutions along specific value chains of NTFPs and agricultural products.

The aforementioned sets the rationale for this theoretical and empirical analysis. Such analysis further builds up on exploring the institutional environment upstream chain actors (NTFP gatherers) are embedded in, and on gatherers' ability to participate in inclusive sustainable value chain development – beyond property rights and transaction costs issues. One of the missing parts of the puzzle for understanding respective leverage points – particularly, limitations (to be jointly overcome) to context-sensitive rural development – is to thoroughly analyze the determinants and processes that impinge poverty alleviating sustainable access to natural resources and markets.

What is mainly addressed herein is the research gap concerning the lack of assessments on the role of formal and informal institutions as well as institutionalization and formalization of given norms and rules for understanding livelihood relevant natural resources and market access. This is an innovative approach for the context-specific yet replicable analysis and, subsequent sustainable development by actors of given production networks or value chains.

### 3 Research Questions and Building Blocks

Building up on identified research and development gaps as well as on a bottom-up problem oriented research approach<sup>30</sup> towards providing policy 'suggestions'<sup>31</sup>, the main research question sets the stage of this investigation:

How do informal and formal institutions affect the access to Brazil nuts and markets by buyers and, especially, by gatherers within the Brazil nut value chain in the Lower Amazon basin?

Investigated are therewith the following institutions as determinants of the livelihood relevant natural resource and market access in question. The informal institution is a debt-peonage system '*aviamento*' present in the entire Amazon region and other remote rural contexts (see Chapters II.2.2.1 and V.1). The formal institution analyzed herein is a legal instrument intended to protect the environment in Brazil called 'Term of Compromise' (TdC, per acronyms in Portuguese) enacted per governmental decree<sup>32</sup> by the Chico Mendes Institute for Biodiversity Conservation (ICMBio, per acro-

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30 For the research approach and background questions asked for identifying problems see Chapter I.4.

31 Instead of employing the widespread term 'policy recommendations', 'policy suggestions' is purposefully used to ensure a respectful approach to give constructive input for policy-making, building up on the author's experience with this wording and approach being more effective in terms of respective uptake, as policy-makers are more prone to consider such suggested input. For such 'suggestions', see Chapter VII.

32 The 'Federal Decree 4340/2002' (Brasil 2002) followed by ICMBio's 'Normative Instruction Number 26' (Brasil 2012a), provides a concrete legal basis for establishing Terms of Compromise (TdCs, per acronyms in Portuguese). The TdC is an 'agreement' written by ICMBio to formally regulate the access/ use of natural resources under dispute with traditional populations who live in PAs of full environmental protection (*Unidade de Conservação de Proteção Integral*, in Portuguese) (detailed in Chapter V.2.2.2).



nyms in Portuguese) – as responsible branch of the MMA for managing federal PAs (see Chapters II.2.2.2 and V.2).

For further guiding this research and potentially other studies on livelihood relevant resource and market access along and beyond value chains in different rural contexts, the sub-research question is also raised upfront:

How are institutions – that affect resource and market access – institutionalized and formalized?

In this search, not only for the aforementioned key determinants shaping such access, but also restricting processes – institutionalization of unbalanced patron-client relations and formalization of local informal institutional arrangements in use, i.e. the ‘Brazil nut Agreement’ and the ‘Brazil nut Project’ (see Chapter V.2.2.1) – affecting the environment as well as the livelihood strategies of geographically and economically marginalized rural households are analyzed.

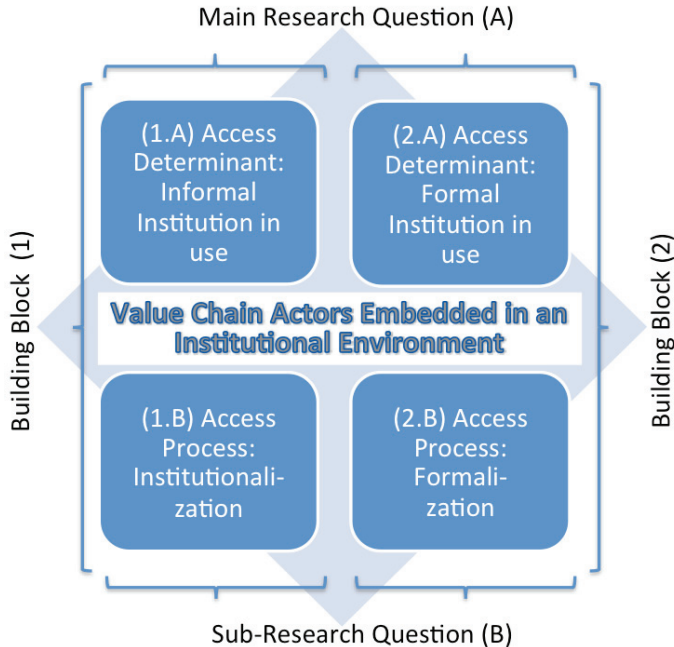
Thereby, for thoroughly answering the main research question, the processes of institutionalization and formalization – of norms and rules, respectively, as well as their implications in the sustainable access to Brazil nut (as a livelihood relevant natural resource) and markets by gatherers and local buyers – are taken under the loop. This is done whilst scoping for leverage points towards fostering environmentally sound access to Brazil nut stands by gatherers and self-reliant inclusion of upstream value chain actors in markets, which is a self-declared aspiration by respective NTFP extractivists.

Further, for answering the main and sub-research questions theoretical and conceptual foundations are combined with empirical evidences. Thereby, this thesis strives to thoroughly understand determinants and processes affecting livelihood relevant resource and market access within the Brazil nut value chain in the Lower Amazon basin<sup>33</sup>. In so being, Figure 2 depicts the two building blocks of this thesis, which are constructed towards providing comprehensive and structured responses to both research questions throughout this study. Each one of the building blocks captures respective relations between informal institutions (in this case, *aviamento*) and access as well as to formal institutions (in this case, TdC) and the access in question.

As illustrated in Figure 2, both building blocks comprise the assessments of determinants and processes of this access: (i) the determinant *aviamento* as informal institution and the institutionalization process of its patron-client relations; as well as (ii) the determinant TdC as formal institution and the respective formalization process. The unit of analysis focused upon is the Brazil nut chain in this basin where *Bertholletia excelsa* occurs naturally, in particular around *quilombola*<sup>34</sup> communities (see map C

33 All thesis components are captured in the analytical framework (see Chapters I.7, III and Figure 6), whilst its left and right side correspond to the two building blocks of this thesis (see Figure 2).

34 *Quilombolas* are Afro-Brazilians (traditional populations) – who fall under International Labour Organization/ ILO Convention 169 on Indigenous and Tribal Peoples (ILO 1989). *Quilombolas* resisted against and fled from slavery while collectively settling in remote areas, establishing *quilombola* communities *inter alia* in the Brazilian Amazon, including in the study area focused upon herein (see e.g. Acevedo & Castro 1998).

**Figure 2: Research Questions and Blocks – Access Determinants and Processes**

Source: Own elaboration

in Figure 1), including in the Trombetas River Biological Reserve (TRBR) area, Oriximiná, Pará. At next, a stylized matrix depicting the research questions and building blocks addressed by this thesis.

The elements of this stylized matrix are highlighted as follows, in the realm of understanding key determinants and processes of resource and market access by upstream value chain actors.

Based on the research questions and the building blocks depicted in Figure 2<sup>35</sup>, the building block (1) is designed to highlight the informal institution-based access limitations addressed by the component of the main research question (1.A): how the informal institution *aviamento* (as a determinant) affects the natural resource and market access of upstream value chain actors; and the component of the sub-research question (1.B): how access limitations occur per institutionalization of the patron-client relations of this debt-peonage system (as a process).

As per both research questions and building blocks depicted in Figure 2, the building block (2) is designed to highlight the formal institution-based access limitations addressed by the component of the main research question (2.A): how the formal

35 Figure 2 allows for a comprehensive and thorough understanding of the (lack of) resource and market access by given geographically and economically marginalized value chain actors for the 'Outcome Pathway Towards an Enabling Institutional Environment in the Realm of Inclusive Sustainable Rural Development' (see Figure 11).

institution TdC (as a determinant) affects the natural resource and market access of upstream value chain actors; and the component of the sub-research question (2.B): how respective access limitations occur per respective formalization (as a process).

The two building blocks of this stylized matrix cutting across both components (respective determinants and processes) of both main and sub-research questions allow for dissecting insights into the relations between them (e.g. showing how the formal institution and the formalization process reinforces the informal institution). Both such building blocks make up the core of the results and discussion of this thesis: Chapters V.1 – informal institution as access determinant (component 1.A) and institutionalization as process (component 1.B) – and Chapter V.2 – formal institution as access determinant (component 2.A) and formalization as process (component 2.B.)<sup>36</sup>. Thereby this structure helps building up the responses to the main and sub research questions – on respective determinants and processes –, while distilling the respective results pertaining to the resource and market access of upstream value chain actors.

Both research questions are not only designed to identifying and striving to fill research and development gaps against the background of reconciling forest conservation and livelihood strategies but also in addressing local yet worldwide recurrent problems in rural landscapes. The ‘inductive’ character of the research approach herein is known to be more demand-oriented and relevant for actors directly involved in lower tiers<sup>37</sup> of given value chains – while providing more detailed insights for global issues<sup>38</sup> –, such as the lack of access to livelihood relevant resources and markets.

#### 4 Research Approach and Identification of Problems

“[...] it is at this local social-ecological scale that [problem-based] mechanisms and solutions [...] can be increasingly seen emerging from across the world”. (Mistry *et al.* 2016: 1)

##### Research Approach

In the frame of the bottom-up research approach herein, this statement highlights the importance of community-level investigation and, particularly, identification of local problems as well as of demand-oriented research approaches for dealing with globally relevant issues. In this case, taking into account demands from actors involved in a given value chain: Brazil nut gatherers as well as buyers, and ICMBio – which re-

36 Additionally, Chapter V.3 captures the role of *quilombola* leaders – given challenges and leverage points they pose upon *quilombola* extractivists’ resource and market access based on informal and formal institutions and respective access processes (detailed in Chapters V.1 and V.2). Chapter V.3 complements the evidences for responding to both research questions mainly provided in the two chapters (corresponding to building blocks 1 and 2) preceding it, while exploring leaders’ individual versus collective benefits in order to further objectively understand resource and market access – along the Brazil nut value chain in this case.

37 ‘Lower tiers’ as well as ‘upstream nodes’ refer to segments comprising the production/ gathering of a good within a given value chain.

38 For community owned management of global challenges affecting socio-ecological systems in Latin America and beyond, see e.g. Delgado-Serrano *et al.* (2017).