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Dialling up women farmers' empowerment vis-à-vis agriculture

Exploring the effects of mobile phones in rural India

A mixed-methods case study from Andhra Pradesh Karnataka & Maharashtra

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To my mum for being my living example of an empowered woman

& To my dad for raising me to become a tech-savvy woman myself.

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Disclaimer

This Master thesis does not draw on any GIZ internal documents, nor does it dwell on GIZ's or the German governments vision for the future of agriculture, digitalisation, or gender equality.

The Research Agreement between the author and the 'Green Innovation Centre India' project is disclosed in Appendix A.

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Abstract

Despite women being the backbone of the agricultural sector in India, the patriarchal agrarian system poses major obstacles and challenges specific to women farmers with consequences well beyond the individual.

This research aims to explore how mobile phones can empower rural women vis-à-vis agriculture. Taking the lens of Feminist Theory, the ambition of this research is to study real-life experiences and realities of often invisible women farmers. A mixed-methods case study design allowed to capture a holistic and at the same time nuanced understanding of technology in the rural context of Andhra Pradesh, Karnataka and Maharashtra.

The findings of two focus group discussions and a telephone survey of 231 observations conclude that mobile phones enable rural women farmers to feel more independent, self-sufficient, and safe. Towards empowerment in agriculture, mobile phones promote change across all five domains under study: production, resources, income, leadership and time. Mobile phones provide women farmers with invaluable access to information and resources, allowing them to enter previously male-dominated steps along the agricultural value chain.

Keywords: agriculture, India, feminisation, farmer, gender equality, empowerment, rural livelihoods, mobile phones, technology, ICT4D, ICT4Ag, mixed methods

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LIST OF ABBREVIATIONS & ACROYNMS

AFC	Agriculture and Finance Consultants
AMAI	Internet And Mobile Association Of India
APMAS	Mahila Abhivruddhi Society, Andhra Pradesh
BMZ	Federal Ministry of Economic Cooperation and Development (Germany)
CGIAR	Consortium of International Agricultural Research Centers
CIMMYT	International Maize and Wheat Improvement Center
DAC&FW	Department of Agriculture, Cooperation & Farmers Welfare (India)
DFID	Department for International Development (United Kingdom)
EIGE	European Institute for Gender Equality
eNam	Electronic National Agricultural Market (India)
FAO	Food and Agricultural Organisation of the United Nations
FASAR	Food and Agriculture Strategic Advisory Research
FGD	Focus Group Discussion
FPC	Farmer Producer Company
FPO	Farmer Producer Organisation
GAA	German Agribusiness Alliance
GAD	Gender and Development
GDPR	EU General Data Protection Regulation
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ)
ICEA	Indian Cellular & Electronics Association
ICRER	Indian Council for Research on International Economic Relations
ICT	Information and communication technologies
ICT4Ag	Information and communication technologies for agriculture
ICT4D	Information and communication technologies for development
IFRI	International Food Policy Research Institute
IMF	International Monetary Fund
IT	Information Technology
ITU	International Telecommunications Union
LUMID	Lund University, Master of Science in International Development and Management
MeitY	Ministry of Electronics & Information Technology (India)
MoF	Ministry of Finance (India)
MoHWF	Ministry of Health and Family Welfare (India)
MoSPI	Ministry of Statistics and Programme Implementation (India)
MSP	Minimum Support Price
NITI Aayog	National Institution for Transforming India
NVIVO	QSR International Qualitative Data Analysis Computer Software Package
OAV	German Asia-Pacific Business Association

ODK	Open Data Kit
OECD	Organisation for Economic Co-operation and Development
OPHI	Oxford Poverty and Human Development Initiative
RBE	Reach-Benefit-Empower Framework
SDG	Sustainable Development Goal
SL	Sustainable Livelihood
SPSS	IBM SPSS Statistics Software
TAM	Technology Acceptance Model
UN	United Nations
UNICEF	United Nations Children’s Fund
USAID	United States Agency for International Development
WEAI	Women's Empowerment in Agriculture Index
WID	Women in Development

CONVERSION TABLES & SYMBOLS

Sizes	
1 hectare	= 10.000 square meters ≈ 98.84 Guntha
1 Guntha	≈ 0.01 hectare

Currencies	
100 Indian rupees	≈ 1.14 Euro ≈ 11.67 Swedish Krona
1 USD	≈ 0.85 Euro ≈ 8.67 Swedish Krona

Symbols	
$	US Dollar
%	Percentage

1. INTRODUCTION

"When you lift up women, you lift up humanity."
(Gates, 2019, p. 2)

1.1. Relevance of the topic

India depends on agriculture – and agriculture depends on women. Oxfam India (2018) suggests that three out of four rural women are engaged in small-scale agriculture producing about 60 to 80 percent of the country's food. The Indian agricultural sector is experiencing a trend of 'feminisation' (MoF, 2018). Even so, the patriarchal agrarian system of India poses significant obstacles and challenges specific to women (NITI Aayog, 2020). A *rural women farmer* describes a woman living in primarily under-served rural areas and working in agricultural production while often facing challenges of poverty, informal employment, and gender inequality.

The mobile phone can become an important enabler for rural women's empowerment vis-a-vis agriculture in rural India. The world-renowned economist Jeffrey Sachs (2008) predicted mobile phones would "prove to be the most transformative technology of economic development of our time". Information and communication technologies[1] (ICT) are already impacting agricultural value chains from sourcing inputs for cultivation to selling on local or global markets (Singh, 2019). Although it may take years to provide everyone with equal access to new technologies, mobile penetration rates in India are rising in record numbers.

Enhancing the use of mobile phones to empower women and achieve gender equality is one of the targets in the United Nations Sustainable Development Goals (SDGs)[2] (United Nations, 2016). Governments and the international development community have picked up on the enthusiasm toward new technologies to solve poverty, hunger and gender inequality (BMZ, 2021; Chand, 2020b; World Bank, 2017). Nevertheless, the existing literature remains ambiguous about impacts as technologies have not lived up to their transformative potential in the real world. Scholars call for more pragmatic research approaches not distorted by perceptions and ideals of technology attributes, agricultural productivity, or economic growth (Donner, 2015).

1.2. Research agenda and approach

This thesis highlights the intersection of the increasing feminisation of Indian agriculture and the rising mobile penetration rates among rural women farmers. Guided by the quote: "All

‘people’ need to do was to ask women” (Criado-Perez, 2019, p. 318), the ambition of this research is to study real-life experiences and realities of often invisible women farmers. Taking the lens of Feminist Theory allows exploring the gendered impact of mobile phones with the following research questions while considering the bundle of socio-economic, socio-cultural and structural factors affecting their lives (Ceia, 2021).

Research Questions:

- What factors influence the adoption of mobile phones?
- How do rural women farmers use their mobile phones?
- What are the effects of mobile phone usage?

→ **How are mobile phones empowering rural women vis-à-vis agriculture?**

In times of an ongoing pandemic, choosing a more flexible and pragmatic study design to answer the research questions was inevitable. Due to the multidisciplinary nature of the topic, there is no unifying theory or method to accommodate the research agenda. Therefore, a mixed-methods approach was chosen to capture the synergies of a quantitative telephone survey and qualitative focus group discussions (FGDs) (Florczak, 2014). Connecting the data collection with development project called ‘Green Innovation Centre India’[3] implemented in Maharashtra, Karnataka, and Andhra Pradesh, allowed reliable data collection despite the insurmountable geographic distance between the researcher and study site. Moreover, the focus on tomato farmers who are part of the project in the three states was an opportune limitation for an in-depth yet holistic case study approach amid India’s immense diversity.

This study aims to contribute to the growing area of ICT for development (ICT4D) research by spotlighting the gendered impact of technology in context. Although this research can only provide a snapshot of mobile phone’s effects on rural women farmers, the empirical insights and reflections shall motivate discussion among researchers, practitioners, and policymakers. An article about positive deviance[4] has promoted this research to move beyond studying barriers and challenges and instead ‘looking for what makes the difference’ (GIZ, 2021).

1.3. Outline

Starting with the background section, information about the agricultural sector and mobile communications in India are introduced. Once the fundamentals to comprehend the research agenda are provided, existing scholarly research is highlighted in the literature review. Following the critical examination of the ICT4D discourse, theoretical groundings and key

concepts relevant to the upcoming analysis are suggested. Next, the methodology section describes the research design for answering the research question, including methods and data sources deployed. Then, the findings are presented and discussed under the guidance of the previously developed analytical framework. Finally, this research concludes with general propositions and lessons-learnt derived from the case study.

1.4. Language choices

Commonly the word *farmer* is connotated male-by-default, reinforced by our gendered language. Even though there is a strong connotation of the word farmer to depict a man by default. In the following, a farmer is considered to be a woman when not stated otherwise. It is also important to note that gender is not only binary, however in the scope of this study, the focus is on women only. Although sex and gender are often used interchangeably, the term gender is deployed in the following to describe men's and women's social and culturally constructed roles and responsibilities (UNICEF, 2017).

1.5. Definitions of contested terminology

Texts about development topics in research and practice are often filled with buzzwords and empty phrases. Therefore, contested and polysemic terms are defined upfront according to their use in this thesis.

Development is ultimately progress in human freedom to make decisions about what kind of life people value and want to live (Drèze and Sen, 2013).

The term ***sustainable development*** refers to "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987, p. 43). It encompasses the dimensions depicted in the 17 Sustainable Development Goals by the United Nations (2015).

Rural development describes the development of rural economies and societies entailing agricultural production as well as broader distributional issues such as poverty and inequality (Harriss, 1982).

According to the Multidimensional Poverty Index, ***poverty*** is defined as the deprivation across three dimensions, namely health, education and standard of living (OPHI & UNDP, 2020).

Empowerment refers to a person's increase in personal, political, social and economic strength with capabilities, access to resources and opportunities as well as the agency to control their own live (UNICEF, 2017).

A human's ***livelihood*** comprises capabilities, assets and activities required for living. To be sustainable, a livelihood must be able to maintain and enhance its capabilities and assets now and in the future while coping and recovering from stress and shocks as well as not undermining natural sources (Chambers and Conway, 1991; DFID, 2001).

2. BACKGROUND

This thesis pinpoints to the intersection of two trends: the feminisation of Indian agriculture and the increasing penetration of mobile phones in rural India. While opportunities for women farmers empowerment arise at this crossing, each trend is complex and requires individual attention to comprehend the research problem. Thus, the first part focuses on the Indian agricultural sector and its challenges including the increasing feminisation. The second part presents background information on rising mobile penetration rates in India. This section eventually concludes by linking the two topics.

2.1. The agricultural sector in India

To date, agriculture accounts for only 16 percent of India's gross domestic product, while the sector still employs more than 43 percent of the overall workforce (World Bank, 2021). Farming is the principal economic occupation and primary source of income for most rural households in India – almost 900 million people (FAO STAT, 2021; Gulati and Juneja, 2021; World Bank, 2021). Globally, India is the largest producer of pulses, jute and milk, and the second largest of rice, wheat, cotton, fruit and vegetables (FAO STAT, 2021). While India's food grain production is numerically at a surplus to provide for its population, the 2020 Global Hunger Index ranked India 94th out of 107 countries due to severe food and nutrition insecurity among the population (Concern Worldwide & Welthungerhilfe, 2020). Almost every fourth farmer lives below the poverty line[5], meaning that they lack financial resources for maintaining a minimum standard of living (DAC&FW, 2017). "India represents a paradoxical situation of 'hunger in the midst of plenty'" (Chand, 2020b, p. 11).

The Indian government acknowledges that output growth since the notable Green Revolution[6] did not trickle down to increase farmers' income and welfare (Chand, 2017). Therefore, the Indian government recently launched the ambitious goal of 'Doubling Farmers' Income'[7] by 2022-2023 to promote welfare among farmers and reduce the agrarian distress in rural areas (Chand, 2017). However, ongoing farmer protests against new farm laws[8] and high suicide

rates among farmers remain a major public concern unveiling the distress and crisis of the agricultural sector (Basu and Singh, 2020).

2.1.1 Challenges in Indian agriculture

Indian agriculture is dominated by small-scale farming, with an average operational holding size of only 1.08 hectares and declining (DAC&FW, 2020). Smallholders' advantages in area productivity[9] are diminishing due to uneven access to productive resources and capital (Rapsomanikis, 2015; Singh et al., 2020). The overall productivity of Indian agriculture remains below the world average, and there is a substantial opportunity to raise yields (Chand, 2017; Singh et al., 2020). Productivity differences across states and among smallholders depend on soil quality and available resources such as irrigation, seeds, or fertilisers (Chand, 2017; Rapsomanikis, 2015). In 2015, only 38 percent of India's agricultural land was irrigated (World Bank, 2021), leaving the large majority dependent on rain for cultivation. Although India's fertiliser consumption comes second worldwide, the average usage remains lower than in other Asian countries and appears to be highly skewed across and within states (OECD & ICRIER, 2018). The combination of small holding sizes, unreliable power supply and limited funding available to farmers leads to mechanisation remaining at a nascent stage (FASAR, YES BANK & OAV-GAA, 2016). Agriculture incurs a financial loss for many farmers because of low productivity and incomes, shortfalls in government assured procurement, trade restrictions and gaps in agricultural policies (OECD & ICRIER, 2018). In fact, agricultural prices are not rising on par with other prices, leading to stagnation in agricultural growth and causing severe distress among farmers (Chand, 2020b). Smallholders constantly operate in an environment of risk and uncertainty with a lack of financial resources to enhance and diversify their production (Chand, 2020a).

At the same time, India's overall economic growth comes at an environmental and human cost as the pressure on natural resources increases. Water, air and soil pollution aggregate to dangerous impacts on the population's health and well-being (Down To Earth, 2021). The state of the environment is of profound importance for the agricultural sector and rural livelihoods. The climate crisis is exacerbating the already existing challenges of farmers in a multitude of ways (Achterbosch et al., 2014). The frequency and intensity of extreme weather events, particularly flooding, have already severe effects on agriculture and rural livelihoods in India (FAO, 2017). As the conditions are amplifying to freshwater shortages and increased pest or disease outbreaks, impacts range from yield reduction and even displacement of crops to the loss of biodiversity (FAO, 2017).

2.1.2 The feminisation of Indian agriculture

Against the backdrop of increasing agricultural distress and challenging rural livelihoods, men are moving away to better-renumerated sectors in urban India (MoF, 2019). The government recognises that the agricultural sector is experiencing a trend of 'feminisation' (MoF, 2018). Men benefit from migration and social mobility, whereas women are often left behind in the villages, dependent on agriculture for their livelihoods (Majumder and Shah, 2017; Pattnaik et al., 2018).

Oxfam India (2018) estimates that women produce 60 to 80 percent of the countries food, with three out of four rural women being engaged in agriculture. However, women are yet to be recognised as farmers by society and law (Majumder and Shah, 2017; Vaddiraju, 2015). Former member of parliament, M.S. Swaminathan, drafted the *Women Farmers' Entitlement Bill 2011* "to provide for the gender specific needs of women farmers, to protect their legitimate needs and entitlements and to empower them" (p.11). However, the bill lapsed in 2013 with his termination of term (Chandran, 2016).

The patriarchal agrarian system in India poses significant obstacles and challenges specific to women farmers, for instance, when it comes to inheriting land (NITI Aayog, 2020). Without formal land titles, women are not officially acknowledged as farmers – only confined 'cultivators' (DAC&FW, 2020) – and thus restrained from accessing public benefits and subsidies (Majumder and Shah, 2017). Only 13 percent of women personally own operational land (NITI Aayog and UN, 2019) and out of those, 72 percent are marginal- and 17 percent smallholders (DAC&FW, 2020). Women farmers still face substantial gender gaps in access and control of land, labour, credit, information, in addition to gender-bias in extension services and technology (World Bank & IFPRI, 2010). Even so, labour-intensive and low-skill work before the harvest is primarily reserved for women (Vaddiraju, 2015). Besides, women farmers are responsible for unpaid care work and household duties consuming a significant share of their time (Majumder and Shah, 2017). Agriculture in India and around the world is designed around the needs of men (Criado-Perez, 2019; Majumder and Shah, 2017). Therefore, women farmers are on average less productive than man farmers – "female input doesn't equal male output" (Criado-Perez, 2019, p. 149).

Not only are women farmers less productive in terms of output than men farmers (FAO, 2016), but their earnings often fall under martial or family income, denying them decision-making power over financial resources (Huyer, 2016; Majumder and Shah, 2017). The lack of gender-disaggregated data further restrains assessments of the status quo and implications

of policy measures (NITI Aayog and UN, 2019). The consequences of gender inequalities go well beyond the individual woman. Giving women equal rights, resources, and decision-making power to their male counterparts could increase agricultural yields by up to 30 % (FAO, 2016) – an invaluable opportunity to rural development and food security.

2.2. Mobile penetration in India

An important development for women farmers vis-à-vis agriculture may be the mobile phone. Even though it may take years to come until women in rural India have equal access to a device, mobile phones are an opportunity to escape existing structures and tools to support productive activities (Tenhunen, 2018, Ch.5). While basic phones[10] enable mobile network communications and feature phones[11] rudimental internet access, the smartphone[12] has become a gateway to the Internet and its endless opportunities (Eriksson, 2017; Mccrocklin, 2019).

Mobile phone connections in India reached a record-high of 1.1 billion in January 2021, equivalent to 78 percent of the total population (Hootsuite & We Are Social, 2021). The Chief Executive Officer of the National Institute for Transforming India (NITI Aayog), Amitabh Kant, predicted every Indian to have a smartphone by 2022 (Indo Asian News Services, 2018). The number of active internet users in rural areas already outnumber the number in urban India (AMAI & Nielsen, 2019). Accelerated by the rising availability of high-quality yet low-cost handsets, a decrease in data cost by 95 percent since 2013 (Kaka et al., 2019) and almost complete 4G network coverage[13] (GSMA, 2020), mobile phones are diffusing the country and among rural communities (Arora, 2019; Tenhunen, 2018). Considering other metrics besides penetration rates, such as data consumption, app downloads or social media users, India has become one of the world's largest and fastest-growing digital markets (Kaka et al., 2019). YouTube, Facebook, WhatsApp and Instagram are the most-used platforms among internet users in India (Hootsuite & We Are Social, 2021). More than 90 percent of India's 624 million internet users use their mobile phones to access the Internet (AMAI & Nielsen, 2019; Hootsuite & We Are Social, 2021).

Under the 2015 'Digital India' programme, the government has launched several policy initiatives and more than 300 applications around digital infrastructure, e-Governance services and society's digital empowerment (ICEA, 2020; MeitY, 2021). However, the government is under scrutiny for increasing control and regulation of the Internet and social media, for instance removing posts about the recent farmer protests (Perrigo, 2021; Thomas, 2019).

2.3. ICT for development (ICT4D) and for agriculture (ICT4Ag)

With rising mobile penetration rates around the world, the international donor community is picking up the enthusiasm of ICT for development and to 'bridging the digital divide' as a significant factor to reduce poverty and inequality (BMZ, 2021; World Bank, 2017). The growth of the Indian IT sector and advancing digitalisation have significant spill-over effects on agriculture and for farmers. ICT for agriculture (ICT4Ag), e-agriculture or AgTech entail the transformation of best practices, finance, marketing, and trade (Treinen and van der Elstraeten, 2018).

The digital transformation already impacts entire agricultural value chains from sourcing inputs for cultivation to selling on local or global markets (Singh, 2019). While ICT encompasses a range of technologies from high tech remote sensing to low-tech radio broadcasting, it is the mobile phone that serves as an interface to harness the benefits of ICT4D and ICT4Ag. Figure 1 summarise the role of ICT in agriculture and the promise for progress to some of the challenges presented in the previous section.

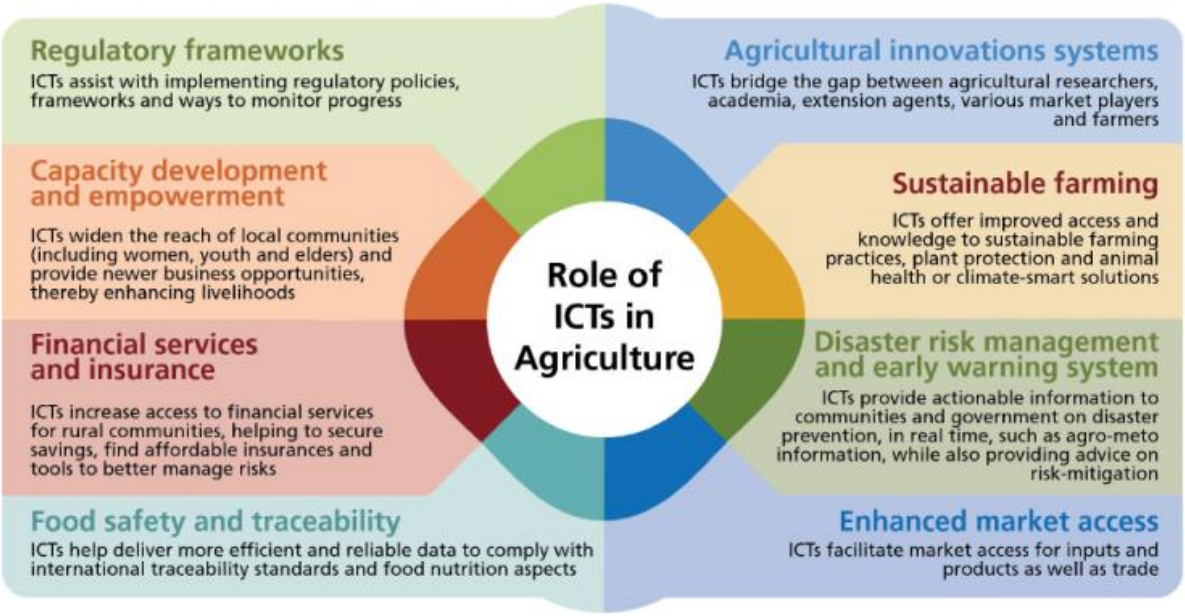


Figure I: The role of ICTs in agriculture
(Treinen and van der Elstraeten, 2018, p. 11)

Data is a crucial element of ICT4Ag, including weather forecasts, agro-ecological conditions or market statistics (Data4Ag, 2020). With agriculture becoming more and more knowledge-intensive (FAO, 2017), accessing personalised real-time information and advice allows farmers to make informed decisions for improving yields, incomes and resilience (Vodafone Group, 2015). Mobile phones can reduce information search costs and grant regular and

timely access to information. Taking into consideration that most of the cultivation in India is rain-fed, farmers can adopt farm management schedules and activities according to weather forecasts. Mobile phone-based soil testing solutions provide farmers with input recommendations based on nutrient and micronutrient parameters. Given limited human resources, ICT enables extension services to reach farmers on a larger scale and a more (cost) efficient and effective manner (Singh, 2019). Farmer producer organisations[14] (FPOs) are carrying out extension services and tapping on the benefits of electronic trading platforms by aggregating smallholders for joint input pricing and marketing (Boettiger and Sanghvi, 2019). On the governmental 'Electronic National Agricultural Market' (eNam)[15], farmers can trade more than one hundred commodities across India, benefitting improved price discovery and online payment options (DAC&FW, 2021). Social messenger services evolve as support networks for farmers to seek good agricultural practices, pricing information or services (Naruka et al., 2017). The increasing availability of mobile money services is an accessible alternative to traditional banking and an opportunity for expanding financial inclusion among farmers (Phatty-Jobe, 2020). To sum up, the rise in mobile penetration among farmers could level up the agricultural level playing field, revitalise the sector and create new livelihood perspectives in rural areas for both women and men.

2.3.1 The gender digital divide

The challenge remains how to tap digital dividends for all farmers irrespective of their gender. Despite the rising mobile and internet penetration rates, digitalisation is not inclusive across states and population segments (Kaka et al., 2019). In some Indian villages, "women's use of men's technology" (Marvin, 1988, p. 23) even raises concerns about morality and disturbing social orders, prohibiting women from using mobile phones (Jeffrey and Doron, 2013a; Lewis, 2016). ICT access and usage intersect with multiple of socio-economic, socio-cultural and structural factors that determine who benefits and why (Ceia, 2021). Persistent social norms create corresponding barriers for women, stimulating the widening gender digital divide.

The international Mobile Gender Gap Report (GSMA, 2020) found the largest disparity in mobile phone usage among all participating countries in India, with men almost doubling women. Indian women are on average 20 percent less likely than men to own a mobile phone (Rowntree, 2020). The gender digital divide is even more significant concerning smartphone ownership, with only 14 percent among women and 37 percent among men in India (Rowntree, 2020). According to the National Family Health Survey 2019-2020, between four

to five out of ten rural women in Andhra Pradesh, Maharashtra and Karnataka personally own a mobile phone (Table 1; MOHFW, 2020). Furthermore, women in India are half less likely to access the mobile internet than men (Rowntree, 2020). Comparing indicators across states, only 15 percent of rural women in Andhra Pradesh have ever used the internet, compared to around one quarter in Maharashtra and Karnataka (Table 1; MOHFW, 2020).

Table 1: Mobile Phone Statistics (Ownership & Usage)

Source: National Family Health Survey 2019-2020, MOHFW, 2020

State	Rural women personally owning a mobile phone 2019-2020 [percentage]	Rural women who ever used the internet 2019-2020 [percentage]
Andhra Pradesh	40.9	15.4
Maharashtra	43.1	23.7
Karnataka	53.4	24.8

The gender digital divide encompasses a spectrum from access and usage to opportunities (Warschauer, 2003). "Entering the third decade of the 21st century, the internet is both a reality and a necessity" (Ceia, 2021, p. 22). Not only is the gender digital divide a continuation of women's deprivation to productive resources, but it poses the risk of perpetuating inequalities (Wajcman et al., 2020). Persistent data gaps disaggregated by demographics render into decision-making and resource allocation for upcoming policies and development programmes (Grantham, 2020). Similar to the inherent discrimination of women farmers described in Section 2.1.2, technology itself is not gender-neutral. With the underrepresentation of women farmers, the data used to train algorithms may neglect women's needs and code pre-existing biases into new software (Sterling, 2021; Wajcman et al., 2020). Referring to the start of the section, enabling women farmers to grasp the benefits of mobile phones requires acknowledging their role in agriculture and the realities of digital divides.

3. LITERATURE REVIEW

The scholarly discussion on mobile phones for rural development and agriculture is expanding rapidly. To cover the complex and dynamic agricultural and rural context of women farmers, looking into mobile or ICT adoption, usage and impact allows to include different research approaches and themes. The aim of this section is to provide the reader with a nuanced understanding of research themes and advancements relevant to the topic under study.

With the research question at hand, relevant literature is identified through search in academic databases and search engines confined by the following criteria depicted in Table 2 below.

Table 2: Criteria Literature Review

Time	Published after 2000 (time of initial mobile phone penetration uptake in India)
Context	Primarily in the context of India
Author	Diversity among authors in terms of gender, nationality, and discipline
Type of literature and requirements	Peer-reviewed academic literature to ensure scientific quality; Books by experts published by university presses or academic publishers; Reports from official sources like international or governmental organisations
Language	English
Combination of keywords	Agriculture; Farming; Farmer; India; Women; Female; Feminisation; ICT; Mobile phone; Smartphone; Phone; ICT4D; ICT4Ag; mAgriculture; eAgriculture; AgTech, Digital; Innovation; Empowerment; Impact; Access; Usage;

The diversity among states already poses an inherent challenge conducting research 'about India' (Pingali et al., 2019). Considering that this thesis is not about technology itself but rather the rural context in which mobile phones are operated, primary literature was limited to the context of India only. All books were verified by consulting peer-reviews and only sourcing from credible institutions and organisations. Further applying the snowball sampling method across bibliographies allowed to identify prominent sources. To acknowledge possible shortcomings of the review upfront, the following elaboration is constrained by word limitations, and likely exposed to unintended selection bias of certain literature.

3.1. Reflections on the ICT4D discourse

This first part reviews the debate around the ICT4D discourse and digital divide. While Section 2.3 introduces the general concepts, the following aims to present the more critical reflections by scholars.

Starting with the notable 'Maitland Report' in the mid-1980s, it is commonly envisioned that providing people in developing countries with access to ICT does "stimulate economic growth and enhance the quality of life" (ITU, 1985, p. 65). One out of many reports by the World Bank (2012a) states that mobile phones "offer major opportunities to advance human development" (p.3) not only for the individual but for the benefit of the whole economy. As a subcategory, publications on ICT4Ag commonly highlight "How mobile phones can support farmers' livelihood" (Vodafone Group, 2015) even those smallholder farmers living under poor conditions (World Bank, 2017). Corresponding with the direct abbreviation of ICT4D, ICT *for* development, and ICT4Ag, ICT *for* agriculture, common logic suggests ICT is a driver rather than a result of development. In this line of argument, overcoming the digital divide between those who have and those who do not have access to ICT has become an important indicator in the ICT4D discourse (Martin and Abbott, 2011).

However, an increasing number of scholars critically interrogate the enthusiasm for ICT4D:

> *At its best, ICT4D captures the complexities and potentialities of technologies, as applied and appropriated for a myriad of different uses under the complex and often contested banners of development, justice, and progress. At its worst, as critics point out, it can reflect shallow, Western, neoliberal, technologically deterministic approaches.*
>
> (Donner, 2015, pp. 15–16; with reference to Gurumurthy, 2010)

In 2018, Heeks published the first textbook solely dedicated to ICT4D. In his definition, ICT is used to deliver the international development agenda, today reflected by the SDGs, which in turn shapes the reasons and ways ICT is used for development *(Ibid.)*. While Heeks extensively examines the concepts of 'ICT' and 'development' individually, an in-depth analysis of the linkage between the two – ICT *for* development – is missing (Kyaw Sein, 2019). An analysis by Zheng et al. (2018) on the meaning of ICT *for development* (original emphasis) fills this gap. Complementary to Heeks, they argue for a more critical reflection on the assumptions about ICT and development *(Ibid.)*. Moreover, Zheng et al. demand a better understanding of the theory of change, suggesting that ICT4D entails a multifaced and dynamic socio-cultural process.

In a 2003 World Bank report, McNamera (2003) reviews experiences from ICT4D projects concluding that the digital divide seems to be a symptom of inequality rather than the cause while ICT is an enabler rather than a necessity for change. Literature from various disciplines questions the assumption that closing the digital divide is merit to ending poverty (Arora, 2019; Donner, 2015; McNamera, 2003). Scholars appeal for a more nuanced approach on the spectrum of interconnected divides among population segments (Arora, 2019; van Dijk and Hacker, 2003; Warschauer, 2003). Besides, the bundling and integration of different technology systems challenge treating the digital divide as binary in nature, namely 'having' and 'not having' access to a mobile device (Donner, 2015). At the same time, access or ownership does not guarantee free usage (Arora, 2019; Wajcman et al., 2020). Arora (2019) calls for a two-tier approach to eliminate barriers to "diverse and meaningful usage" as the second digital divide after access. In a UN Women discussion paper, Wajcman et al. (2020) emphasise the need to move beyond the narrow framing of access and affordability to issues of inequality and power relations.

3.2. Closing the gender digital divide: Access, usage & effects of mobile phones

Devendra Potnis (2016a, 2016b) published two relevant papers on the gender digital divide in India, examining the socio-cultural, financial, psychological, and demographic factors that further created economic barriers to women's ownership. The qualitative studies are based on a survey of 245 rural and urban women from Maharashtra with average earnings of less than $2 a day *(Ibid.*). In India's male-dominated culture, women often lack financial independence and personal savings (Potnis, 2016a). Additionally, traditional gender roles and unequal opportunities further raise economic barriers (Potnis, 2016b). Potnis (2016a) concludes that the cumulative effect of cultural factors, for instance, the Indian masculine and collective culture, women's high uncertainty avoidance and long power distance, make even inexpensive mobile phones inaccessible for many women.

In the book "Cell Phone Nation" about the revolutionary effects of mobile phones in India, Jeffrey and Doron (2013a) discuss how rising mobile penetration is empowering and disempowering women at the same time. On the one hand, the mobile phone is portrayed as a disruptive device for changing social and gender relations around domesticity, morality and sexuality *(Ibid.).* On the other hand, Jeffrey and Doron account for the rising anxiety among conservative families and men about girls' and women's use of mobiles threatening the patriarchal order. Banning women from having a digital life is yet another extension of

women's deprivation of individuality, access to public spaces and circumscribing them as daughters, mothers or spouses (Arora, 2019; Lim, 2016).

In "A Village Goes Mobile", Sipra Tenhunen (2018) shares her long-term ethnographic fieldwork experiences in the rural village of Janta in West Bengal. The book analyses how the mobile phone emerged as a multifaceted object with implications on social relationships within the village over a period from 1999 to 2013. Criticising the ICT4D discourse, Tenhunen neglects the idea that mobiles are merely means to productivity but rather become parts of people's identity. In chapter five, called "Mediating Gender", Tenhunen identifies the subtle and sometimes ambiguous effects of mobile phones on gender and kinship relationships, particularly the redefinition of home boundaries. In summary, rising mobile penetration among rural women extends perceived safety outside the home and initiates reflections on their positioning in the household *(Ibid.)*. Overall, saving time is the prevalent benefit observed in Janta *(Ibid.)*. While the topic of mobile phones for agriculture will be reviewed in the next section, the following quote hints at increased engagement and decision-making in agriculture:

> *Another phone conversation between a mother and daughter entailed a highly detailed conversation about farming options, which women rarely discussed in public because farming decisions are regarded as part of the male domain. Phones offer women a channel to express unconventional ideas and exert their will through networking [..].*
>
> (Tenhunen, 2018, p. 115)

3.3. Mobile phones for agricultural development in India

Probably the most cited (e.g. Aker and Ksoll, 2016; Banerjee and Duflo, 2019; Heeks, 2018; Martin and Abbott, 2011; Schroeder et al., 2021; Tenhunen, 2018) and supposedly strongest example about the micro-economic impact of mobile phones (Donner, 2008) is a five-year study by Robert Jensen (2007). Between 1997 and 2001, he conducted a weekly survey of 300 sardine fisher*men* in Kerala to assess the effects of improved market information flows facilitated by the introduction of the mobile phone. Jensen (2007) found that the adoption of mobile phones among fisherfolk and wholesalers resulted in reduced price dispersion, the elimination of waste, increased profits among fishermen and overall improvements in consumer welfare. However, a number of researchers challenge Jensen's methodology and findings (e.g. Srinivasan and Burrell, 2013; Steyn, 2016). A fundamental flaw is his equation of correlation and causation (Steyn, 2016). Jensen (2007) reasons that the increased mobile penetration caused economic welfare – in line with the ICT4D logic of ICT driving

development. Srinivasan and Burrell (2013) revisited the site to investigate the generalisability of the findings, pointing to blind spots in terms of local geographic differences and fundamentally questioning the characterisation of beach markets as open and free. They further challenge the impact of mobile phones on economic welfare and instead suggest a positive effect on emotional and social welfare *(Ibid.).* Steyn (2016) thoroughly scrutinises the misleading technological determinism of Jensen's claims who disregards the realities and complexities of social systems.

The debate around Jensen's study point to the sometimes-conflicting research outcomes around ICT4D due to a lack of actual evidence and solely reliance on anecdotal success stories (Heeks, 2016). In her exploratory literature review about mobile-enabled services for smallholder farmers, Baumüller (2018) criticises that the majority of studies take farmers perceptions such as productivity or prices rather than actual impact measures as evidence based on time-series data. She further challenges the lack of differentiation between user groups and the rare assessment of technology in context. This blindness to the complex and dynamic process of rural development with an insufficient understanding of the vulnerability context of technology users is confirmed by Duncome's (2012) extensive literature review.

There is even less rigours literature available when it comes to impact studies of ICT4Ag with a lack of gender disaggregated data or neglecting women farmers completely.

Published in 2011, Haider Rizvi assessed the impact of a mobile-based advisory service for Indian farmers. Conducted in 10 villages in Harayan state, 107 farmers, including 6 percent women, were interviewed about a service called 'LifeLines' (Haider Rizvi, 2011). The analysis concluded that 67 percent of the intervention group reported increases in savings and earnings due to higher productivity, lower expenditures, and better disease control *(Ibid.).* On the other hand, loans decreased among 31 percent of the respondents, and 73 percent observed a positive impact on health through better nutrition, higher incomes, and more frequent doctor treatments *(Ibid).* However, a limitation of Haider Rizvi's study is the disregarding of usage behaviour (Baumüller, 2018) – only 20 percent of the intervention group used the service once a week and 25 percent once a month.

A 2015 conference paper by Surabhi Mittal examines the role of mobile-based agricultural advisory for gender empowerment by analysing the behaviour of 510 women and men farmers from Haryana and Bihar. Based on phone data and a survey, she studied the perceived benefits of the informational voice messages. The majority, including 80 percent men and 70 percent women farmers, reported improved knowledge as the primary benefit, followed by better

weather information (78 % of women; 76 % of men) and thirdly increased yields (70 % of women; 64 % of men) (Mittal, 2015). While women and men had similar average times of listening to the messages, women revealed acting less on the advice due to limited direct involvement in some steps along the agricultural value chain *(Ibid.).*

In the chapter "The Role of Mobile Phones in Empowering Women in Agriculture", part of the 'Routledge Handbook of Gender and Agriculture' (Sachs et al., 2020), Mittal (2020) argues that mobile phones reduce information asymmetries and provide women farmers with invaluable access to information. Mittal's (2020) argument is based on different studies showcasing how mobile phones foster improved access to information (Kansiime et al., 2019), promote individual freedom (Handapangoda and Kumara, 2013), increase agricultural productivity (Mittal and Mehar, 2012), accelerated poverty alleviation (Joseph and Andrew, 2007) and overall contribute to development efforts (Masika and Bailur, 2015). However, looking into the studies mentioned by Mittal reveals several shortcomings in terms of substantial evidence, including claims being based on small sample sizes with diverging characteristics to the population of interest (Handapangoda and Kumara, 2013; Kansiime et al., 2019), missing gender disaggregation (Mittal and Mehar, 2012) and claims solely based on the review of tertiary literature (Joseph and Andrew, 2007; Masika and Bailur, 2015).

3.4. Mobiles in everyday life

ICT4Ag research is primary located in the work sphere of farmers lives, focusing on the instrumental purpose of increasing productivity and income. Interestingly, gendered assumptions are prevalent, claiming that men generally use mobiles for productive purposes and women as fashion items or channels for intimate personal relationships (Castells et al., 2004).

In her book, 'The Next Billion Users: Digital Life Beyond the West', Arora (2019) explores what people living under poor conditions *want* from their digital life apart from expectations of how they *should* interact with technology. She uncovers that mobile usage is driven by personal and emotional motives rather than efficiency or economic gains *(Ibid.).* Other scholars agree – the entertainment potential often outpaces the development potential of ICT (Kumar and Thomas, 2006). Research shows that mobile phones are primarily used for connections with family and friends rather than for information gathering or direct economic activities (David et al., 2005; Tenhunen, 2018). Defying the development goals set by donor

organisations, play and entertainment often overtakes work and productivity (Arora, 2019), as confirmed by statistics on the use of mobile apps with ‘messengers’, ‘social networking’ and ‘entertainment and video’ dominating in India and around the world (Hootsuite & We Are Social, 2021).

To sum up, it is difficult and not realistic to compartmentalise people’s lives into separate categories of work and leisure (Horst and Miller, 2007). Because messenger services such as WhatsApp can be used both for personal and agricultural purposes while the mobile phone is a multi-purpose technology itself, Donner (2008) highlights a rising intermingling of personal and instrumental mobile uses.

3.5. Gaps and conclusion of literature review

Technology is used in context – the agricultural, rural, and often vulnerable context of its users. These interrelated dynamics seem critically under-researched (Baumüller, 2012). To assess the realities of mobile phones for rural women farmers, understand their individual context and social use of technology is essential. While the overall gap in literature lies at the intersections of gender, mobiles, and agriculture – a more nuanced research agenda around shifting social practices and attitudes is needed. There is a gap in understanding the expectations of rural women towards mobile phones for farming and leisure. Scholars argue for introducing new parameters for ICT impact studies focusing on broader well-being beyond economic benefit (Oreglia and Srinivasan, 2016). Even when the perceived benefit of having a mobile phone evolves around leisure (Arora, 2019), development is a multifaced process. Development is ultimately about progress in human freedom to make decision about what kind of life people value (Drèze and Sen, 2013). “It would be a distraction to focus on the questions of ‘good’ or ‘bad’. [..] We live with mobile telephony, and most of us relish the benefits. India in this sense is no different from other places” (Jeffrey and Doron, 2013b, p. 39).

Lastly, and as a transition to the next section, with the primarily exploratory nature of studies, most studies fall short on theoretical advancements for hypotheses development.

4. THEORETICAL GROUNDING & CONCEPTS

4.1. Introduction and overview of relevant theory

While the general ICT4D and ICT4Ag discourse has been extensively presented and critically examined, the section aims to present the theoretical groundings and key concepts relevant to the upcoming analysis. ICT4D is not merely a 'theoretical outpost' (Heffernan et al., 2016). While the boundaries of ICT as a means to development are recognised, finding theory around the conceptualisation of diverse development indicators, economic, technological and human-centred, is paramount to answer the research question. With the research topic being highly dependent on context, the linkages to theory serve as guidance to comprehend real-life occurring phenomena (Heeks, 2018). As a relatively new and interdisciplinary field, there is no unifying theory nor one single framework to accommodate the research topic (Heffernan et al., 2016). The following theories and concepts are selected based on appearances in vetted literature reviews in the field of ICT4D and ICT4Ag (Donner, 2008; Duncombe, 2012; Heeks, 2018; Heffernan et al., 2016).

4.2. Overarching Feminist Theory intersecting with social constructivism and empowerment

Highlighting the strategic role of women for development is not new across development agendas (Boserup, 1971; Kabeer, 1994). Already in 1971, Ester Boserup published the first-ever book on 'Women's Role in Economic Development' with a lasting influence on the initial phase of in Feminist Theory, namely 'Women in Development' (WID). In her analysis of research data from developing countries, "she was the first to systematically use gender as an independent variable in her analysis" (Rathgeber, 1989, p. 3). Already then, a focus of the WID approach was to recognise women in agriculture and to legitimise them as farmers rather than as the wives of farmers (Farhall and Rickards, 2021). At the same time, the instrumentalisation of women emerged under the neoliberal development consensus, 'Gender Equality as Smart Economics' (World Bank, 2012b), portraying women's increased labour participation as an avenue to poverty reduction and gender equality (Wilson, 2011). The second, less prominent phase, 'Women and Development', critically deals with the visibility of inequalities and power relations between men and women in terms of access to productive sectors (Rathgeber, 1989). The feminisation of agriculture is a distinguished topic in the third phase, 'Gender and Development' (GAD), challenging men's disproportionate migration and mobility *(Ibid.)*. Likewise, rising mobile penetration among women is a topic of interest, opening male-

dominated public domains besides the household and home for women around the world (Tenhunen, 2018, Ch.5). The GAD phase or approach is explicitly confronting the causes of gender inequality by challenging "why women systematically have been assigned to inferior and/or secondary roles" (Rathgeber, 1989, p. 494). Emerging as a new perspective to Feminist Theory, intersectionality approaches simultaneously multiple social complexities, including gender, class, race and other factors for inequality (Kantola and Lombardo, 2017). Understanding the vulnerability context of the women under study helps to shed light on how their identities interrelate and often mutually constitute one another (Tenhunen, 2018, Chapter 7). There is a mutual tenet at the intersection of Feminist Theory and social constructivism. Technology development and technological change are influenced by society, culture, and context (Tenhunen, 2018). As previously established, technology is not gender-neutral but instead intersects with an array of socio-economic, socio-cultural and structural factors (Ceia, 2021). Applying Feminist Theory allows exploring the gendered consequences of mobile phones in agriculture, and in turn, how gender roles and realities are changed in the process (Lohan and Faulkner, 2004; Tenhunen, 2018, Ch.5).

4.2.1 Empowerment

At the same time, empowerment marks an integral concept of Feminist Theory. While there has been scholarly debate whether empowerment is to be considered a theory or process (Carr, 2003; Carroll, 1994), it entails the increase of power by marginalised populations for individual and collective change (Lee, 2001). This can be related to the research question at hand, as empowering rural women increases their individual and collective strength to control their own lives and enable change at a larger scale.

Feminist Theory and intersectionality form the basis for this research query by informing the upcoming methodology. From an analytical perspective, there are two prominent tools available to try benchmark gender in international development efforts.

Firstly, the 'Women's Empowerment in Agriculture Index' (WEAI) is a survey-based index to assess empowerment and gender parity (Feed the Future et al., 2012). Empowerment is measured across five domains: production, resources, income, leadership, and time (Table 3). Gender parity is reflected by empowerment parity in agriculture between women and men living in the same household *(Ibid.).* While a pilot study covering Bangladesh, Guatemala, and Uganda indicate the robustness of the indicator across context (Alkire et al., 2013), a later study in the context of India reveals the importance of contextualising (Gupta et al., 2019).

Table 3: Women's Empowerment in Agriculture Index *Source: Feed the Future et al., 2012*	
Domain	*Indicator*
Production	Input in productive decisions
	Autonomy in production
Resources	Ownership of assets
	Purchase, sale, or transfer of assets
	Access to and decisions on credit
Income	Control over use of income
Leadership	Group member
	Speaking in public
Time	Workload
	Leisure

Secondly, the 'Reach-Benefit-Empower' (RBE) framework provides a format to measure how and to what extend activities contribute to women's empowerment in agriculture (CGIAR, 2021). While initially developed for project assessments, the framework can be applied to policy evaluations or other aspects of gender equity (Malapit and Quisumbing, 2020). 'Reach' covers whether women are included in the activities (Quisumbing et al., 2019). Often the opportunities of women and men are not equal; for instance, even when they have access to mobile phones, women experience less of the benefits *(Ibid.)*. The second stage, 'benefit', focuses on the effects that women value addressing their particular needs and constraints *(Ibid.)*. The final stage, 'empower' is about enhancing women's agency and decision-making power (Malapit and Quisumbing, 2020). At this stage, the WEAI indicators can be integrated as an assessment of empowerment in agriculture.

Both tools are limited in their ability to measure the complexities of women's empowerment in context and can by no means encompassing all spheres of life beyond agriculture. Yet, at the same time, their advantage is a simplification of complexity in a replicable and comparable manner.

4.3. Adoption and usage of technology theories

Before even considering the role of mobile phones in empowering women working in agriculture, it is relevant to highlight the adoption and usage of technology. Rogers (1983) 'Diffusion of Innovations Theory' and Davis (1989) 'Technology Acceptance Model' (TAM),

derived from the field of information systems and communication studies, are widely accepted in ICT4D research and have been frequently expanded or adapted over the years (Duncombe, 2012; Heeks, 2018). The 'Diffusion of Innovations' theory provides insights on the speed and level of technology adoption through a society (Heeks, 2018; Heffernan et al., 2016), however, missing the context in which the adoption and usage take place (CIMMYT, 1993; Marra et al., 2003). TAM comes down to an individual cost-benefit analysis of users acceptance of technology, primarily determined by two variables, that is, the 'perceived usefulness' and 'perceived ease of use' (Davis, 1989; Heeks, 2018). One major blind spot of TAM is in the assessment of multiple purpose technologies such as the mobile phone and taking into account social pressures to adopt new technologies (Malhotra and Galletta, 1999) or limitations to free usage faced by many rural women in India.

Even though the first two research questions of this thesis deal with the adoption and usage of mobile phones, both presented theories could fill an analysis of its own. Specifically, the TAM would require working with ordinal interval and ratio variables while not suitable for a mixed-methods approach. However, instead of theorising about the adoption and usage, the focus is on understanding the complex and interacting factors of people's livelihoods and factors of empowerment (CIMMYT, 1993; Marra et al., 2003). Therefore, both models will not be included in the scope of this work.

4.4. Sustainable Livelihood Framework

The Sustainable Livelihood (SL) Framework (Figure II) is an analytical tool to understand questions of development with a focus on the human dimension of change. Beginning with the vulnerability context, a person's livelihood is fundamentally influenced by trends, shocks, and seasonality. To reach sustainable livelihood outcomes, people require a range of assets: human, social, physical, natural, and financial capital. Even though the term 'capital' is deployed, the SL framework goes beyond mere economic measure. At the same time, assets are constantly changing – affected by the vulnerability context, transforming structures and processes, and emerging livelihood outcomes. Transforming structures, for instance, the functioning of markets, and processes, like power relations between the genders, can have major effects on assets and livelihood outcomes. Livelihood outcomes are not necessarily coherent and possibly conflicting, like when increases in production and respectively income harm the natural resource base or add to work duties. (DFID, 2001)

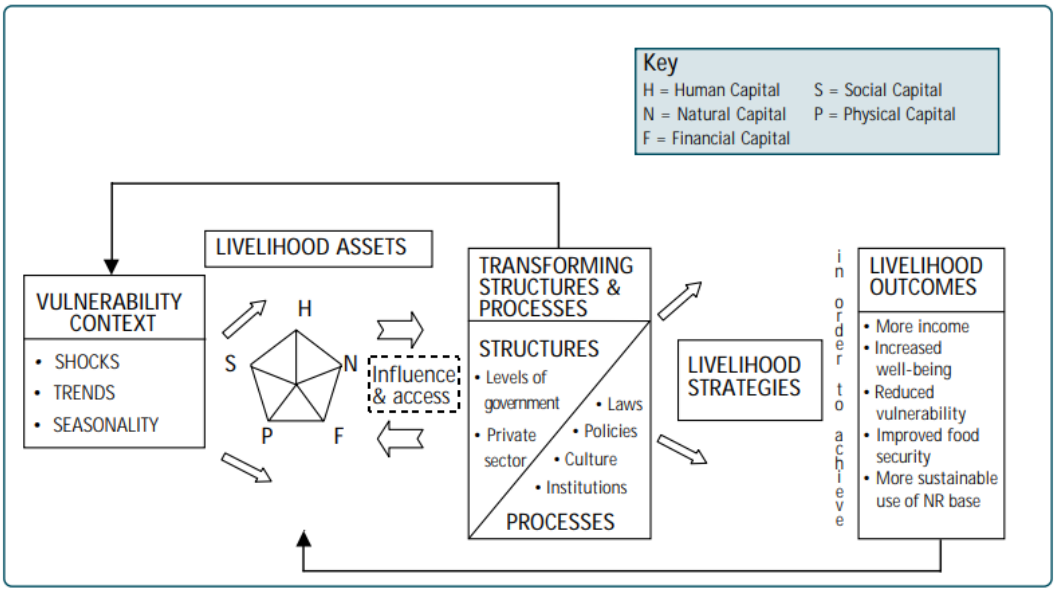


Figure II: Sustainable Livelihood Framework
(Source: DFID, 2001, p. 1)

The framework has been applied across ICT4D research (e.g. Duncombe, 2006; Parkinson and Ramirez, 2007). A major advantage of the framework is that besides people's needs defined by development agendas, their individual wants and desires can be included in form of assets and outcomes (Heffernan et al., 2016).

4.5. Concluding with a guiding analytical framework

With the research question settled in multiple academic disciplines, it is challenging to decide on one single framework to guide the upcoming analysis. Therefore, a tentative analytical framework is derived by adapting and integrating the previously mentioned tools, frameworks and theory (Lee and Baskerville, 2003). The aim is not to develop a new framework to be tested but rather to find an encompassing structure to answer the research questions systematically in due course.

The following framework (Figure III) combines variables and concepts from the SL framework and WEIA Index under the umbrella of the RBE matrix while encompassing the research questions to be answered.

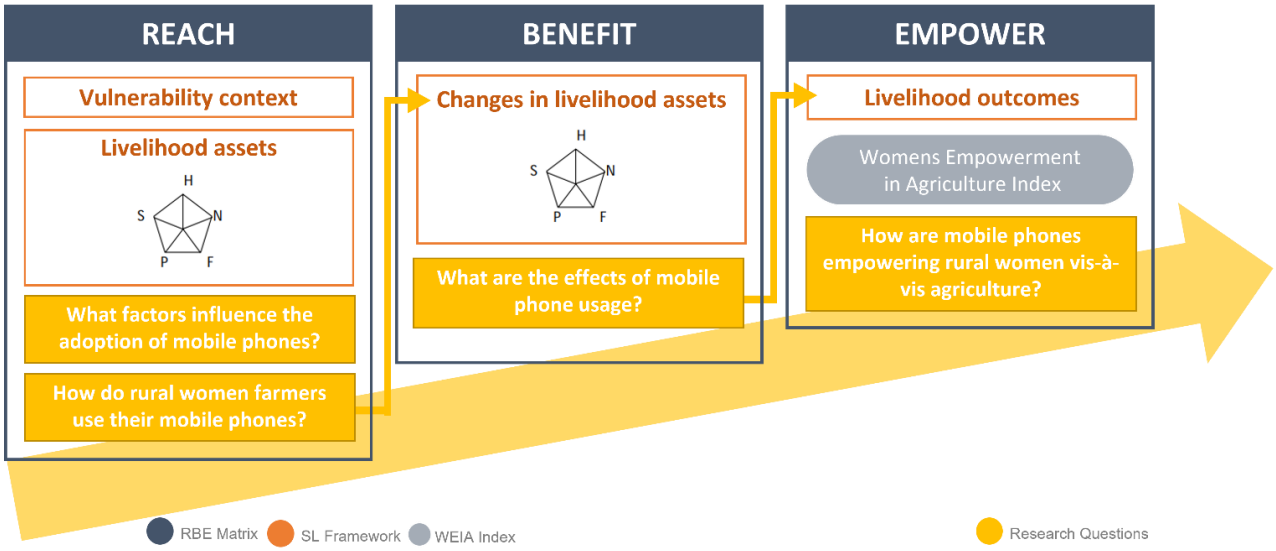


Figure III. Derived analytical framework

The dimension of **reach** covers understanding rural women farmers vulnerability in relation to their status in livelihood assets. Firstly, factors fostering and restraining the adoption of mobiles can be examined. Secondly, actual usage behaviour shall be observed. Once adopted and in use, changes in women's livelihood assets can occur. While connotated as **benefits**, adverse effects are also taken into consideration. Leveraging on the benefits and arising opportunities, new livelihood strategies can be deployed. Finally, the **empowerment** of women in agriculture impact is observed in the form of livelihood outcomes with a particular focus on specific indicators proposed by the WEAI-Index.

5. METHODOLOGY

A mixed methods research design with primary data collection lays the groundwork to answer the research question in this observational study. The theoretical propositions of the previous section guide the analytical generalisations to be derived from the upcoming case study. This section will go into the details of the research strategy, including the choice of research design, data collection and analysis, and concluding critical reflections.

In times of an ongoing pandemic, practical considerations concerning logistics and feasibility, demand a more pragmatic methodology. Due to the distance between the researcher and study site, the data collection was conducted with the support and funding by the global project 'Green Innovation Centre India' implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) in collaboration with their partner organisations AFC and APMAS. Considering the diversity of India, the limitation to sample only on project farmers who cultivate tomatoes in three states was beneficial to set a focus. Not only did the project serve as a trusted gatekeeper to the women farmers, but it allows the researcher to contribute the generated knowledge to the project implementation.

5.1. Research design and rationale

Choosing a case study research allows to explore a contemporary phenomenon in the population of interest in-depth and within a real-life context (Yin, 2018, Ch.1). Feminist researchers explicitly highlight the need for analysing previously invisible women and their activities in case studies "that reflect the variety of experiences of diverse groups of women" (Reinharz and Davidman, 1992, p. 174). In this research, a case is defined as a women farmer from rural India working in tomato cultivation who have their own mobile phone or frequent access to one within the family. The states, Maharashtra, Karnataka, or Andhra Pradesh, serve as the subunits within the case resulting in an embedded case study design. This design is an opportunity to examine the holistic and state-specific questions of interest (Yin, 2018, Ch.2). Each individual woman is counted as an observation of the case.

The rigour and limitations to generalisability are important concerns when conducting case studies (Lee and Baskerville, 2003). In their methodological paper on the generalisability of case studies in Information Systems research, Lee and Baskerville (2003) welcome the notion of generalising from data and theory to description. Deriving an observation from data, for instance, descriptive statistics, enables making empirical statements about the sample *(Ibid.)*.

In terms of statistical inference, larger sample sizes and additional case sites increase the generalisability of the sample points to the sample estimates but do not allow to draw finite conclusions about the corresponding population *(Ibid.).* Besides, this paper cannot prove causality with an exploratory research design – only cautiously observe correlation and serve as a starting point for further research. Beyond the mere statistical, sampling-based ideal of generalisability and statistical significance, the feminist research perspective of specificity, exceptions, and completeness (Reinharz and Davidman, 1992) is embraced. When generalising from theory to description, the focus is on observing real-world applications in a new context rather than validating the theory for the new setting (Lee and Baskerville, 2003). Overall, analytic generalisations in the form of findings and lessons learned can only be acquired from the overall case study not the individual observations per se (Yin, 2018, Ch.2).

5.2. Mixed methods

The integration of both quantitative and qualitative methods was chosen to answer the research question. This mixed methods approach has the purpose of capturing a more holistic and, at the same time, extensive understanding of rural women's empowerment with mobile phones vis-à-vis agriculture. While the choice of method could entangle into a theoretical discussion about ontological and epistemological stances, the mixed methods approach was chosen as a pragmatic solution to benefit from the synergies of both methods (Florczak, 2014). An integration overcomes weaknesses and builds on the strengths of each method to reach stronger evidence for the conclusion (Atif et al., 2013).

5.2.1 Qualitative methods : Focus group discussions

A major advantage of qualitative methods stems from the opportunity of examining complex social phenomena such as male domination in agriculture or women's restricted adoption of mobile phones. Conversely, the main disadvantage of a qualitative approach is the limitation to generalisability and representation from small and selected observations. Nevertheless, qualitative methods can uncover underlying motivations, perceptions, and thoughts – highlighting more nuanced and contextual factors than purely numeric statistical data.

Insofar, a qualitative FGD is a rapid-appraisal method that gathers information beyond individual opinions (Highet et al., 2017). Some feminist researchers even argue that FGDs are more authentic than single interviews due to the construction of natural social context between the participants (Wilkinson, 1998).

Based on the recommendations given in the 'Gender & ICT Survey Toolkit' (Highet et al., 2017), six to eight women project farmers at different ages associated with the project were invited to participate in the FGDs. To be able to share their experiences about the use of mobile-internet-based ICT4Ag solutions, one special criterion was that they personally own a smartphone. To incentivise participation, travel costs were reimbursed, and lunch was provided after the discussion. Due to the ongoing COVID-19 pandemic, additional safety procedures were in place, such as the provision of face masks and hand sanitiser. The facilitators of the discussion were staff members of AFC and APMAS, all familiar with the farmers to create an environment of trust and openness. Due to the language barriers by the researcher, planning sessions with the implementing team were conducted to clarify expectations and procedures. Beforehand, a guide with pre-tested, open-ended questions to ensure continuous flow of discussion, in addition to informed consent forms were prepared in advance by the author and translated into local languages (Appendix B). The initial idea was to conduct a FGD in each of the three states complementary to the quantitative telephone survey.

5.2.2 Quantitative methods : Telephone survey

Although acknowledging the feminist critique about the shortcomings of quantitative methods to apprehend women's livelihood and vulnerability context (Ramazanoğlu and Holland, 2002), quantitative data can uncover behavioural outcomes and patterns otherwise not visible (Yin, 2018, Ch.5). Collecting quantifiable data from a sample in a standardised questionnaire is helpful for deriving working hypothesis about the population at large in a cost-efficient manner (Highet et al., 2017). In particular, with the embedded case study design, statistical analyses enable splitting findings across the subunits of analysis (Yin, 2018, Ch.2). In times of the ongoing pandemic, adapting a remote telephone survey was the only option to reach a large number of participants without endangering them or the enumerators.

Following best practices recommended in the handbook 'Remote Surveying in a Pandemic' (Glazerman et al., 2020), the survey duration was limited to 20 minutes, with particular attention to confirming the respondents' identity, criteria for participation and informed consent. The questionnaire (Appendix C) with primarily close-ended questions was designed around the theoretical propositions presented in the last section and guided by Module 4 'Mobile Agriculture' in the 'Gender & ICT Survey Toolkit' (Highet et al., 2017, pp. 81–87). Split into blocks, the questionnaire starts with checking the requirements and informed consent for participation, followed by demographic questions. After questions about mobile phone ownership and perceptions, mobile phone usage in general and for farming purposes are asked.

To account for the linguistic diversity and limited fluency of English among the participants, the questionnaire was translated into Marathi, Telugu and Kannada and the survey calls conducted by local female enumerators.

Similar to the sampling for the FGDs, utilising the already pre-defined sampling frame of women tomato farmers with access to a mobile phone and associated with the project was beneficial to aim for a relatively large sample size of 240 women. While convenience sampling based on the pre-existing lists has shortcomings of statistical probability and representativeness, out of 429 entries, a random order for calling was coded – 80 for each state. FGD participants were excluded from the survey sample upfront to avoid doubling.

5.3. Data collection

The data collection process was guided by Yin's (2018, Ch.4) principles of data collection to maximise the reliability of evidence and construct validity of the case study. In addition, during the data collection and in upcoming analysis, a special focus was set on participant's privacy rights and protection of data.

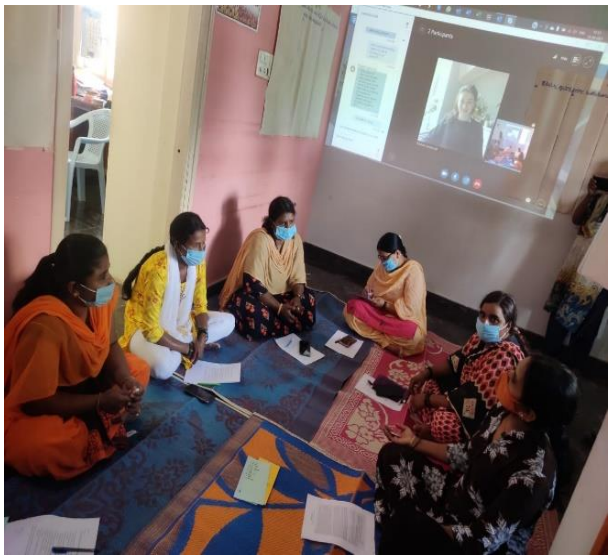
Principle 1: Use Multiple Sources of Evidence

Firstly, the data was derived from a telephone survey conducted in Andhra Pradesh, Karnataka and Maharashtra, as well as two focus group discussions in in the former two states.

The telephone survey was conducted between April 8 to May 2, 2021, by female enumerators fluent in the local languages Marathi, Telugu and Kannada. To make the data collection simple and available on a mobile phone, a Microsoft Excel survey form was transferred into 'KoBoToolbox'[16] and shared with the enumerators via the 'ODK Collection App'[17] in their respective languages. Female enumerators fluent in the local languages Marathi, Telugu and Kannada were trained by AFC and AMPAS colleagues on the interview protocol, specifics in the questionnaire and technicalities of the survey-support tool. Once the survey interviews were conducted, the respective data was available for download and analysis in KoBoToolbox.

The first FDG was conducted by APMAS staff members on April 9, 2021, in Chittoor district of Andhra Pradesh. The second FGD, moderated by AFC staff, took place one week later on April 16 in Kadur, Karnataka. Due to rising COVID-19 infections in Maharashtra, it was unfortunately not possible to conduct a third FGD. Both FGDs took around 1.5 hours, with seven participants in Andhra Pradesh and six in Karnataka. In advance, the participants received a verbal and written explanation about the purpose, confidentiality, procedure, and safety protocols of the discussion, with written consent required for participation (Appendix D). The

first FGD was held in Telugu and the latter in Kannada, while being recorded in audio form in addition to note taking. Subsequently, each team compiled a written report in English. Despite not being able to understand the discussion, the author was virtually present and able to observe the interaction of participants with each other as well as the moderator.

Pictures of the FGDs in Andhra Pradesh (left) and Karnataka (right) with prior consent to illustration

Principle 2: Create a Case Study Database

Secondly, all original raw data, numerical and written, is stored securely by the author. The creation of a study database allows for the possibility of a secondary, independent analysis to review the initial findings and interpretations (Yin, 2018, Ch.4). The EU General Data Protection Regulation (GDPR) are complied with at all times during the research process.

Principle 3: Maintaining a Chain of Evidence

Thirdly, all findings are supported by evidence and guided by the research question(s). Finally, the input for analysis is extracted from the case study database with reference to the respective sources. Once collected, all data were analysed, triangulated, and converged into one set of findings.

5.4. Data analysis

Once the quantitative and qualitative data was collected, the analysis took place concurrently. However, due to the different instruments used for analysis, respectively a content analysis in NVIVO and a statistical analysis SPSS, only then the obtained results are triangulated to findings of the case as depicted below (Figure IV).

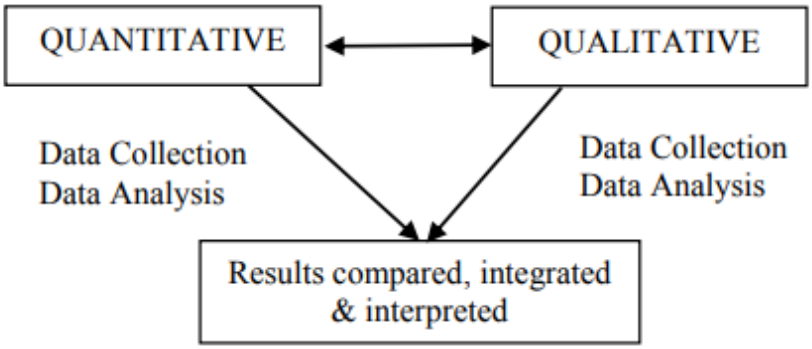


Figure IV: Visualisation of Concurrent Mixed Methods Strategy
(Atif et al., 2013, p. 8)

5.4.1 Qualitative data analysis

The quantitative data analysis is based on the two reports transcribing and translating the FDGs. First, the data was split and coded into small units. In Karnataka, the women themselves with the support of the moderator produced summarising posters (Appendix E). Then, in a deductive approach guided by the derived analytical framework, the units were grouped into categories and finally expressed in the form of common phrases or words. This process was initially done on paper and eventually with the help of the software NVIVO, resulting in to one set of finings.

5.4.2 Quantitative data analysis

Once exported from KoBoToolbox and imported into the statistical software SPSS, the quantitative survey data needed to be validated. Only respondents fulfilling the research criteria with all questions completely answered were further included after the screening process. Besides, some variables and data entries required recoding due to errors or missing values and to simplify the upcoming. The primary focus of analysis is descriptive statistics to summarise and compare variables, as well as to find certain patterns in the data. The telephone survey format required working with primary nominal and ordinal variables, limiting the ability to conduct inferential statistics analyses. For the few open-ended questions in the survey, the same qualitative data analysis procedure was applied as mentioned above for the FGD analysis.

5.5. Critical reflections

5.5.1 Quality assessment of case study

Four standard tests were considered to assess and eventually confirm the quality of the case study design (Yin, 2018, Ch. 2):

- The mixed-methods approach combining multiple sources of evidence, namely the FGDs and telephone survey, increase the ***construct validity***.
- With the research being descriptive and exploratory in nature with no aim for uncovering causality, ***internal validity*** is not concerned.
- The issue of analytical generalisation has been discussed previously in Section 5.1, covering the ***external validity*** of the case study.
- To ensure the ***reliability*** of the case study, this thesis is following an explicit methodology expressed in this section. In addition, all raw and original data are separately stored for review.

5.5.2 Lost in translation

One primary concern is the considerable geographic and linguistic distance between the researcher in Germany and study sites in India, resulting in an inevitable dependency on translators and enumerators for realising this research. While there is no ambiguity around the ownership of content due a clear research agreement and service contracts, the language barrier posed a major challenge giving room for subjective interpretations. Linguistic and cultural barriers are prevalent in the translation process, which challenges words to be an objective medium of knowledge (Xian, 2008). Even though translations in this research were double-checked with the four-eye principle, feminist researchers argue that a translator's knowledge, experience and social background always influence the meaning of words (Reinharz and Davidman, 1992). In some way, the researcher has to acknowledge a tolerance towards the translator being "a data interpreter" (Xian, 2008, p. 241).

5.5.3 Ethical considerations

This research fully adheres to the internal 'Ethical Guidelines for Fieldwork' set by LUMID (2013). Firstly, participants were informed about the aim and right to withdraw from the research. Secondly, written and oral informed consent has been a critical and mandatory requirement for participation. Thirdly, privacy rights and data security are at all-times in compliance with the GDPR. All information conveyed are anonymised and cannot be traced back to the individual. For example, the illustration of pictures is with the prior consent of those

displayed. Lastly, the information gathered is solely used for research purposes. While findings may inform the associated project interventions, no personal data will be used for decisions or measures that will directly affect the individual on a personal basis.

However, there are two other points of concern in terms of ethics arising from the cultural sensitivity of the topic and research activities during a pandemic. As mentioned in Section 2.3.1., the mobile phones raise concern about morality and disturbing social orders in some villages of India. Conducting research at the intersection of women's use of mobiles and the increasing feminisation of agriculture, a previously male-dominated sector, could be deemed inappropriate. To anticipate the sensitivity of the topic, working with local gatekeepers, particularly women, has not only been for practical reasons but for their competence and experience. On the topic of researching during a pandemic, there was no immediate health risk associated with this research. Considering that women farmers are commonly underserved was a justification and motivation for pursuing the research agenda as initially planned. At the same time, safety and security precautions arose to become an integral element in the research design. Research activities have consistently been implemented following local and international COVID-19 recommendations, unfortunately even leading to abandoning the FGD in Maharashtra due to rising COVID-19 infection numbers. Even though there has been a certain possibility of infection with the virus, with lower transmission numbers and business running as usual in the other two states, carrying out FDGs was deemed feasible at that point in time. Overall, holding on to the original research agenda was indeed a challenging process. However, the ambition of this research was to give the women a platform to raise their opinions instead of referring to expert opinions in the field.

6. FINDINGS AND DISCUSSION

This section presents the findings of the telephone survey and FDGs guided by the previously developed analytical framework (Figure III). The section moves from **'reach'** to **'benefit'** and finally **'empowerment'** while answering the research questions along the way, starting with a general introduction of case observation characteristics. After cleaning the quantitative dataset from non-qualifying cases, 231 observations are counted, in addition to a total of 13 women participating in the FDGs (Figure V).

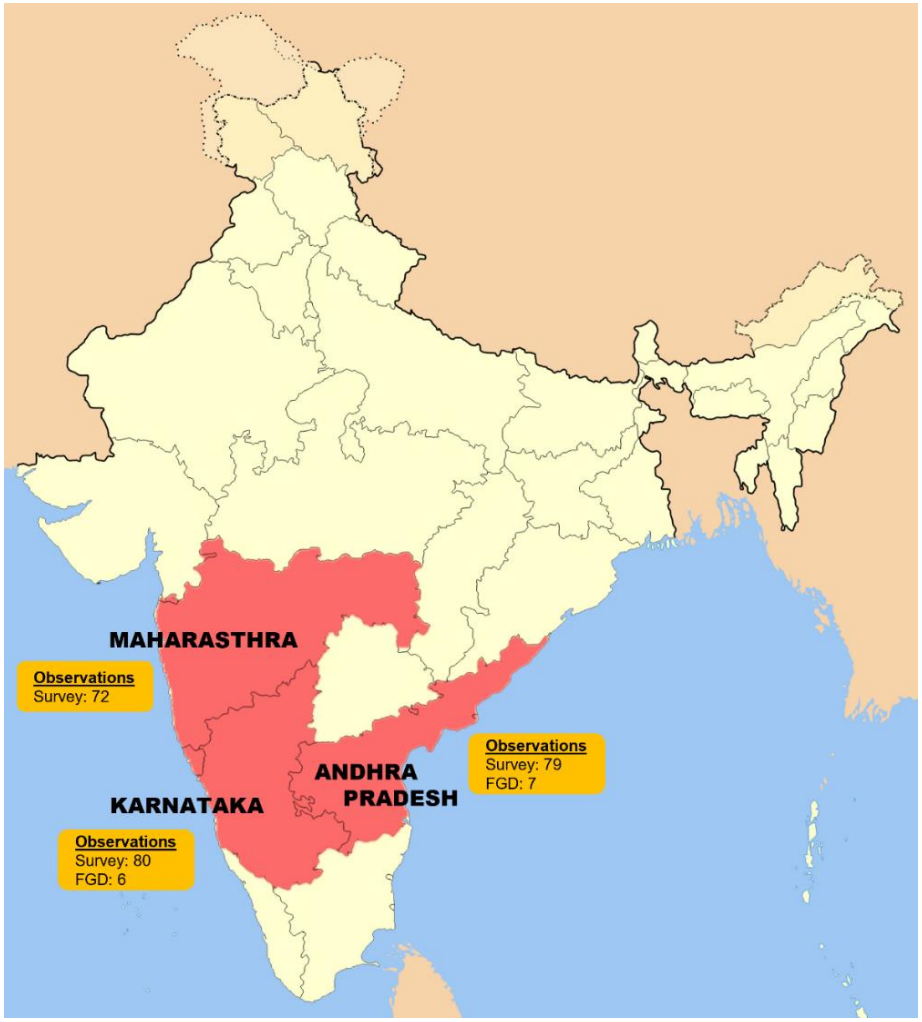


Figure V: Map of India highlighting the states of Maharashtra, Karnataka and Andhra Pradesh
(Edited by Vanessa Berghoff; Source: Wikipedia, 2020, under CC BY-SA.3.0)

Each participant from the FDG in Karnataka is assigned an abbreviation (Appendix F), namely K1 to K6. For Andhra Pradesh, a direct association of statements to individual participants was unfortunately not possible, and therefore the abbreviation AP is used. All upcoming survey statistics are presented in Appendix G.

6.1. Reaching rural women farmers

6.1.1 Vulnerability context and livelihood assets

All participants in the survey and FGDs are women from rural villages across Andhra Pradesh, Karnataka, and Maharashtra, who primarily work in tomato cultivation. The average age of participants in the FGDs is 35. In the survey, the majority is between 35 to 44 years old. Almost 95 percent of the women in the survey are married, and 96 percent have children with an average household size of five people [SD = 1,86].

Focusing on the status quo in **livelihood assets**, this section's findings primarily derive from the survey data. In terms of education, 10 percent of the women have a university degree or higher, 16 percent pre-university, the majority of 43 percent has a high school degree, and 11 percent have no formal degree at all. While the average proficiency in the local language is advanced [M = 3.2; SD = 1.31], the mean proficiency in English is non-existent to basic [M = 1.49; SD = 1.44] with only marginal differences between writing and speaking. Another aspect of ***human capital*** is labour activities. From washing, cleaning, fetching water, fuel, or firewood, to child- and elderly care, only one woman is not responsible for at least one of the options in the household. Most women, 91 percent, are involved in the production stage of the tomato value chain, followed by pre-production [66 %] and processing [63 %] activities. All women in the survey and FGDs are associated with the 'Green Innovation Centre' project – a form of ***social capital***. Some are members in women-exclusive farmer study groups and shareholders in farmer producer companies (FPCs)[14] [K1 - K6]. One FGD participant [K3] is even the director of a development foundation in her district. At the same time, six out of ten women in the survey state that the husband has all decision-making power in the household. Further, 40 percent of the women personally own land – a form of ***natural capital***. Statistics about average plot sizes reveal an overall average of 139.91 Guntha [SD = 162.96], translating into around 1.4 hectare, with significant difference between the states: on average 3.64 Guntha [SD = 4.83] for Andhra Pradesh, 155.89 [SD = 91.85] for Karnataka and 260.54 [SD = 196.98] for Maharashtra. In terms of ***financial capital***, around three quarters of the women are not paid for their agricultural work. 42 percent have paid work outside agriculture all year round, one third only outside tomato season, and one fourth has no other source of income. Keeping in mind that finances and poverty are sensitive topics to discuss, 23 percent indicate no financial concerns about paying for food, water or health items for all their family members in the past year. In contrast, 19 percent were often concerned and 56 percent sometimes. A Chi-Square Test of Independence indicates that this indicator of financial constraint significantly varies by

state [$\chi 2$ (4, N = 231) = 17.51, p = .002]. Women were most concerned in Karnataka, namely 28 percent 'often' and 50 percent 'sometimes', and for Andhra Pradesh, 16 percent and 71 percent respectively. In comparison, 36 percent of women in Maharashtra were 'never concerned' about financing items of basic need during the past year.

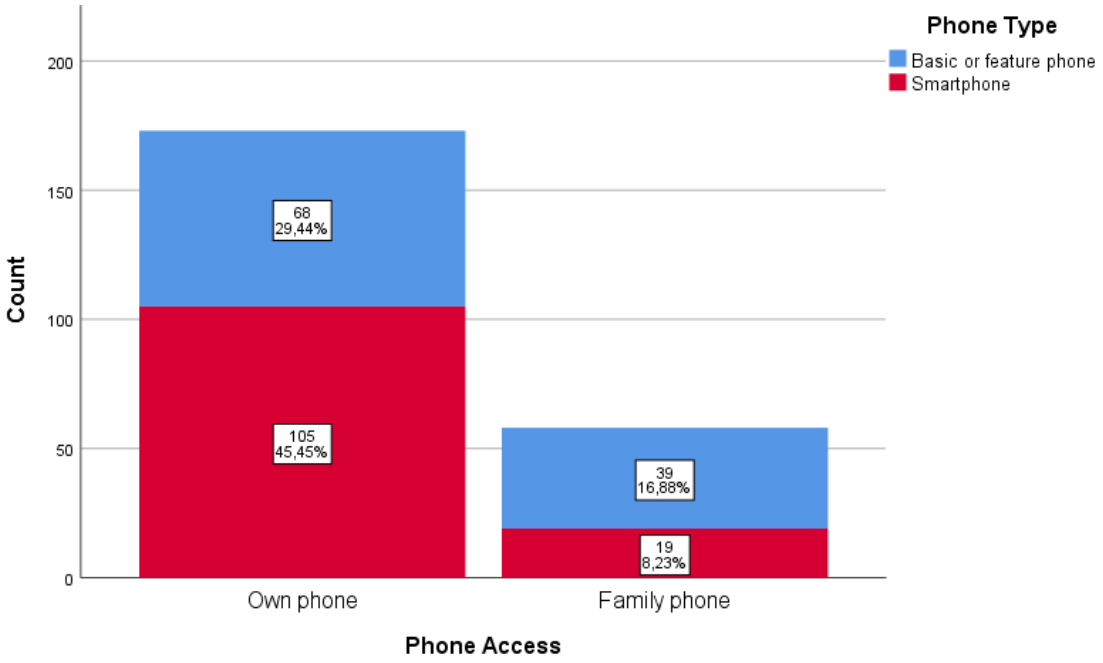


Figure VI: Stacked Bar Chart - 'Phone Access' by 'Phone Type'

When it comes to ***physical assets***, as per requirement, all participants in the FGDs and 45 percent of women in the survey personally own a smartphone. Out of the remaining, 68 women own a basic or feature phone, compared to one-fourth of the women in the survey only having access to a family phone (Table VI).

6.1.2 Mobile phone adoption

Mobile phone access is a just transition to the first research question:

RQ1: 'What factors influence the adoption of mobile phones among rural women?'

In Karnataka, the FGD members jointly estimated that around 60 percent of the women in their villages have Android smartphones. More than 95 percent in the survey claim it is common for women to own a mobile phone of any type, with 77 percent when it comes to smartphones. 12 percent of the women in the survey paid for their phone themselves, compared to 43 percent stating their husband bought it. Among the women with reused phones [44%], the majority is using their husbands [66 %] or children's [29 %] previous phones.

When discussing access ***barriers*** to mobile phones, the following were named: 'affordability' of purchase and maintaining 'regular expenses' for recharge [K6], as well as an overall 'lack of financial support' [AP]. Further, women stated 'family objection' by husband and in-laws [K1; K4; K6 & AP], particularly in tribal villages [AP]. Furthermore, women's use of mobile phones is still portrayed as a 'negative impact on the society' with the fear of them delaying or neglecting routine works [K1 & AP] . Other barriers are 'literacy to use technologies' [K1; K2], 'awareness in rural areas' or 'no need' because women receive information from their husbands or children [AP]. In order to promote the ***uptake*** of smartphone ownership, a 'multi-pronged strategy' is needed that includes 'educating family members' [K1; K2] of the usage benefits among women [AP], government interventions for diffusion [AP], and directly 'generating and increasing income' with mobile phones [K3/6]. The factors to be 'continuously' promoted [AP] among the society for increasing women's mobile phone access are benefits in health, safety, and security 'emergency situations' [AP & K1-6], to 'support children education' [K1; K3; K4 & K6] and to maintain regular contact for 'improving relationships' with family and friends [K1].

Even when women personally own or have access to family phones, certain factors beyond maintenance cost are relevant to the actual adoption. All FDG participants in Karnataka named 'network issues' the 'most important' factor, confirmed as the primary constraint to adoption by half of the survey [50%] and closely followed by 'electricity problems' [48%]. While 'digital literacy' is likewise considered crucial [K1-6], only 17 percent of the survey state 'difficulty and complexity of using the phone' as a constraint. Considering that not all women have a phone on their own, a Chi-Square Test of Independence confirms a significant association with the decision-making power over the phone [$\chi 2$ (1, N = 229) = 114, 323, p = .000]. Women with their own mobile phones are more likely to have full decision-making power, while those with access to a family phone are more restricted in usage.

6.1.3. Mobile phone usage

Moving from the question of adoption to actual usage behaviour:

RQ2: 'How do rural women farmers use their mobile phones?'

Almost all women in the survey use their phones at least once a day [95 %], primarily for communications with family and friends [98 %]. This is confirmed by the FGDs [AP & K - K6]. Nine out of ten women prefer calling over texting. In terms of usage purpose, both the survey and FGDs name 'coordinating activities' [45 %], as well as 'entertainment' [37 %] including 'sports', 'music' , 'movies' [K2/5] or 'series' [AP]. Social media platforms like

‘WhatsApp’ and ‘Facebook’ are commonly used among the FGD and survey participants, besides the prominent use of YouTube [32 %] for videos. For instance, women browse YouTube or the Internet to learn about ‘cooking instructions’ [72%] – or expressed as ‘cooking and fun’ [AP] –, agriculture [69 % & K2] or ‘beauty tips’ [34 % & K3]. Other notable uses are ‘news’ [58 % & K5] or ‘online shopping’ [18 % & K1 -K6].

Focusing on agricultural usage, six out of ten women in the survey consider phones important for farming. Seven out of ten use their phones to access farming advice and best practices, primarily through text or voice messages [77 %], calls [7 0%] or videos [25 %]. Both FGDs mentioned the use of WhatsApp groups to ‘receive technical information’ [AP] or ‘sharing photos of problems identified in crops to experts’ [K1 - K6]. Besides, ‘browsing YouTube or Facebook to learn more about agriculture’ [K2] or to ‘try out new activities’ [K6]. Second to agricultural advisory are weather forecasts, received by 66 percent of the sample and among the FGD for better ‘agricultural planning’ [K4]. Third, mobiles are used for comparing prices and buying inputs by half of the sample, with 91 percent via calls and 44 percent via text messages. Inbuild calculators are further used for ‘calculating financial transactions in agriculture like workers payment, input costs or costs for trading’ [K1 - K6]. Furthermore, farmers are ‘contacting traders to know about prices of cultivated crops’ [K1]. The same holds for 99 percent of the farmers in the sample who use their phones for marketing and sales. Interestingly, not a single respondent in the survey uses apps for marketing and sales. Overall, the usage of apps remains nascent – at highest, 12 percent use apps for weather forecast, which are often already ‘build-in’ [AP]. In terms of government subsidies and support schemes, 52 percent of the women receive or access related information with their mobiles, primarily through text or voice message [87%] or calling government hotlines [66%].

When asked what makes the women adapt and trust in mobile-based advice and services, ‘past experiences’ [K2; K3], ‘testing’ options [K3; K4], as well as the provision of both ‘personalised advice’ and ‘general information’ [K1; K6] are mentioned. Factors that keep farmers from using mobile agricultural services are mainly the ‘difficulty to access’ [22 %] and ‘complexity of information available’, leading to ‘confusion or distraction to [..] decisions’ [K1; K3]. While costs are not profoundly relevant to the sample [3 %], they are announced prevalent barriers to all FGD participants in Karnataka and Andhra Pradesh. Likewise, ‘reliability and trustworthiness’ of information are declared a ‘big question’ [K1; K3]. Socio-cultural factors like ‘conflicts in relationships [K2] and families restricting service usage [5 %] are also mentioned. One participant even stated an overall ‘fear of women to use apps’ [AP].

6.2. Benefitting rural women farmers

After looking into the adoption of mobile phones, moving to the second stage in the framework and changes in livelihood assets opens the question:

RQ3: What are the effects of mobile phone usage?

Overall, almost 85 percent of survey respondents state 'no negative effects' experienced by mobile phone usage, in contrast to 3 percent claiming 'no positive effects'. The single most striking benefit of mobiles perceived by 97 percent of the sample is 'being more connected with family and friends'. The FGD participants in Karnataka agreed that mobile phones allow 'sharing feelings' and 'help for those who need moral support', thereby 'reducing stress' [K1; K6]. In particular, 'video calling' and entertainment opportunities are highlighted as a positive experience and source of 'fun' [AP]. Mobiles are a means to reduce 'drudgery' [AP] in agricultural work – making farming more enjoyable [59 %]. Concurrently, some apps are 'creating mind diversion' and 'disturbance by unwanted notifications' [AP]. A minority in the sample reported adverse effects of mobile usage, for example, 'unwanted messages and contacts' [7 %], 'spending too much time on it' [7 %], 'feeling stressed' [6.1%], and 'distraction from work and household duties' [5 %] as negative effects. The open-ended survey questions further revealed 'addiction' and 'bad effect for eyes'. Talking about physical health, for instance, 'emergency calling' and 'learning precautions for health' were positive results named among the sample.

One farmer in Andhra Pradesh further mentioned:

'*In some villages mobile phone technology is using to start and to stop the electricity motor at the field. The farmer is able to use this service from their home, so the risk of night-time visits to field is reduced..*'

Furthermore, knowledge generation further enhances women's ***human capital***. Knowing 'what's happening in society' [K5] and 'knowing more about agriculture' [K2; K6], specifically 'market prices', 'weather conditions' and 'new and innovation techniques' [AP], is seen as beneficial. Additionally, seven out of ten women in the sample [72 %] report expanding proficiency in the usage of mobiles. A result related to the increase in communications is the benefit of 'receiving and sending information to colleagues and other stakeholders' – an enhancement in ***social capital***. The formation of groups and exchange networks helps 'improving relationships in agriculture' with 'traders, nursery owners, agricultural departments, and progressive farmers' [K1]. Mobile 'government services benefit smallholder farmers' [AP], and 'gaps between producers and consumers are reduced' [K1].

Women farmers are gaining 'recognition in society' [K3; K5] and 'more and more women are involved not only in agricultural production but post-production, financial management, and decision-making' [K1; K2; K4; K6], resulting in 'more women friendly activities' [AP]. 'Good and bad practices' [AP] can be 'shared and highlighted' [K2] to reduce the 'malfunctions' in agriculture' [K1]. On the dimension of ***natural capital***, frequent exchange and mobile advisory promote 'timely use of fertilisers' [AP] for 'pest and disease management' [K1; K2; K4 & AP] – improving productivity [AP] and yields [K1; K2; K4]. Moreover, smartphones facilitate 'getting and executing of new innovations in agriculture like mechanisation' [AP], representing an enhancement in ***physical capital***. Lastly, mobiles foster frequent 'price discovery' [AP] beneficial to 'planning production processes and 'exploring alternative marketing opportunities [K1]. Some of the FGD participants across states indicate savings in production cost, overall expenses, and time, whilst others indicate only neutral or even negative effects. In Andhra Pradesh, one woman clarifies that there is 'no effect on income due to price fluctuations in the market' [AP]. Furthermore, another woman in Karnataka experienced 'losses in animal husbandry by following instructions on YouTube' [K2]. But all in all, mobile phones make women feel more 'independent' [AP1 - K6] and 'less dependent on men' [AP].

6.3. Empowering rural women farmers

After reach and benefit, concluding the presentation of results with a focus on women farmers empowerment, the final research question is answered – primarily drawing from the qualitative results of the FGDs:

Overarching RQ: What is the impact of mobile phones on rural women vis-à-vis agriculture?

When asked about the implications of mobiles for agriculture in five years ahead, one respondent answered that: "Most of the women will be self-sufficient in financial, social and other activities" [AP]. With enhanced agricultural knowledge, women farmers become more active in different steps of **agricultural production**, from farming practices to identification of seeds, marketing, and sales [AP]. From only being labelled a 'labourer in the field' [AP], women farmers are becoming 'sources of information' [K2] making independent, ***productive decisions*** about resource. With 'proper utilisation and execution of mobile technologies' [K1-6], women can even become 'extension agents' [K2]. With 'more and more involvement of women in agriculture' in post-production, financial management and decision-making [K2; K4; K6], women farmers further gain ***autonomy in production***. Increased use of mobile banking

[K6] enables women to get involved in resource decisions and 'initiate business' [K3; K4] – giving them the opportunity to take ***ownership of assets*** and actively to ***purchase, sell or transfer*** those ***assets***. Even though there is no proof for mobile phones impacting income, mobile banking is described as 'financial freedom' [AP], allowing ***control over the use of* income**. In both FGDs, 'improvements in **leadership**' and becoming a 'role model in society' were mentioned as changes to women's livelihood. Mobile communications allow active exchange as ***group members*** in farmer study groups and stakeholders in organisations [AP; K1 - K6]. Further, improvements in women participating in government and NGO meetings at the state and country-level are anticipated [AP]. Lastly, mobile phones enable '**time** savings' [AP] by 'continuous improvements of routine work' [K2]. As previously found, listening to music improves the work spirit and even perceived productivity.

6.4. Discussion of findings

All in all, the above presented results confirming a positive association between mobile phones and increases in the selected dimensions of women's empowerment in agriculture. Referring to the initial definition of empowerment in Section 1.5, the presented results highlight how mobile phones contribute to women's increase in personal, social, economic and even political strengths. Step-by-step, independence and agency to control their own lives are strengthened.

Social practices are slowly shifting, with women being aware of promoting the benefits of mobile phone ownership to society at large beyond the individual woman. By focusing on promoting safety and security, health, child support and improving family relationships to overcome socio-cultural rejections, mobile adoption could be accelerated among rural women. At present, the results confirm the prevalence of socio-cultural and socio-economic inequalities as primary barriers to ownership as found by (Potnis, 2016a, 2016b). Beyond the narrow focus on access and affordability (Wajcman et al., 2020), the study takes on Arora (2019)'s two-tier approach to the digital divide by explicitly focusing on adoption and usage factors. The findings establish a correlation between personal ownership versus access to family phones on decision-making power, endorsing the notion of prevalent power-relations restricting women's use of shared mobiles (Jeffrey and Doron, 2013b).

Moreover, personal and productive uses are increasingly intermingling (Donner, 2008), with mobiles simultaneously affecting leisure, household duties and agriculture. Usage driven by emotional motives of joys, stress relief and moral support (Arora, 2019) blurs the boundaries of leisure and work. While there is no solid objective quantitative assessment of increases in

incomes available, the case study participants indicate savings in time and cost, in addition to the perceived increase in productivity. Besides, the results further find mobile banking services as an accessible alternative to traditional banking (Phatty-Jobe, 2020), giving an opportunity to expand financial inclusion among rural women and foster their decision-making power over farm incomes.

While phones are indeed heavily used to connect with family and friends, gathering information appears to be immensely important to usage. In line with the Maitland Report (1987) and Mittal (2015)'s study on mobile advisory for gender empowerment, women aim to become a 'source of information' and generating knowledge is a key perceived benefit. Furthermore, the emergence of women-only networks and support structures facilitates direct involvement across the value chain and promotes leadership qualities of women farmers. Reflecting on the reality that technology itself is not gender-neutral (Sterling, 2021), the observed women actively ask for more women-friendly solutions in agriculture.

6.5. Reflections on data quality

Neither of the methods alone was able to cover the whole assessment of mobile phones in context. On a scale between qualitative anecdotal success stories and a purely quantitative impact assessment, the intention was to provide a pragmatic case study with the remote means available. Methods were integrated when feasible and purposeful, an approach anticipated by the author when choosing the research design. As per research questions, there is a focus either on the quantitative and qualitative aspects. To acknowledge shortcomings in the data upfront, not all results to answer the research questions were triangulated. While actual impact measures on micro-economic indicators would have been interesting to explore as suggested by Baumüller (2018), the situation did not allow for collecting time-series data in the scope of this study under the given circumstances. Therefore, indicators of productivity and income are solely based on the participants' perceptions.

Furthermore, as mentioned in Section 5.4.2., working with translated reports of the FGDs was challenging due to insufficient focus on detail in some parts of the documentation. One important advantage to highlight are the observations by the author during the FGDs. Even without being able to understand the discussion, observing the women's use of mobiles in a social setting confirms how mobile technology has become a reality for them. Ringing phones, sharing screens and taking pictures – the women's use of mobiles is very similar to anyone else'. Naturally, some women were more active in the discussion than others, but from an

outsider perspective, speaking time was equally distributed among all participants with an overall positive and constructive atmosphere.

7. CONCLUSION

First and foremost, the case study confirms a positive association between increasing mobile penetration and the empowerment of rural women farmers in India. To answer the overarching research question, mobile phones enable women to feel more independent, self-sufficient, and safe. Towards empowerment in agriculture, mobiles promote change across all five domains under study: production, resources, income, leadership and time.

Mobile phones provide women farmers with invaluable access to information and resources, allowing them to enter previously concealed steps along the agricultural value chain. Perceived benefits are increased agricultural knowledge, emerging support networks and more enjoyable work. While often neglected as wives of farmers or labelled as labourers, women farmers envision to become sources of information and recognised by society.

Decision-making power about what to do with their phones – browsing for market prices or beauty tips – is ultimately progress in human freedom of rural women farmers. Mobile phones open new channels of information and communication while slowly but steadily changing prevalent inequalities and enabling women to escape existing structures. Indeed, the collective experiences of mobile phones making a difference to the lives of rural women farmers in Andhra Pradesh, Karnataka and Maharashtra observed in the case study confirm the potential of ICT4D and ICT4Ag.

However, the findings are not proof of a transformative change celebrated under the ICT4D discourse. Similar to the importance of assessing technology in context, there is a need for government, practitioners and researchers to carefully consider the enabling environment. This thesis is based on the idea of positive deviance, focusing only on women with mobile phones available. However, reality reveals substantial gender gaps and socio-cultural discrimination not only in terms of digital divides but access and control of land or financial support. Therefore, a ‘multi-pronged strategy’ is needed to promote well-being among rural women farmers and revitalise rural livelihoods.

At the same time, Feminist Theory nowadays focuses on the diversity of gender instead of women only. Future research should explore how women and men together dissemble gender inequalities to enhance rural livelihoods and revitalise the Indian agricultural sector for the benefits of society at large.

A new narrative shall be written about tech-savvy rural women farmers, facilitating change ..

.. *"like grains of sand on a wind-swept beach, [and so] the dunes of social practice beg[in] to shift. The shape they would take was unpredictable, but worth watching and studying"*

(Jeffrey and Doron, 2013b, p. 183).

Endnotes

[1] Information and communication technologies is an umbrella term for devices, networks, techniques or services that process or communicate digital data (Heeks, 2018; Treinen and van der Elstraeten, 2018).

[2] United Nations Sustainable Developments Goal 5: Achieve gender equality and empower all women and girls; Target 5.b: Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women; Indicator 5.b.1.: Proportion of individuals who own a mobile telephone, by sex (United Nations, 2016)

[3] The Green Innovation Centres for the Agriculture and Food Sector are commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ) and implemented by GIZ. The global project is active in 16 countries with the aim of increasing the incomes of small farming enterprises, boosting employment and improving the regional food supply in the rural target regions through innovations. The Green Innovation Centre India was established in 2014 and works along the value chains of tomato, potato and apple in four states. The project is affiliated with the Indian Ministry of Agriculture and Farmer Welfare, as well as the National Centre for Cold Chain Development. Operations in the field are implemented by GIZ staff, AFC and APMAS.

[4] In statistics, outliers are often excluded are often excluded from datasets due to distorting the results. A positive deviance approach instead specifically highlights positive outliers – reflecting individuals or groups that defy the norm. Already in 1973, Wishik and Vynckt conducted the first positive deviance study of well-nourished children among low-income families.

[5] India's Ministry for Rural Development defines poverty "as a condition in which an individual or household lacks the financial resources to afford a basic minimum standard of living" (Gaur and Srinavasa Rao, 2020, p. 3). Poverty line estimation in India is based on consumption expenditure. The current official measure is based on estimates by the Tendulkar Expert Group with Rs. 816 per capital per month for rural areas (Gaur and Srinavasa Rao, 2020).

[6] The Green Revolution refers to the transformation of the agriculture and food sector in India and other developing countries around the world towards the adoption of modern, science-based methods and technologies in the 1950s to late 1960s (Farmer, 1986). Notable are Norman Borlaug, 'Father of the Green Revolution', who won the Nobel Peace Prize for his agricultural research and commitment to improving food security (Swaminathan, 2009) as well as Mankombu Sambasivan Swaminathan, 'Father of the Green Revolution in India' for his commitment to sustainable food production (Spaeth, 1999).

[7] The strategy to double farmers income includes the following sources of income growth: increasing crop and livestock productivity; resource efficiency or lowering cost of production; increase in the cropping intensity; diversifying towards high value crops; improving real prices received by farmers; shifting from farm to non-farm occupations (Chand, 2017).

[8] The In September 2020, the Indian government enacted two new farm laws for agriculture, namely the F*armers' Produce Trade and Commerce (Promotion and Facilitation Act 2020* (FPTC Act) and *Farmers' Empowerment and Protection Agreement on Price Assurance and Farm Services Act 2020* (APAFS), and modified the Essential Commodities Act of 1951 with an Amendment (Chand, 2020a). . The full implications of the new agricultural policies are difficult to predict, but supporters see the laws as a means to improving existing market inefficiencies and fostering private investments (Panagariya, 2020). Opponents, including thousands of protesting farmers, oppose them in fear of corporate takeovers at the cost of small and marginal producers (Basu and Singh, 2020).

[9] In theory, even small farms could produce higher crop yields per hectare compared to larger farms based to more efficient land usage (Rapsomanikis, 2015; Sen, 1964). The inverse relationship between farm size and area productivity is a pronounced topic in development economics (Barrett et al., 2010; Carletto et al., 2013). Unlike economies of scale suggest, the relationship between farm size and productivity is negative or inverse, meaning that small farms are more productive than large farms (Rapsomanikis, 2015).

[10] The most rudimental or basic phone with a small screen and keyboard that only rely on mobile network for communication via voice call or messaging (Eriksson, 2017; Mccrocklin, 2019).

[11] Feature phones look similar to basic phones but can access the internet and basic applications (Eriksson, 2017; Mccrocklin, 2019).

[12] The most sophisticated mobile phone with a touch screen, advanced software, powerful processor, high-quality camera, sufficient storage capacities, internet-based services and downloadable applications (Eriksson, 2017; Mccrocklin, 2019).

[13] Mobile broadband technology of the fourth generation with certain characteristics defined by the International Communications Union (ITU, n.d.)

[14] A Farmer Producer Organisation (FPO) is a legal entity formed by farmers. The aim is to ensure higher incomes tough aggregation and benefit of economies of scale. A FPO can be a Farmer Producer Company (FPC), a cooperative society or any other legal form (NABARD, 2015).

[15] The National Agriculture Market, abbreviated as eNam, is a pan-India online trading portal for agricultural commodities (DAC&FW, 2021)

[16] Free and open-source software for data collection in challenging environments (Harvard Humanitarian Initiative, 2021).

[17] Free and open-source software for collecting data with mobile devices online and offline (Get ODK, 2021).

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APPENDICES

Appendix A: Research Agreement

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Chairman of the Supervisory Board
Martin Jäger, State Secretary

Management Board
Tanja Gönner (Chair)
Dr Christoph Beier (Vice-Chair)
Thorsten Schäfer-Gümbel

Research Agreement

between the Green Innovation Centre India and Vanessa Berghoff

- Student -
Vanessa Berghoff
Master of Science International Development and Management
Lund University

- Organisation -
Green Innovation Centres for the Agriculture and Food Sector - India
Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ)

The student and organisation agree as follows:

1. All research related activities (like formulation of research agenda, preparation of structured questionnaire etc.,) will be undertaken by Ms. Berghoff. She will be the sole owner of all raw data, analysis, and results.
2. While Ms. Berghoff is employed part-time as a project assistant for information and communication technologies, all activities related to her Master thesis research take place outside her working duties for GIZ.
3. Ms. Berghoff can leverage on the projects' network of partner organisations, well-established connections with farmers and the organisation's IT-infrastructure for the purpose of her research.
4. The Green Innovation Centre India will cover the cost for translations and enumerators incurred during data collection. In return, Ms. Berghoff will provide the project with her research insights and results on a voluntary basis outside her work duties.
5. Data privacy and security are at all times in compliance with the European General Data Protection Regulation.

Namerta | V. Berghoff

Namerta Sharma
Deputy Project Director,
Green Innovation Centers Project

Vanessa Berghoff
MSc Student LUMID
Lund University

german cooperation
DEUTSCHE ZUSAMMENARBEIT

Appendix B: Focus Group Discussion Guide

B.1 English Version:

OPENING:

Good evening and welcome to our session. Thanks for taking the time to join us to discuss women farmers adoption and usage mobile phones with a special focus on agriculture.

My name is [name of moderator] and assisting me is [name of observer]. We're working for [AFC/APMAS] and the Green Innovation Centre India by GIZ. This discussion will provide information for the Master thesis of Ms. Vanessa Berghoff who is working part-time for the project while studying in Sweden. You might have noticed the computer setup; Vanessa will observe the conversation – even though she does not understand [Telugu/Kannada]. The session will be recorded because we can't write fast enough to get all your comments.

We are really interested in your experiences, feelings and perceptions. There are no right or wrong answers. If you disagree with something that is said, listen respectfully before providing your opinion. We're just as interested in negative comments as positive comments, and different views are very welcome.

We will be on a first name basis, and we won't use any names in our reports. All your comments will be confidentiality.

Let's find out some more about each other by going around the table. ***Tell us your name and when you got your first mobile phone – and what kind of phone it was****. Let us start with [name of participant].*

MAIN DISCUSSION:

Let us start with the discussion now. It is separated in two parts, the first one more general about smartphone usage, and the second one about smartphones for agriculture.

1. **<u>What do you like about having a smartphone?</u>**

- ***a. What features or functions do you like most?***
- ***b. What do you mostly use it for and when?***
- *c.* ***What are the benefits you are experiencing?***
  [Possible hints: *Consider aspects of safety, independence, finances or social life.]*

Women around the world are still less likely to own a mobile phone than men. Especially rural women face a so-called triple divide or three particular challenges: gender, rural, and digital.

2. **<u>What is your opinion about bridging the digital divide for rural women?</u>**

- ***a. Do you consider it important for women to have their own phone – and why?***
- *b.* ***What factors prevent women from owning and using smartphones?***
  [Follow-up: *Are there any prejudice you are aware of against women's' ownership of mobile phones?]*
  - → Background information: *There were worldwide headlines a few years ago about a village in Uttar Pradesh that banned women from using a mobile phone in public or in Gujarat that banned girls and single women from owning a mobile phone.*
- ***c. What factors will promote the uptake of smartphone ownership among women living in rural villages?***
  [Possible follow-up questions: *What needs to change so women get easier access to smartphones? What other than financial factors are important? How would you rate the importance of literacy and e-skills?]*

For the second part, we will move into the specifics of smartphones for farming purposes. First, we will focus on the status quo and then take a future perspective.

3. **<u>How do you currently use your smartphone during farming?</u>**

- ***a. What functions of your smartphone do you use during farming?***
  [Possible follow-up questions: *Do you listen to music? Do you make calls? Do you use your calculator or make pictures? Do you search for and access information?]*
- ***b. Do you use apps? And if so, for what information, advice, or service – and how often?***
- ***c. What makes you adapt and trust in digital advice and services?***
  [Follow-up questions: *Do you prefer personal or digital advice? Is it important to have individualised advice and services, meaning for your certain conditions and farm parameters, or is general advice sufficient?]*
- ***d. What keeps you from accessing certain services?***
  [Follow-up questions: *What services are you aware of and why are you not using them? How would you rate the expected cost and benefits of the services?* Other factors to consider: Complexity, reliability, trustworthiness, time, family]
- ***e. Have you experienced any indirect and direct changes – positive and negative - in your farming in terms of productivity, cost, yields, or incomes with your smartphone?***
  [Possible follow-up questions: *For example, do you enjoy it more? Does having a (smart)phone make certain steps faster or easier than before? Did your quality or quantity of produce improve?]*

4. **<u>What are your perceptions about the potential of smartphones in agriculture?</u>**

- ***a. Where do you see the biggest benefits of smartphones in the future of agriculture?***
  [Follow-up: *Do you think smartphones will change certain farming activities or that digitalization will change the agricultural system as a whole? What aspects of agriculture are becoming more digital already?* Other factors to consider: relations with intermediaries, traceability, direct contact with buyers, production.]
- ***b. What other factors should be considered when talking about the potential of smartphones for agriculture and rural development?***
  [Factors to consider: Electricity, infrastructure, government, education, network coverage]
- ***c. When more and more women in rural areas and active in farming adopt smartphones – What do you expect to change in the lives of women and generally for rural livelihoods?***
- ***d. Where do you see yourself in 5 years?***

CALL FOR TOPICS/QUESTIONS:

Thank you for discussing the questions. Is there anything that you would like to add? Are there any questions or topics that were not mentioned and that you think are important to discuss concerning women farmers acceptance towards mobile phones in general and for agriculture?

[Collect questions and kindly translate them to Vanessa. We will spontaneously decide if we open another question for discussion – depending on the time and question.]

CLOSING:

Before closing the discussion, could each of you ***name one thing, of all we discussed, that you think is the most important****?*

B.2 Kannada Version:

(ಮೌಖಿಕ) ನಿರ್ದಿಷ್ಟ ಗುಂಪು ಚರ್ಚೆಯಲ್ಲಿ ಭಾಗವಹಿಸುವವರಿಗೆ ನೀಡಬೇಕಾದ ವಿವರಣಾ ಹೇಳಿಕೆ

ಉದ್ದೇಶ:
ಗ್ರೀನ್ ಇನ್ನೋವೇಶನ್ ಸೆಂಟರಿನ ಪ್ರಾಯೋಜನೆಯಲ್ಲಿ ವನೆಸ್ಸಾ ಬಾರ್ಘಾಫ್ ಳ ನಿರ್ದೇಶನದಲ್ಲಿ ನಡೆಯಲಿರುವ ನಿರ್ದಿಷ್ಟ ಗುಂಪು ಚರ್ಚೆಯಲ್ಲಿ ಭಾಗವಹಿಸುವ ಸಲುವಾಗಿ ನಿಮ್ಮನ್ನು ಆಹ್ವಾನಿಸಲಾಗಿದೆ. ಟೊಮ್ಯಾಟೋ ಬೆಳೆಯುವ ರೈತ ಮಹಿಳೆಯರಲ್ಲಿ ಮೊಬೈಲ್ ಫೋನುಗಳ ಬಗ್ಗೆ ಇರುವ ಸ್ವೀಕಾರ ಮನೋಭಾವವನ್ನು ಅರಿತುಕೊಳ್ಳುವುದು ಈ ನಿರ್ದಿಷ್ಟ ಗುಂಪಿನ ಉದ್ದೇಶವಾಗಿದೆ. ಈ ನಿರ್ದಿಷ್ಟ ಗುಂಪು ಚರ್ಚೆಯಲ್ಲಿ ಪಡೆಯಲಾಗುವ ಮಾಹಿತಿಯನ್ನು ಪ್ರಾಥಮಿಕವಾಗಿ ಸ್ವೀಡನ್‌ನ ಲುಂಡ್ ವಿಶ್ವವಿದ್ಯಾಲಯದಲ್ಲಿ ವ್ಯಾಸಂಗ ಮಾಡುತ್ತಿರುವ ವನೆಸ್ಸಾ ಎಂಬುವರ ಮಾಸ್ಟರ್ ಪ್ರಬಂಧಕ್ಕೆ ಬಳಸಲಾಗುತ್ತದೆ ಮತ್ತು ಇದನ್ನು ಯಾವುದಾದರೂ ಶೈಕ್ಷಣಿಕ ಜರ್ನಲ್, ಪುಸ್ತಕ ಅಥವಾ ಸುದ್ದಿಪತ್ರದಲ್ಲಿ ಪ್ರಕಟಿಸಬಹುದು.

ಗೌಪ್ಯತೆ:
ಈ ಚರ್ಚೆಯಲ್ಲಿ ನೀವು ನೀಡುವ ಎಲ್ಲಾ ಪ್ರತಿಕ್ರಿಯೆಗಳು ಅನಾಮಧೇಯವಾಗಿ ಮತ್ತು ಗೌಪ್ಯವಾಗಿ ಉಳಿಯುತ್ತವೆ, ಅಂತಿಮ ವರದಿಯಲ್ಲಿ ನಿಮ್ಮ ಯಾವುದೇ ಹೆಸರುಗಳನ್ನು ಸೇರಿಸಲಾಗುವುದಿಲ್ಲ. ಚರ್ಚೆಯಲ್ಲಿ ನಿಮ್ಮ ಭಾಗವಹಿಸುವಿಕೆ ಸ್ವಯಂಪ್ರೇರಿತವಾಗಿದೆ, ಆದರೆ ಅದನ್ನು ನಾವು ಬಹಳಷ್ಟು ಮೆಚ್ಚಿಕೊಳ್ಳುತ್ತೇವೆ. ನೀವು ಈ ಚರ್ಚೆಯಲ್ಲಿ ಮುಂದುವರಿಯಲು ಬಯಸದಿದ್ದರೆ, ಯಾವುದೇ ಸಮಯದಲ್ಲಿ ಅಧ್ಯಯನದಿಂದ ಹಿಂದೆ ಸರಿಯುವ ಹಕ್ಕು ನಿಮಗೆ ಇದೆ ಮತ್ತು ಅದಕ್ಕಾಗಿ ಯಾವುದೇ ರೀತಿಯ ದಂಡ ವಿಧಿಸುವುದಿಲ್ಲ.

ವಿಧಾನ:
ಈ ಅಧ್ಯಯನದ ಭಾಗವಾಗಿ, ನಿಮ್ಮನ್ನು ಆರು ಮಹಿಳೆಯರ ಒಂದು ಗುಂಪಿನಲ್ಲಿ ಸೇರಿಸಿಕೊಳ್ಳಲಾಗುತ್ತದೆ. ಈ ಚರ್ಚೆಯನ್ನು ನಿರ್ವಹಿಸುವ ಸಂದರ್ಶಕಿಯು ನಿಮಗೆ ಹಲವಾರು ಪ್ರಶ್ನೆಗಳನ್ನು ಕೇಳುತ್ತಾರೆ. ಈ ಗುಂಪು ಚರ್ಚೆ ಸಂಪೂರ್ಣವಾಗಿ ಧ್ವನಿ ಮುದ್ರಣವಾಗುತ್ತದೆ ಮತ್ತು ಚರ್ಚೆಯ ಟಿಪ್ಪಣಿ ತೆಗೆದುಕೊಳ್ಳುವವರು ಜೊತೆಯಲ್ಲಿ ಇರುತ್ತಾರೆ. ಇದಲ್ಲದೇ, ಈ ನಿರ್ದಿಷ್ಟ ಗುಂಪಿನಲ್ಲಿ ವನೆಸ್ಸಾ ಸಹಾ ಆನ್‌ಲೈನ್‌ನಲ್ಲಿ ಭಾಗವಹಿಸುತ್ತಿರಬಹುದು.

ಈ ನಿರ್ದಿಷ್ಟ ಗುಂಪು ಚರ್ಚೆಯಲ್ಲಿ ಕೇಳಲಾಗುವ ಯಾವುದೇ ಪ್ರಶ್ನೆಗಳಿಗೆ ಸರಿ ಅಥವಾ ತಪ್ಪು ಉತ್ತರಗಳೆಂಬುವು ಇರುವುದಿಲ್ಲವೆಂಬುದನ್ನು ನೀವು ಗಮನದಲ್ಲಿಟ್ಟುಕೊಳ್ಳಿ. ನೀವು ಇತರರು ಮಾತನಾಡುವಾಗ ಮಧ್ಯ ಪ್ರವೇಶ ಮಾಡುವುದರಿಂದ ಗೌರವಯುತವಾಗಿ ದೂರ ಉಳಿಯಿರಿ. ಹಾಗಿದ್ದರೂ ಇತರರ ಹೇಳಿಕೆಗಳು ನಿಮ್ಮ ಅಭಿಪ್ರಾಯಗಳಿಗೆ ತದ್ವಿರುದ್ಧವೆಂದು ನಿಮಗೆ ಅನ್ನಿಸಿದ ಪಕ್ಷದಲ್ಲೂ, ಪ್ರಾಮಾಣಿಕವಾಗಿ ನಿಮ್ಮ ಅಭಿಪ್ರಾಯಗಳಿಗೆ ಬದ್ಧರಾಗಿರಿ, ಏಕೆಂದರೆ ವಿಭಿನ್ನ ದೃಷ್ಟಿಕೋನಗಳು ಈ ಅಧ್ಯಯನಕ್ಕೆ ಹೆಚ್ಚು ಮೌಲ್ಯಯುತ ಒಳನೋಟಗಳನ್ನು ನೀಡುತ್ತವೆ.

ಸುರಕ್ಷೆ:

ಕೋವಿಡ್-19 ಹರಡುವಿಕೆಯಿಂದ ನಿಮ್ಮನ್ನು ಮತ್ತು ಇತರರನ್ನು ರಕ್ಷಿಸುವ ಸಲುವಾಗಿ ಈ ಕೆಳಕಂಡ ಸುರಕ್ಷಾ ಕ್ರಮಗಳನ್ನು ಎಲ್ಲರೂ ಅನುಸರಿಸುವುದು ಕಡ್ಡಾಯವಾಗಿದೆ:

- ✓ ಮುಖಗವಸನ್ನು ಹಾಕಿಕೊಳ್ಳಿ.
- ✓ ಪರಸ್ಪರ 1.5 ಮೀಟರಿನಷ್ಟು ಅಂತರವನ್ನು ಕಾಯ್ದುಕೊಳ್ಳಿ.
- ✓ ನಿಮ್ಮ ಕೈಗಳನ್ನು ಆಗಾಗ ಸೋಪು ಮತ್ತು ನೀರಿನಿಂದ ತೊಳೆಯುತ್ತಿರಿ ಅಥವಾ ಸ್ಯಾನಿಟೈಜರ್ ಅನ್ನು ಬಳಸಿರಿ.
- ✓ ಕೆಮ್ಮು ಮತ್ತು ಶೀನು ಬಂದರೆ ನಿಮ್ಮ ಕರವಸ್ತ್ರದಿಂದ ಅಥವಾ ನಿಮ್ಮ ಮೊಣಕಾಲಿನ ಒಳಭಾಗದಿಂದ ಬಾಯಿ ಮೂಗುಗಳನ್ನು ಮುಚ್ಚಿಕೊಳ್ಳಿ
- ✓ ನಿಮಗೆ ಜ್ವರ, ಕೆಮ್ಮು ಅಥವಾ ಉಸಿರಾಟದ ತೊಂದರೆ ಕಂಡುಬಂದಲ್ಲಿ ದಯವಿಟ್ಟು ಈ ಗುಂಪು ಚರ್ಚೆಯಲ್ಲಿ ಭಾಗವಹಿಸುವುದು ಬೇಡ.

ಸಂಪರ್ಕಿಸಿ:

ಈ ಅಧ್ಯಯನದ ಬಗ್ಗೆ ನಿಮಗೆ ಯಾವುದೇ ಪ್ರಶ್ನೆ/ಕಾಳಜಿಗಳಿದ್ದರೆ ಈ ಕೆಳಕಂಡವರನ್ನು ಸಂಪರ್ಕಿಸಿ:

ವನೆಸ್ಸಾ ಬರ್ಗಾಫ್ಹ್
ಎಂ.ಎಸ್ಸಿ ವಿದ್ಯಾರ್ಥಿನಿ (ಅಂತರರಾಷ್ಟ್ರೀಯ ಅಭಿವೃದ್ಧಿ ಮತ್ತು ನಿರ್ವಹಣೆ)
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ನಿಮ್ಮ ಭಾಗವಹಿಸುವಿಕೆಗಾಗಿ ಧನ್ಯವಾದಗಳು

ನಿಮ್ಮ ನಂಬುಗೆಯ,

_____

Appendix C: Telephone Survey Questionnaire

C.1 Questions

type	name	label::English	label::Telugu	label::Kannada	label::Marathi
text	OPENING	**Survey Start:** The following information should be entered BEFORE you call the farmer. You can change languages to Marathi, Kannada or Telugu by clicking on the three dots on the top right			
select_one choices_Surveyor	Surveyor	Name of Surveyor	సర్వేయరు పేరు	ಸಂದರ್ಶನ ಮಾಡುವವರ ಹೆಸರು	माहिती गोळा करणार्याचे नाव
select_one choices_State	State	In which state does the farmer live?	రాష్ట్రం పేరు	ರೈತರು ವಾಸಿಸುತ್ತಿರುವ ರಾಜ್ಯ ಯಾವುದು ?	शेतकरी कोणत्या राज्यात राहतो?
select_one choices_village	Village	In which village does the farmer live?	గ్రామము పేరు	ರೈತರ ಹಳ್ಳಿ ಯಾವುದು?	शेतकरी कोणत्या गावात राहतो
select_one choices_farmer	Farmer	Name of Participant	పాల్గొనే రైతు పేరు	ಸಂದರ್ಶನದಲ್ಲಿ ಭಾಗವಹಿಸುವವರ ಹೆಸರು	सहभागींची नावे
integer	Attempt	What call attempt is it?	ఇది ఏ కాల్ ప్రయత్నం?	ಇದು ಯಾವ ಕರೆ ಪ್ರಯತ್ನ?	काय कॉल प्रयत्न आहे?
text	CALL	Now you can call a name from the list.	ఇప్పుడు మీరు జాబితా నుండి ఒక పేరును కాల్ చేయవచ్చు.	ಈಗ ನೀವು ಪಟ್ಟಿಯಿಂದ ಹೆಸರನ್ನು ಕರೆಯಬಹುದು.	आता आपण सूचीमधून नाव घेऊ शकता.
select_one choices_PhoneStatus	PhoneStatus	What is the call status?	కాల్ స్థితి ఏమిటి?	ಫೋನ್ ಕರೆಯ ಸ್ಥಿತಿ ಏನು?	कॉलची स्थिती काय आहे?
select_one choices_yesno	LaterAttempt	Attempt to call later?	నంతర కరే మాడలు ప్రయత్నిసువుదే?	ನಂತರ ಕರೆ ಮಾಡಲು ಪ್ರಯತ್ನಿಸುವುದೇ?	नंतर कॉल करण्याचा प्रयत्न?
text	INTRO	**Read:** Hello, my name is (your name) and I am calling from the Green Innovation Centres India project. Am I talking to (farmer name)? *//Note for surveyor: If the person you are speaking to is not the farmer on the list please request to talk to her.* **Next, read out:** I'm calling you on behalf of Ms. Vanessa Berghoff. She is working with the Green Innovation Centre to collect data for her Master thesis in Sweden. I am inviting you to participate in this interview to inform her study about the acceptance of women tomato farmers towards mobile phones. The survey will take approximately 10-15 minutes of your time. Your participating is voluntary but will be highly appreciated. All information will be kept anonymous and confidential. If you do not wish to continue, you have the right to withdraw from the study, without penalty and at any time. I	**<u>చదవండి</u>** : నమస్తే నా పేరు సుమలత. నేను జిఐసి ఇండియా ప్రాజెక్టు నుండి మాట్లాడుతున్నాను. నేను మాట్లాడు తున్నది (రైతుపేరు) అవునా? **<u>సర్వేయర్ కు గమనిక:</u>** మీరు మాట్లాడుతున్న వ్యక్తి జాబితాలోని రైతు కాకపోతే దయచేసి ఆమెతో మాట్లాడమని అభ్యర్థించండి **తరువాత, చదవండి**: శ్రీమతి వెనెస్సా బెర్గోఫ్ తరపున నేను మీతో మాట్లాడు తున్నాను. ఆమె జిఐసి తో కలిసి స్వీడన్‌లో తన మాస్టర్ డిగ్రీ థీసిస్ కోసం డేటాను సేకరిస్తున్నారు. మహిళా టమోటా రైతులు మొబైల్ ఫోన్‌లు వినియోగించడం గురించి ఆమె అధ్యయనానికి తెలియజేయడానికి ఈ ఇంటర్వ్యూలో పాల్గొనమని నేను మిమ్మల్ని ఆహ్వానిస్తున్నాను. ఈ సర్వే కొరకు మీ సమయం సుమారు 10-15 నిమిషాలు పడుతుంది. మీరు పాల్గొనడం స్వచ్ఛందంగా ఉంటుంది కాని ఎంతో ప్రశంసించబడుతుంది. ఈ సర్వే లో మీరు ఇచ్చే సమాచారం రహస్యంగాఉంచబడ మేగాక మీపేరు ఎక్కడా చప్పడం జరగదు. ఈ సర్వేలో మీరు కొనసాగడానికి ఇష్టపడకపోతే, జరిమానా	ಓದಿರಿ: ಹಲೋ, ನನ್ನ ಹೆಸರು $ {ಸರ್ವೇಯರ್} ಮತ್ತು ನಾನು ಗ್ರೀನ್ ಇನ್ನೋವೇಶನ್ ಸೆಂಟರ್ಸ್ ಇಂಡಿಯಾ, ಟೊಮ್ಯಾಟೋ ಸುಧಾರಿತ ಬೆಳೆ ಯೋಜನೆ ವತಿಯಿಂದ ಕರೆ ಮಾಡುತ್ತಿದ್ದೇನೆ. ನಾನು $ {ರೈತ} ಜೊತೆ ಮಾತನಾಡುತ್ತಿದ್ದೇನೆಯೇ? // ಸರ್ವೇಯರ್(ಸಂದರ್ಶಕ)ಗಾಗಿ ಟಿಪ್ಪಣಿ: ನೀವು ಮಾತನಾಡುತ್ತಿರುವ ವ್ಯಕ್ತಿಯು ಪಟ್ಟಿಯಲ್ಲಿರುವ ರೈತರಲ್ಲದಿದ್ದರೆ ದಯವಿಟ್ಟು ಆಕೆಯೊಂದಿಗೆ ಮಾತನಾಡಲು (ಫೋನ್ ಅವರಿಗೆ ನೀಡಲು) ವಿನಂತಿಸಿ. ಮುಂದೆ, ಓದಿ: ಮಿಸ್ ವನೆಸ್ಸಾ ಬರ್ಘಾಫ್ ಪರವಾಗಿ ನಾನು ನಿಮಗೆ ಕರೆ ಮಾಡುತ್ತಿದ್ದೇನೆ. ಇವರು ಸ್ವೀಡನ್‌ನಲ್ಲಿನ ತನ್ನ ಉನ್ನತ ವ್ಯಾಸಂಗ (ಮಾಸ್ಟರ್) ಪ್ರಬಂಧಕ್ಕಾಗಿ ಮಾಹಿತಿಯನ್ನು ಸಂಗ್ರಹಿಸಲು ಗ್ರೀನ್ ಇನ್ನೋವೇಶನ್ ಕೇಂದ್ರದ, ಟೊಮ್ಯಾಟೋ ಸುಧಾರಿತ ಬೆಳೆ ಯೋಜನೆಯೊಂದಿಗೆ ಕೆಲಸ ಮಾಡುತ್ತಿದ್ದಾರೆ. ಟೊಮ್ಯಾಟೋ ಬೆಳೆಯುವ ರೈತ	वाचा: नमस्कार, माझे नाव {{सर्व्हेअर} आहे आणि मी ग्रीन इनोव्हेशन सेंटर इंडिया प्रकल्पातून कॉल करीत आहे. मी शेतकरी बोलत आहे? // सर्वेक्षणकर्त्यासाठी टीपः आपण ज्या व्यक्तीशी बोलत आहात त्या यादीमध्ये जर शेतकरी नसेल तर कृपया त्याच्याशी बोलण्याची विनंती करा. पुढे, वाचा: मी तुम्हालाMs. Vanessa Berghoff च्या वतीने कॉल करीत आहे. ग्रीन इनोव्हेशन सेंटरमध्ये ती स्वीडनमधील मास्टर थीसिसचा डेटा गोळा करण्यासाठी काम करीत आहे. या मुलाखतीत सहभागी होण्यासाठी मी तुम्हाला आमंत्रित करीत आहे, की महिलांनी टोमाटो शेतकऱ्यांच्या मोबाईल फोनच्या मान्यतेबद्दल तिच्या अभ्यासाची माहिती दिली. सर्वेक्षण आपल्यास सुमारे 10-15 मिनिटे घेईल. आपला सहभाग ऐच्छिक आहे परंतु त्याचे खूप कौतुक होईल. सर्व माहिती अज्ञात आणि गोपनीय ठेवली

		will ask you different questions, for example what kind of phone you have or what you use it for. Vanessa might use quotes and results of this study may be published, but your information will remain confidential and never connected to you. If you have questions, you can ask them at any time or withdraw from the interview.	లేకుండా మరియు ఎప్పుడైనా ఈ అధ్యయనం నుండి వైదొలగడానికి మీకు హక్కు ఉంది. నేను మీమ్మలను వేర్వేరు ప్రశ్నలను అడుగుతాను, ఉదాహరణకు మీ వద్ద ఎలాంటి ఫోన్ ఉంది లేదా మీరు దేని కోసం ఉపయోగిస్తున్నారు. శ్రీమతి వెనెస్సా మీరిచ్చిన సమాచారమును ఎక్కడైనా తన రిపోర్టు లో ఉపయోగించ వచ్చును మరియు ఈ అధ్యయనం యొక్క ఫలితాలు ప్రచురించబడవచ్చు, కానీ మీ సమాచారం రహస్యంగా ఉంటుంది మరియు మీతో ఎప్పటికీ సంప్రదింపులు జరపరు. మీకు ఏవైనా ప్రశ్నలు ఉంటే, మీరు ఎప్పుడైనా వాటిని అడగవచ్చు లేదా ఇంటర్వ్యూ నుండి వైదొలగవచ్చు.	ಮಹಿಳೆಯರು ಮೊಬೈಲ್ ಫೋನ್ ಅನ್ನು ಯಾವ ರೀತಿ ಬಳಸುತ್ತಾರೆ ಎಂಬುದನ್ನು ಈ ಅಧ್ಯಯನದ ಮೂಲಕ ತಿಳಿಯಲು ಇಚ್ಛಿಸುತ್ತೇವೆ, ನೀವು ಈ ಸಂದರ್ಶನದಲ್ಲಿ ಭಾಗವಹಿಸಲು ನಾನು ನಿಮ್ಮನ್ನು ಆಹ್ವಾನಿಸುತ್ತೇನೆ ಈ ಸಂದರ್ಶನವು ಸುಮಾರು 10-15 ನಿಮಿಷಗಳ ಸಮಯವನ್ನು ತೆಗೆದುಕೊಳ್ಳುತ್ತದೆ. ನಿಮ್ಮ ಭಾಗವಹಿಸುವಿಕೆ ಸ್ವಯಂಪ್ರೇರಿತವಾಗಿದೆ ಆದರೆ ಹೆಚ್ಚು ಮೆಚ್ಚುಗೆ ಪಡೆಯುತ್ತದೆ. ಎಲ್ಲಾ ಮಾಹಿತಿಯನ್ನು ಅನಾಮಧೇಯ ಮತ್ತು ಗೌಪ್ಯವಾಗಿಡಲಾಗುತ್ತದೆ. ನೀವು ಮುಂದುವರಿಯಲು ಬಯಸದಿದ್ದರೆ ಯಾವುದೇ ಸಮಯದಲ್ಲಿ ಅಧ್ಯಯನದಿಂದ ಹಿಂದೆ ಸರಿಯುವ ಹಕ್ಕು ನಿಮಗೆ ಇದೆ. ನಾನು ನಿಮಗೆ ವಿಭಿನ್ನ ಪ್ರಶ್ನೆಗಳನ್ನು ಕೇಳುತ್ತೇನೆ, ಉದಾಹರಣೆಗೆ ನೀವು ಯಾವ ರೀತಿಯ ಫೋನ್ ಹೊಂದಿದ್ದೀರಿ ಅಥವಾ ನೀವು ಅದನ್ನು ಯಾವ ಯಾವ ರೀತಿಯಲ್ಲಿ ಬಳಸುತ್ತೀರಿ ಮುಂತಾದ ಪ್ರಶ್ನೆಗಳನ್ನು ಕೇಳುತ್ತೇನೆ . ವನೆಸ್ಸಾ ಅವರು ಈ ಅಧ್ಯಯನದ ಮಾಹಿತಿಯನ್ನು ಬಳಸಬಹುದು ಮತ್ತು ಈ ಅಧ್ಯಯನದ ಫಲಿತಾಂಶಗಳನ್ನು ಪ್ರಕಟಿಸಬಹುದು, ಆದರೆ ನಿಮ್ಮ ಮಾಹಿತಿಯು ಗೌಪ್ಯವಾಗಿ ಉಳಿಯುತ್ತದೆ. ನಿಮಗೇನಾದರೂ ಪ್ರಶ್ನೆಗಳಿದ್ದರೆ , ನೀವು ನಮ್ಮನ್ನು ಯಾವುದೇ ಸಮಯದಲ್ಲಿ ಕೇಳಬಹುದು ಅಥವಾ ಸಂದರ್ಶನದಿಂದ ಹಿಂದೆ ಸರಿಯಬಹುದು.	जाईल. आपण सुरू ठेवू इच्छित नसल्यास, दंड न घेता आणि कोणत्याही वेळी आपल्याकडे अभ्यासामधून माघार घेण्याचा हक्क आहे. मी आपणास भिन्न प्रश्न विचारेल, उदाहरणार्थ आपल्याकडे कोणत्या प्रकारचे फोन आहे किंवा आपण ते कशासाठी वापरता. व्हेनेसा कदाचित कोट वापरतील आणि या अभ्यासाचे निकाल प्रकाशित केले जाऊ शकतात परंतु आपली माहिती गोपनीय राहील आणि कधीही आपल्याशी कनेक्ट केली जाणार नाही. आपल्याकडे प्रश्न असल्यास आपण त्यांना कोणत्याही वेळी विचारू शकता किंवा मुलाखतीतून माघार घेऊ शकता. "
select_one choices_yesend	Q0	Are you willing to participate in this survey?	మీరు ఈ సర్వేలో పాల్గొనడానికి ఇష్టపడుతున్నారా ?	ಈ ಸಮೀಕ್ಷೆಯಲ್ಲಿ(ಸಂದರ್ಶನದಲ್ಲಿ) ಭಾಗವಹಿಸಲು ನೀವು ಸಿದ್ಧರಿದ್ದೀರಾ?	या सर्वेक्षणात आपण भाग घेऊ इच्छिता?
select_one choices_yesend	Q1	Do you work in tomato cultivation?	మీరు టమెటో పంట పండిస్తారా ?	ನೀವು ಟೊಮ್ಯಾಟೋ ಬೆಳೆಯುತ್ತಿದ್ದಿರಾ?	तुम्ही टोमॅटो लागवडीत काम करता का?
select_one choices_Q2	Q2	Do you have a mobile phone?	మీరు మొబైల్ ఫోన్ వుందా?	ನಿಮ್ಮ ಬಳಿ ಮೊಬೈಲ್ ಫೋನ್ ಇದೆಯೇ?	तुमच्याकडे मोबाईल फोन आहे का?
text	A	**Read**: There will be four sections. To start, we would like to ask you some questions about your background. Remember, that your answers are completely voluntary, and there are no penalties for refusing to answer.	**చదవండి:** ఈ సర్వే లో నాలుగు విభాగాలు ఉంటాయి. ముందుగా, మీ నేపథ్యం గురించి మేము మీకు కొన్ని ప్రశ్నలు అడగాలనుకుంటున్నాము. మీ సమాధానాలు పూర్తిగా స్వచ్ఛందంగా ఉన్నాయని మరియు సమాధానం ఇవ్వడానికి నిరాకరిస్తే ఎటువంటి జరిమానాలు ఉండవని గుర్తుంచుకోండి.	ಓದಿರಿ: ಈ ಸಮೀಕ್ಷೆಯಲ್ಲಿ ನಾಲ್ಕು ವಿಭಾಗಗಳಿವೆ. ಮೊದಲಿಗೆ, ನಿಮ್ಮ ಹಿನ್ನೆಲೆ ಕುರಿತು ನಾವು ನಿಮಗೆ ಕೆಲವು ಪ್ರಶ್ನೆಗಳನ್ನು ಕೇಳಲು ಬಯಸುತ್ತೇವೆ. ನೆನಪಿಡಿ, ನಿಮ್ಮ ಉತ್ತರಗಳು ಸಂಪೂರ್ಣವಾಗಿ ಸ್ವಯಂಪ್ರೇರಿತವಾಗಿವೆ ಮತ್ತು ಉತ್ತರಿಸಲು ನಿರಾಕರಿಸಿದ್ದಕ್ಕಾಗಿ ಯಾವುದೇ ದಂಡಗಳಿಲ್ಲ.	वाचा: तेथे चार विभाग असतील. प्रारंभ करण्यासाठी आम्ही आपल्या पार्श्वभूमीबद्दल आपल्याला काही प्रश्न विचारू इच्छितो. लक्षात ठेवा की आपली उत्तरे पूर्णपणे ऐच्छिक आहेत आणि उत्तर देण्यास नकार देण्यासाठी कोणतेही दंड नाही.
select_one choices_A1	A1	How old are you?	మీ వయసు ఎంత (సం.లు)	ನಿಮ್ಮ ವಯಸ್ಸು ಎಷ್ಟು?	तुमच वय काय आहे ?
select_one choices_A2	A2	What is your martial status?	మీ వైహాహిత స్థితి ?	ನಿಮಗೆ ಮಾದುವೆ ಆಗಿದೆಯೇ ?	तुम्ही विवाहित आहात का ?
select_one choices_yesnoother	A3	Do you have children?	మీరు పిల్లలు వున్నారా?	ನಿಮಗೆ ಮಕ್ಕಳಿದ್ದಾರೆಯೇ?	तुम्हाला अपत्य किती आहेत ?

integer	A4	How many people currently live in your household including you?	మీతో పాటు మీకుటుంబంలో ప్రస్తుతము ఎంతమంది నివసిస్తున్నారు	నీవు సేరిదంతే నిమ్మ మనేయల్లి ప్రస్తుత ఎష్టు జనరు వాసిసుత్తిద్దారే?	सध्याच्या परिस्थितीत तुम्ही धरून तुमच्या कुटुंबात एकूण माणसे किती आहेत?
select_one choices_A5	A5	What is your highest level of completed education?	మీరు ఎంతవరకు చదువు కున్నారు ?	నిమ్మ ఉన్నత మట్టద శిక్షణ యావుదు?(నీవు ఎష్టు ఓదిద్దీరా?)	तुमची पूर्ण झालेली शेक्षेनिक पात्रात काय आहे ?
select_one choices_scale1	A6_1	Do you understand written text in Marathi/Kannada/Telugu?	మీరు తెలుగులో వ్రాసిన వాటిని అర్థం చేసుకుంటారా ?	కన్నడ బరేదిరువుదన్ను ఓదలు బరుత్తదేయే (నిమగే అర్థవాగిదేయే?) ?	तुम्हाला मराठी वाचन करता येते का ?
select_one choices_scale1	A6_2	Can you write in Marathi/Kannada/Telugu?	మీరు తెలుగులో వ్రాయగలుగు తారా?	నిమగే కన్నడ బరేయలు బరుత్తదేయే ?	तुम्हाला मराठी लिहिता येते का ?
select_one choices_scale1	A7_1	Do you understand written text in English?	మీరు ఇంగ్లిష్ లో వున్న వాటిని అర్థం చేసుకోగలుగు తారా?	ఇంగ్లీష్ నల్లి బరేదిరువుదన్ను ఓదలు బరుత్తదేయే ?	तुम्हाला इंग्रजी वाचन करता येते का ?
select_one choices_scale1	A7_2	Can you write in English?	మీరు ఇంగ్లీసులో వ్రాయగలుగు తారా?	నిమగే ఇంగ్లీష్ నల్లి బరేయలు బరుత్తదేయే?	तुम्हाला इंग्रजी लिहता येते का ?
select_multiple choices_A8	A8	What step or steps of the tomato chain are you involved in?	టమెటో పంట కార్యక్రమాలలో మీరు పాల్గొనే వాటిని ఒకటి తరువాత ఒకటి చెప్పండి	టొమ్యాటో బేసాయదల్లి నీవు యావ కేలసగళన్ను మాడుత్తీరా?	तुम्ही टोमाटो मूल्यवर्धित साखळी मध्ये कोणत्या पायरी मध्ये येता?
decimal	A9	What is your family plot size?	మీకుంబానికి వున్న పొలం ఎంత?	నిమ్మ కుటుంబ ఎష్టు జమీనన్ను హొందిదే?	तुमच्या घरच्या शेताचे क्षेत्र किती आहे ?
select_one choices_yesnoother	A10	Do you personally own agricultural land?	మీపేరుపైన ఏమైనా వ్యవసాయ భూమి వుందా?	నీవు వ్యయక్తికవాగి కృషి భూమియన్ను హొందిద్దీరా (నిమ్మ హెసరినల్లి జమీనిదేయా) ?	तुमची वयक्तिक शेत आहे का ?
select_one choices_yesnoother	A11	Are you personally paid for your agricultural labour?	మీరు చేసే వ్యవసాయ శ్రమకు మీరు వ్యక్తిగతంగా చెల్లించారా?	నీవు హొలదల్లి మాడువ కేలసక్కే సంబళ పడేయుత్తీరా ?	तुम्ही शेतातील कामगारचे पगार वयक्तिक देता का ?
select_one choices_A12	A12	Who makes most of the decisions regarding finances and farming in your family?	మీ పొలం లో పంట వేయడానికి & పెట్టుబడులకు సంబందించి నిర్ణయాలు ఎవరు చేస్తారు	నిమ్మ కుటుంబదల్లి హణకాసు మత్తు కృషిగే సంబంధిసిదంతే హెచ్చిన నిర్ధారగళన్ను యారు తేగేదుకొళ్ళుత్తారే?	तुमचा घरात आर्थिक आणि शेतीचे व्यवहार कोण निर्णय घेतात ?
select_multiple choices_A13	A13	What are your responsibilities at home?	ఇంట్లో మీ బాద్యతలు ఏమిటి?	మనేయల్లి నిమ్మ జవాబ్దారిగళేను?	तुमच्या वयक्तिक घरातल्या जबाबदाऱ्या कोणत्या आहेत?
select_one choices_A14	A14	Do you have any additonal paid labour arrangements besides agriculture?	మీకు వ్యవసాయంతో పాటు ఏదైనా అదనపు చెల్లించే కార్మిక ఏర్పాట్లు ఉన్నాయా?	కృషియ హొరతాగి నీవు యావుదే హెచ్చువరి వేతన కార్మిక వ్యవస్థేగళన్ను హొందిద్దీరా?	आपल्याकडे शेती व्यतरिक्त अतिरिक्त कामगार करार आहेत का ?
select_one choices_A15	A15	Has there been times in the past year when you were concerned about having enough money to pay for food, water or health items for all family members?	కుటుంబ సభ్యులందరికీ ఆహారం, నీరు లేదా ఆరోగ్య వస్తువుల కోసం చెల్లించడానికి తగినంత డబ్బు ఉండటం గురించి మీరు ఆందోళన చెందుతున్న సందర్భాలు గత సంవత్సరంలో ఉన్నాయా?	కళేద వర్షదల్లి నిమగే కుటుంబద ఎల్ల సదస్యరిగే ఆహార, నీరు అథవా ఆరోగ్య క్కే సంబంధిసిద ఖర్చు గళిగే హణ హొందిసలు కష్టవాయితే ?	मागील वर्षात असे काही वेळा घडले आहे जेव्हा आपल्याला कुटुंबातील सर्व सदस्यांसाठी अन्न, पाणी किंवा आरोग्यासाठी पैसे मोजण्यासाठी पुरेसे पैसे असावे याबद्दल चिंता होती?
select_multiple choices_A16	A16	What kind of vehicle(s) does your family own?	మీ కుటుంబానికి ఎలాంటి వాహనం (లు) ఉన్నాయి?	నిమ్మ మనేయల్లి యావ రీతియ వాహనగళివే?	तुमच्या कुटुंबाकडे कोणते वाहन (वाहने) आहे ?
select_one choices_A17	A17	Are there power cuts at your home?	మీ ఇంట్లో విద్యుత్ కోతలు ఉన్నాయా?	నిమ్మ మనేయల్లి విద్యుత్ కడితవిదేయే?	तुमच्या घरातील वीज कापली आहे का ?
select_one choices_A18	A18	How is the network coverage in your village?	మీ గ్రామంలో నెట్‌వర్క్ కవరేజ్ ఎలా ఉంది?	నిమ్మ గ్రామదల్లి మొబైల్ నేట్‌వర్క్ వ్యాప్తి హేగిదే?	तुमच्या गावामध्ये नेटवर्क कनेक्शन कसे आहे.?
text	B	**Read**: In this section, we would like to ask about your mobile phone.	ఈ విభాగంలో, మేము మీ మొబైల్ ఫోన్ గురించి అడగాలనుకుంటున్నాము.	**ఓదిరి:** ఈ విభాగదల్లి, నిమ్మ మొబైల్ ఫోన్ బగ్గే నావు ప్రశ్నేగళన్ను కేళలు బయసుత్తేవే.	वाचा: या विभागात आम्ही आपल्या मोबाइल फोनबद्दल विचारू इच्छितो.
select_one choices_B1	B1	What kind of mobile phone do you have?	మీకు ఎలాంటి మొబైల్ ఫోన్ ఉంది?	నిమ్మ బళి యావ రీతియ మొబైల్ ఫోన్ ఇదే?	आपल्याकडे कोणत्या प्रकारचे मोबाइल फोन आहे?
select_one choices_B2_1	B2_1	Did you get the phone new or reused?	మీరు కొత్త ఫోన్‌ను కొన్నారా లేదా పాత ఫోన్ ఉపయోగించు చున్నారా?	నిమ్మ మొబైల్ ఫోన్ హొసదా అథవా ఇతరరు బళసిద్దా(సేకేండ్ హ్యాండ్)?	तुम्ही वापरत असलेला फोने नवीन घेतला कि वापरलेला आहे ?

select_one choices_B2_2	B2_2	Who owned the phone before you?	మీకు ముందు మీ ఇంట్లో ఫోన్ ఎవరు కలిగి ఉన్నారు?	ನಿಮಗೂ ಮುಂಚೆ ಈ ಫೋನ್ ಯಾರದ್ದಾಗಿತ್ತು ?	तुमच्या आधी कुणाकडे मोबाईल होता ?
select_one choices_B2_3	B2_3	Who paid for your phone?	మీ ఫోన్ కోసం ఎవరు డబ్బులు చెల్లించారు?	ನಿಮ್ಮ ಫೋನ್‌ಗೆ ಯಾರು ಹಣ ಪಾವತಿಸಿದ್ದಾರೆ?	तुमच्या फोन साठी कुणी पैसे दिले आहेत ?
select_one choices_B2_4	B2_4	Could you pay for your phone at once from your savings or did you actively need to save money?	మీ దగ్గర వున్న పొదుపు నుండి ఒకేసారి మీరు ఫోన్ కొన్నారా లేదా మీరు డబ్బును ఆదా చేసుకొని కొనవలసిన అవసరం వచ్చిందా ?	ನಿಮ್ಮ ಉಳಿತಾಯದಿಂದ ನಿಮ್ಮ ಫೋನ್‌ಗೆ ಒಂದೇ ಬಾರಿ ಹಣ ಪಾವತಿಸಬಹುದೇ ಅಥವಾ ನೀವು ಹಣವನ್ನು ಸ್ವಲ್ಪ ಸ್ವಲ್ಪ ಉಳಿಸುವ ಅಗತ್ಯವಿದೆಯೇ?	तुमच्या बचतीवरून तुम्ही तुमच्या फोनसाठी एकाच वेळी पैसे देऊ शकता किंवा तुम्हाला पैसे वाचवण्याची सक्रियपणे गरज होती?
select_one choices_yesnoother	B3	Do you have the full decision-making power over the phone? So can you use it whenever you want and at all times?	మీకు ఫోన్ పై పూర్తి నిర్ణయం తీసుకునే శక్తి ఉందా? కాబట్టి మీకు కావలసినప్పుడు మరియు ఎప్పుడైనా ఉపయోగించవచ్చా?	ಫೋನ್ ಅನ್ನು ನೀವು ಬಯಸಿದಾಗ ಮತ್ತು ಎಲ್ಲಾ ಸಮಯದಲ್ಲೂ ಬಳಸುವ ಬಗ್ಗೆ ನೀವು ಸಂಪೂರ್ಣ ನಿರ್ಧಾರ ತೆಗೆದುಕೊಳ್ಳುವ ಶಕ್ತಿಯನ್ನು ಹೊಂದಿದ್ದೀರಾ?	आपल्याकडे फोनवर संपूर्णपणे निर्णय घेण्याची शक्ती आहे का? तर आपण जेव्हा हा इच्छित असाल तेव्हा आणि कधीही वापरु शकता का ?
select_one choices_yesnoother	B4	Is it common among the women you know to own a **mobile phone** - both basic phones and smartphones?	ప్రాథమిక ఫోన్లు మరియు స్మార్ట్‌ఫోన్‌లు - మొబైల్ ఫోన్‌ను కలిగి ఉండటం మీకు తెలిసిన మహిళల్లో సాధారణమా?	ನಿಮಗೆ ತಿಳಿದಿರುವಂತೆ ಮಹಿಳೆಯರು ಮೊಬೈಲ್ ಫೋನ್ (ಸ್ಮಾರ್ಟ್ ಅಥವಾ ಬೇಸಿಕ್) ಅನ್ನು ಸಾಮಾನ್ಯವಾಗಿ ಹೊಂದಿರುತ್ತಾರೆಯೇ?	साधा फोने व स्मार्टफोन महिलांच्या मालकीचा असणे सामान्य आहे का ?
select_one choices_yesnoother	B5	Is it common among the women you know to own a **smartphone**?	స్మార్ట్‌ఫోన్‌ను సొంతం చేసుకోవడం మీకు తెలిసిన మహిళల్లో సాధారణమేనా?	ನಿಮಗೆ ಗೊತ್ತಿರುವ ಮಹಿಳೆಯರು ಸ್ಮಾರ್ಟ್ ಫೋನ್ ಬಳಸುವುದು ಸಾಮಾನ್ಯವೇ?	आपल्या मालकीचा स्मार्टफोन असणे महिलांसाठी सामान्य आहे का ?
select_one choices_yesnoother	B6	Do you consider a mobile phone a status symbol?	మొబైల్ ఫోన్ కలిగి వుండుట హోదాకు చిహ్నం గా బావిస్తున్నారా	ನೀವು ಮೊಬೈಲ್ ಫೋನ್ ಇಟ್ಟುಕೊಂಡಿರುವುದು ಮೇಲ್ವರ್ಗದ ಸ್ಥಿತಿ (ಸ್ಟೇಟಸ್) ಯ ಸಂಕೇತವೆಂದು ಪರಿಗಣಿಸುತ್ತೀರಾ?	मोबाईल फोन असणे हे तुम्ही स्टेटस चे प्रतिक आहे असे मानता का ?
text	C	**Read:** In this section, we would like to ask about your usage of the mobile phone. Again, please note that this is just based on your impressions, there is no right or wrong answer. your answers are completely voluntary.	ఈ విభాగంలో, మీ మొబైల్ ఫోన్ వినియోగం గురించి మేము అడగాలను కుంటున్నాము. మళ్ళీ, ఇది మీ అభిప్రాయాల మీద ఆధారపడి ఉందని దయచేసి గమనించండి, మీరు చెప్పే సమాదానాలలో తప్పు లేదా ఒప్పు లకు తావు లేదు. మీ సమాధానాలు పూర్తిగా స్వచ్ఛందంగా ఉంటాయి.	**ಓದಿರಿ:** ಈ ವಿಭಾಗದಲ್ಲಿ, ನಿಮ್ಮ ಮೊಬೈಲ್ ಫೋನ್ ಬಳಕೆಯ ಬಗ್ಗೆ ನಾವು ಪ್ರಶ್ನೆಗಳನ್ನು ಕೇಳಲು ಬಯಸುತ್ತೇವೆ. ಇದು ನಿಮ್ಮ ಅನಿಸಿಕೆಗಳನ್ನು ಆಧರಿಸಿದೆ ಎಂಬುದನ್ನು ದಯವಿಟ್ಟು ಗಮನಿಸಿ, ಸರಿಯಾದ ಅಥವಾ ತಪ್ಪು ಉತ್ತರವಿಲ್ಲ. ನಿಮ್ಮ ಉತ್ತರಗಳು ಸಂಪೂರ್ಣವಾಗಿ ಸ್ವಯಂಪ್ರೇರಿತವಾಗಿವೆ.	वाचा: या विभागात, आम्ही आपल्या मोबाइल फोनच्या वापराबद्दल विचारू इच्छितो. पुन्हा, कृपया लक्षात घ्या की हे फक्त आपल्या मतानवर आधारित आहे, कोणतेही योग्य किंवा चुकीचे उत्तर नाही. आपली उत्तरे पूर्णपणे ऐच्छिक आहेत.
select_one choices_C1	C1	How frequently do you use your mobile phone?	మీరు మీ మొబైల్ ఫోన్‌ను ఎంత తరచుగా ఉపయోగిస్తున్నారు?	ನಿಮ್ಮ ಮೊಬೈಲ್ ಫೋನ್ ಅನ್ನು ನೀವು ಎಷ್ಟು ಬಾರಿ ಬಳಸುತ್ತೀರಿ?	आपण आपला मोबाइल फोन किती वेळा वापरता?
select_one choices_C2	C2	If you need to choose, what do you prefer: texting or calling?	మీరు ఎంచుకోవాల్సిన అవసరం ఉంటే, మీరు ఏమి ఇష్టపడతారు: టెక్స్టింగ్ లేదా కాల్ చేయడం?	ಸಂದೇಶ ಕಳುಹಿಸುವುದು ಅಥವಾ ಕರೆ ಮಾಡುವುದು, ಇವೆರೆಡರಲ್ಲಿ ನಿಮಗೆ ಯಾವುದು ಸುಲಭ ಅಥವಾ ಯಾವುದಕ್ಕೆ ನೀವು ಆದ್ಯತೆ ಕೊಡುತ್ತೀರಾ ?	आपल्याला निवडण्याची आवश्यकता असल्यास, आपण काय प्राधान्य देता: मजकूर पाठवणे किंवा कॉल करणे?
select_multiple choices_C3	C3	What do you regularily use your phone for?	మీరు మీ ఫోన్‌ను క్రమం తప్పకుండా దేని కోసం ఉపయోగిస్తున్నారు?	ನಿಮ್ಮ ಫೋನ್ ಅನ್ನು ನೀವು ಸಾಮಾನ್ಯವಾಗಿ ಯಾವುದಕ್ಕೆ ಉಪಯೋಗಿಸುತ್ತೀರಿ ?	आपण नियमितपणे आपला फोन कशासाठी वापरता?
text	C4	Kindly name the three apps that you use most.	మీరు ఎక్కువగా ఉపయోగించే మూడు యాప్ ల పేరు చెప్పండి	ನೀವು ಹೆಚ್ಚು ಬಳಸುವ ಮೂರು ಅಪ್ಲಿಕೇಶನ್‌ಗಳನ್ನು(App) ದಯವಿಟ್ಟು ಹೆಸರಿಸಿ.	कृपया आपण सर्वाधिक वापरत असलेल्या तीन ॲप्स ची नावे सांगा.
select_multiple choices_C5	C5	What kind of information do you mostly search for on the internet?	మీరు ఎక్కువగా ఇంటర్నెట్‌లో ఏ రకమైన సమాచారం కోసం శోధిస్తారు?	ನೀವು ಹೆಚ್ಚಾಗಿ ಅಂತರ್ಜಾಲದಲ್ಲಿ ಯಾವ ರೀತಿಯ ಮಾಹಿತಿಯನ್ನು ಹುಡುಕುತ್ತೀರಿ?	आपण बहुधा कोणत्या प्रकारची माहिती इंटरनेटवर शोधता?
select_one choices_yesnoother	C6	Has your usage of the phone increased during the COVID-19 pandemic?	COVID-19 మహమ్మారి సమయంలో మీ ఫోన్ ఉపయోగించడం పెరిగిందా?	ಕೋವಿಡ್ -19 ಸಾಂಕ್ರಾಮಿಕ ಸಮಯದಲ್ಲಿ ನಿಮ್ಮ ಫೋನ್ ಬಳಕೆ ಹೆಚ್ಚಾಗಿದೆಯೇ ?	COVID-19 (साथीचा रोग) सर्व देशभर असलेला दरम्यान आपला फोन वापर वाढला आहे का?
select_multiple choices_C7	C7	Is there anything that constraints your use of your mobile phone?	మీ మొబైల్ ఫోన్ వాడకాన్ని అడ్డుకునే ఏదైనా ఉందా?	ನಿಮ್ಮ ಮೊಬೈಲ್ ಫೋನ್ ಬಳಕೆಗೆ ಅಡಚಣೆ ಏನಾದರು ಇದೆಯೇ ?	आपल्या मोबाइल फोनच्या वापरास प्रतिबंधित असे काही आहे का?

select_one choices_yesno	C8	Do you feel that you are getting more proficient using your mobile phone over time?	కాలక్రమేణా మీరు మీ మొబైల్ ఫోన్‌ను ఉపయోగించడం ద్వారా మరింత నైపుణ్యం పొందుతున్నారని మీకు అనిపిస్తుందా?	ಸಮಯ ಕಳೆದಂತೆ ಮೊಬೈಲ್ ಫೋನ್ ಬಳಸುವುದರಲ್ಲಿ ನಿಮ್ಮ ಪರಿಣಿತಿ ಹೆಚ್ಚಾಗುತ್ತಿದೆ ಎಂದು ನಿಮಗೆ ಅನ್ನಿಸುತ್ತಿದೆಯೇ ?	आपल्याला असे वाटते की कालांतराने आपला मोबाइल फोन वापरुन आपण अधिक कुशल होत आहात?
select_multiple choices_C9	C9	What benefit has using a mobile phone on you?	మొబైల్ ఫోన్‌ను ఉపయోగించడం వల్ల మీ కు ఏమి ప్రయోజనం?	ಮೊಬೈಲ್ ಫೋನ್ ಬಳಸುವುದರಿಂದ ನಿಮಗೆ ಆಗುತ್ತಿರುವ ಪ್ರಯೋಜನಗಳೇನು ?	आपण मोबाइल फोन वापरल्याने काय फायदे होत आहेत.
text	C9_1	Are there any other important benefits you would like to mention?	మీరు చెప్పవలసిన ఇతర ముఖ్యమైన ప్రయోజనాలు ఏమైనా ఉన్నాయా?	ನೀವು ತಿಳಿಸಬಯಸುವ ಇನ್ನು ಯಾವುದಾದರು ಪ್ರಮುಖ ಪ್ರಯೋಜನಗಳಿವೆಯೇ?	आपण उल्लेख करू इच्छित असे कोणतेही इतर महत्त्वपूर्ण फायदे आहेत?
select_multiple choices_C10	C10	What negative effects has using a mobile phone on you?	మొబైల్ ఫోన్‌ను ఉపయోగించడం వల్ల మీ పై ఎలాంటి ప్రతికూల ప్రభావాలు పడ్డాయి?	ಮೊಬೈಲ್ ಫೋನ್ ಬಳಸುವುದರಿಂದ ನಿಮಗೇನಾದರೂ ದುಷ್ಪರಿಣಾಮಗಳಾಗಿವೆಯೇ ?	आपल्यावर मोबाइल फोन वापरल्याने कोणते नकारात्मक प्रभाव पडतात?
text	C10_1	Are there any other important negative effects you would like to mention?	మీరు చెప్పదలచిన ఇతర ముఖ్యమైన ప్రతికూల ప్రభావాలు ఏమైనా ఉన్నాయా?	ನೀವು ತಿಳಿಸಬಯಸುವ ಇನ್ನು ಯಾವುದಾದರು ಪ್ರಮುಖ ದುಷ್ಪರಿಣಾಮಗಳಾಗಿವೆಯೇ ?	आपण उल्लेख करू इच्छित असे इतर कोणतेही महत्त्वपूर्ण नकारात्मक प्रभाव आहेत?
text	D	**Read:** In this final section, I would like to ask you about the use of your phone for farming.	ఈ చివరి విభాగంలో, మీ ఫోన్‌ను వ్యవసాయం కోసం ఉపయోగించడం గురించి నేను మిమ్మల్ని అడగాలనుకుంటున్నాను.	ಓದಿರಿ: ಈ ಅಂತಿಮ ವಿಭಾಗದಲ್ಲಿ, ನಾನು ನಿಮ್ಮ ಫೋನ್ ಅನ್ನು ಕೃಷಿಗೆ ಬಳಸುವುದರ ಬಗ್ಗೆ ಪ್ರಶ್ನೆಗಳನ್ನು ಕೇಳಲು ಬಯಸುತ್ತೇನೆ.	वाचा: या अंतिम विभागात, मी आपल्याला शेतीसाठी आपला फोन वापरण्याबद्दल विचारू इच्छितो.
select_one choices_yesnoother	D1	For your farming activities, do you think having a mobile phone is important?	మీ వ్యవసాయ కార్యకలాపాల కోసం, మొబైల్ ఫోన్ కలిగి ఉండటం ముఖ్యమని మీరు అనుకుంటున్నారా	ನಿಮ್ಮ ಕೃಷಿ ಚಟುವಟಿಕೆಗಳಿಗಾಗಿ, ಮೊಬೈಲ್ ಫೋನ್ ಹೊಂದಿರುವುದು ಮುಖ್ಯ ಎಂದು ನೀವು ಭಾವಿಸುತ್ತೀರಾ?	COVID-19 (साथीचा रोग) सर्व देशभर असलेला दरम्यान आपला फोन वापर वाढला आहे का?
select_one choices_yesnoother	D2_1	Do you receive or access weather forecasts with your mobile phone?	మీరు మీ మొబైల్ ఫోన్‌తో వాతావరణ సూచనలను స్వీకరించారా లేదా అదుబాటు వుందా?	ನಿಮ್ಮ ಮೊಬೈಲ್ ಫೋನ್‌ನಲ್ಲಿ ಹವಾಮಾನ ಮುನ್ಸೂಚನೆಗಳನ್ನು ಬರುತ್ತವೆಯೇ ?	आपण आपल्या मोबाइल फोन द्वारे हवामान अंदाज प्राप्त करू शकता का ?
select_multiple choices_medium	D2_2	How do you receive or access weather forecasts?	వాతావరణ సూచనలను మీరు ఎలా స్వీకరిస్తారు లేదా యాక్సెస్ చేస్తారు	ಹವಾಮಾನ ಮುನ್ಸೂಚನೆಗಳನ್ನು ನಿಮಗೆ ಹೇಗೆ ಬರುತ್ತವೆ?	आपण हवामान अंदाज कसे प्राप्त करता ?
select_one choices_scale2	D2_3	Do you act on the weather forecast you receive? For example, when rain is predicted, do you not irrigate your field?	మీరు అందుకున్న వాతావరణ సూచనపై మీరు పనిచేస్తారా? ఉదాహరణకు, వర్షం వస్తుందని అంచనా వేసినప్పుడు, మీరు మీ పొలానికి నీరు కట్టరా ?	ನಿಮಗೆ ಮೊಬೈಲ್ ಮೂಲಕ ಬರುವ ಹವಾಮಾನ ಮುನ್ಸೂಚನೆಯ ಆಧಾರದ ಮೇಲೆ ನೀವು ಕಾರ್ಯನಿರ್ವಹಿಸುತ್ತೀರಾ? ಉದಾಹರಣೆಗೆ, ಮಳೆ ಮುನ್ಸೂಚನೆಯಾದಾಗ, ನಿಮ್ಮ ಬೆಳೆಗೆ ನೀರು ಹಾಯಿಸದೇ ಇರುವುದು.	आपण प्राप्त झालेल्या हवामान अंदाजानुसार आपण कृती करता? उदाहरणार्थ, जेव्हा पावसाचा अंदाज वर्तविला जातो, तेव्हा आपण आपल्या शेतात सिंचना करीत नाही?
select_one choices_yesnoother	D3_1	Do you receive or access any farming recommendations, advice or best practices with your mobile phone?	మీరు మీ మొబైల్ ఫోన్‌తో ఏదైనా వ్యవసాయ సిఫార్సులు, సలహాలు లేదా ఉత్తమ పద్ధతులను స్వీకరించారా లేదా యాక్సెస్ చేస్తున్నారా?	ನಿಮ್ಮ ಮೊಬೈಲ್ ನಲ್ಲಿ ನಿಮಗೆ ಕೃಷಿ ಗೆ ಸಂಬಂಧಿಸಿದ ಯಾವುದಾದರು ಶಿಫಾರಸ್ಸು,ಸಲಹೆ ಅಥವಾ ಉತ್ತಮ ಬೇಸಾಯ ಪದ್ಧತಿಗಳ ಬಗ್ಗೆ ಮಾಹಿತಿ ಬರುತ್ತದೆಯೇ ?	आपल्याला मोबाइल फोनमधून कोणत्याही शेतीविषयक शिफारसी, सल्ला किंवा सर्वोत्तम सराव प्राप्त करता येतो का ?
select_multiple choices_medium	D3_2	How do you receive or access the recommendations, advice or best practices?	మీరు సిఫార్సులు, సలహాలు లేదా ఉత్తమ పద్ధతులను ఎలా స్వీకరిస్తారు లేదా యాక్సెస్ చేస్తారు?	ಕೃಷಿ ಗೆ ಸಂಬಂಧಿಸಿದ ಯಾವುದಾದರು ಶಿಫಾರಸ್ಸು,ಸಲಹೆ ಅಥವಾ ಉತ್ತಮ ಬೇಸಾಯ ಪದ್ಧತಿಗಳ ಬಗ್ಗೆ ಮಾಹಿತಿ ನಿಮಗೆ ಹೇಗೆ ಬರುತ್ತವೆ?	आपण शिफारसी, सल्ले किंवा सर्वोत्तम पद्धती कशा प्राप्त करता ?
select_one choices_scale2	D3_3	Do you adopt recommended best practices and advice?	మీరు సిఫార్సు చేసిన ఉత్తమ పద్ధతులు మరియు సలహాలను అవలంబిస్తున్నారా?	ನಿಮಗೆ ಮೊಬೈಲ್ ಮೂಲಕ ಬಂದ ಕೃಷಿ ಸಂಬಂಧಿತ ಶಿಫಾರಸ್ಸು ಸಲಹೆ ಅಥವಾ ಉತ್ತಮ ಬೇಸಾಯ ಪದ್ಧತಿಗಳನ್ನು ನೀವು ಅಳವಡಿಸಿಕೊಳ್ಳುತ್ತೀರಾ?	आपण शिफारस केलेल्या सर्वोत्तम पद्धती आणि सल्ले अवलंबता का?
select_one choices_yesnoother	D4_1	Do you use your mobile phone to compare prices or/and buy inputs, e.g. fertilisers or pesticides?	ధరలను పోల్చడానికి లేదా / మరియు ఇన్‌పుట్‌లను కొనడానికి మీరు మీ మొబైల్ ఫోన్‌ను ఉపయోగిస్తున్నారా, ఉదా. ఎరువులు లేదా పురుగుమందులు?	ಕೃಷಿ ಉತ್ಪನ್ನ ಗಳ ಬೆಲೆಗಳನ್ನು ಹೋಲಿಸಲು ಅಥವಾ / ಮತ್ತು ಪರಿಕರಗಳನ್ನು ಖರೀದಿಸಲು ನಿಮ್ಮ ಮೊಬೈಲ್ ಫೋನ್ ಬಳಸುತ್ತೀರಾ, ಉದಾ. ರಸಗೊಬ್ಬರಗಳು ಅಥವಾ ಕೀಟನಾಶಕಗಳು?	आपण आपला मोबाइल फोन किंमतींची तुलना करण्यासाठी किंवा इनपुट खरेदी करण्यासाठी वापरता का, उदा. खते किंवा कीटकनाशके?
select_multiple choices_medium	D4_2	How do you use it?	మీరు దీన్ని ఎలా ఉపయోగిస్తున్నారు?	ನೀವು ಅದನ್ನು ಹೇಗೆ ಬಳಸುತ್ತೀರಿ?	आपण ते कसे वापराल?

select_one choices_scale2	D4_3	Do you get better prices for inputs when comparing cost or directly buying inputs via mobile phone?	ఖర్చును పోల్చినప్పుడు లేదా మొబైల్ ఫోన్ ద్వారా నేరుగా ఇన్పుట్లను కొనుగోలు చేసేటప్పుడు మీరు ఇన్పుట్లకు మంచి ధరలను పొందుతారా?	ಇತರೆ ಮೂಲಗಳಿಂದ ಖರೀದಿಸಿದಾಗ ಬೆಲೆ ಹೋಲಿಕೆ ಮಾಡಿದರೆ , ಮೊಬೈಲ್ ಫೋನ್ ಮೂಲಕ ನೇರವಾಗಿ ಪರಿಕರಗಳನ್ನು ಖರೀದಿಸಿದಾಗ ಪರಿಕರಗಳು ಕಡಿಮೆ ಬೆಲೆಗೆ ಸಿಗುತ್ತವೆ?	किंमतीची तुलना मोबाइल फोनद्वारे इनपुट खरेदी करता तेव्हा आपल्याला निविष्ठ किंमती चांगली मिळतात?
select_one choices_yesnoother	D5_1	Do you use your mobile phone for the marketing and selling of tomatoes?	టమోటాల మార్కెటింగ్ మరియు అమ్మకం కోసం మీరు మీ మొబైల్ ఫోన్‌ను ఉపయోగిస్తున్నారా?	ಟೊಮ್ಯಾಟೊ ಮಾರಾಟಕ್ಕಾಗಿ ನಿಮ್ಮ ಮೊಬೈಲ್ ಫೋನ್ ಬಳಸುತ್ತೀರಾ?	आपण आपला मोबाइल फोन टोमॅटोच्या मार्केटिंग आणि विक्रीसाठी वापरता का ?
select_multiple choices_D5_2	D5_2	How do you market or sell tomatoes with your mobile phone?	మీరు మీ మొబైల్ ఫోన్‌తో టమోటాలను ఎలా మార్కెట్ చేస్తారు లేదా విక్రయిస్తారు?	ನಿಮ್ಮ ಮೊಬೈಲ್ ಫೋನ್ ಮೂಲಕ ನೀವು ಟೊಮ್ಯಾಟೊ ಹೇಗೆ ಮಾರಾಟ ಮಾಡುತ್ತೀರಿ ?	आपण आपल्या मोबाइल फोनसह टोमॅटोची मार्केटिंग किंवा विक्री कशी करता?
select_one choices_scale2	D5_3	Do you get better prices when marketing or selling your tomatoes directly with your mobile phone?	మీ టమోటాలను మీ మొబైల్ ఫోన్‌తో నేరుగా మార్కెటింగ్ చేసేటప్పుడు లేదా విక్రయించేటప్పుడు మీకు మంచి ధరలు లభిస్తాయా?	ನಿಮ್ಮ ಮೊಬೈಲ್ ಫೋನ್ ಮೂಲಕ ನೀವು ಟೊಮ್ಯಾಟೊ ನೇರವಾಗಿ ಮಾರಾಟ ಮಾಡಿದಾಗ ಉತ್ತಮ ಬೆಲೆಗಳನ್ನು ಪಡೆಯುತ್ತೀರಾ?	आपल्या मोबाइल फोनवरून थेट टोमॅटोचे विपणन किंवा विक्री करता तेव्हा आपल्याला चांगल्या किंमती मिळतात का ?
select_one choices_yesnoother	D6_1	Do you receive or access information about government subsidies or support schemes for agriculture with your mobile phone?	మీరు మీ మొబైల్ ఫోన్‌తో ప్రభుత్వ రాయితీలు లేదా వ్యవసాయం కోసం సహాయ పథకాల గురించి సమాచారాన్ని స్వీకరిస్తున్నారా లేదా యాక్సెస్ చేస్తున్నారా?	ನಿಮ್ಮ ಮೊಬೈಲ್ ಫೋನ್ ಮೂಲಕ ಸರ್ಕಾರದ ಸಬ್ಸಿಡಿಗಳು ಅಥವಾ ಕೃಷಿಗೆ ಬೆಂಬಲ ಯೋಜನೆಗಳ ಬಗ್ಗೆ ಮಾಹಿತಿಗಳು ನಿಮಗೆ ಬರುತ್ತವೆಯೇ ?	आपण आपल्या मोबाइल फोनद्वारे शेतीसाठी सरकारी अनुदान किंवा समर्थन योजनांविषयी माहिती प्राप्त करता किंवा प्रवेश करता?
select_multiple choices_D6_2	D6_2	Where does the information about government support schemes or support come from or how to you access them?	ప్రభుత్వ సహాయ పథకాలు లేదా మద్దతు గురించి సమాచారం ఎక్కడ నుండి వస్తుంది లేదా మీరు వాటిని ఎలా యాక్సెస్ చేయాలి?	ಸರ್ಕಾರದ ಸಬ್ಸಿಡಿಗಳು ಅಥವಾ ಕೃಷಿಗೆ ಬೆಂಬಲ ಯೋಜನೆಗಳ ಬಗ್ಗೆ ಮಾಹಿತಿಗಳು ಎಲ್ಲಿಂದ ಬರುತ್ತವೆ ಅಥವಾ ನೀವು ಅವುಗಳನ್ನು ಹೇಗೆ ಪಡೆಯುತ್ತೀರಾ ?	शासकीय समर्थन योजना किंवा समर्थनाविषयीची माहिती कोठून येते किंवा आपण त्यामध्ये प्रवेश कसा कराल?
select_one choices_yesnoother	D6_3	Does it provide you with information you would usually not know about?	ఇది మీకు సాధారణంగా తెలియని సమాచారాన్ని మీకు అందిస్తుందా?	ನೀವು ಸಾಮಾನ್ಯವಾಗಿ ತಿಳಿದಿಲ್ಲದ ಮಾಹಿತಿಯನ್ನು ಅವು ನಿಮಗೆ ಒದಗಿಸುತ್ತವೆಯೇ ?	हे आपल्याला सहसा माहिती नसते अशी माहिती प्रदान करते?
text	D7	What apps do you use for farming purposes or during farming activities?	వ్యవసాయ ప్రయోజనాల కోసం లేదా వ్యవసాయ కార్యకలాపాల సమయంలో మీరు ఏఏ ఆప్ లను ఉపయోగిస్తున్నారు?	ಕೃಷಿ ಉದ್ದೇಶಗಳಿಗಾಗಿ ಅಥವಾ ಕೃಷಿ ಚಟುವಟಿಕೆಗಳಲ್ಲಿ ನೀವು ಯಾವ ಅಪ್ಲಿಕೇಶನ್‌ಗಳನ್ನು ಬಳಸುತ್ತೀರಿ?	आपण शेतीसाठी किंवा शेतीच्या कामांसाठी कोणते ॲप्स वापरता?
select_multiple choices_D8	D8	What are the reasons why you do not receive or access some of the functions, information or services for farming with your mobile phone?	మీ మొబైల్ ఫోన్‌తో వ్యవసాయం కోసం మీరు కొన్ని విధులు, సమాచారం లేదా సేవలను అందుకోకపోవడానికి లేదా యాక్సెస్ చేయకపోవడానికి గల కారణాలు ఏమిటి?	ನಿಮ್ಮ ಮೊಬೈಲ್ ಫೋನ್ ನಲ್ಲಿ ಬೇಸಾಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದ ವಿಷಯ ಅಥವಾ ಸೇವೆಗಳ ಮಾಹಿತಿ ಬರದೆ ಇರಲು ಕಾರಣಗಳೇನು?	आपण आपल्या मोबाइल फोनसह शेतीसाठी काही कार्ये, माहिती किंवा सेवांचा वापर नाही करण्याची कारणे कोणती आहेत?
text	D8_1	Please specifiy and name concrete reasons.	కచ్చితమైన కారణాలను దయచేసి పేర్కొనండి	ದಯವಿಟ್ಟು ನಿರ್ದಿಷ್ಟ ಕಾರಣಗಳನ್ನು ಹೆಸರಿಸಿ.	कृपया ठोस कारणे निर्दिष्ट करा .
select_one choices_yesnoother	D9	Does someone else from your family receive or access any farming services or advisory with her/his mobile phone?	మీ కుటుంబానికి చెందిన మరొకరు ఆమె / అతని మొబైల్ ఫోన్‌తో ఏదైనా వ్యవసాయ సేవలు లేదా సలహాలను పొందినారా లేదా అవకాశం వుందా ?	ನಿಮ್ಮ ಕುಟುಂಬದ ಇತರೆ ಸದಸ್ಯರು ಮೊಬೈಲ್ ಫೋನ್ ಮೂಲಕ ಯಾವುದಾದರೂ ಕೃಷಿ ಸೇವೆಗಳನ್ನು ಅಥವಾ ಸಲಹೆಯನ್ನು ಪಡೆಯುತ್ತಿದ್ದಾರೆಯೇ ?	तुमच्या कुटुंबातील दुसऱ्या एखाद्याने तिच्या / त्याच्या मोबाइल फोनवर कोणत्याही शेती सेवा किंवा सल्ला प्राप्त केले किंवा त्याचा वापर केला का ?
select_one choices_scale2	D10	Do you think that a mobile phone speeds up your farming work?	మొబైల్ ఫోన్ మీ వ్యవసాయ పనిని వేగవంతం చేస్తుందని మీరు భావిస్తున్నారా ?	ಮೊಬೈಲ್ ಫೋನಿನಿಂದಾಗಿ ನಿಮ್ಮ ಕೃಷಿ ಕೆಲಸಗಳು ಹೆಚ್ಚು ತ್ವರಿತವಾಗಿ ನಡೆಯುತ್ತಿವೆಯೆಂದು ನಿಮಗೆ ಅನ್ನಿಸುತ್ತಿದೆಯೇ?	आपणास असे वाटते की मोबाइल फोन आपल्या शेतीच्या कामास गती देतो?
select_one choices_yesnoother	D11	Does having a mobile phone make your farming work more enjoyable?	మొబైల్ ఫోన్ కలిగి ఉండటం వల్ల మీ వ్యవసాయం మరింత ఆనందదాయకంగా ఉంటుందా?	ಮೊಬೈಲ್ ಫೋನಿನಿಂದಾಗಿ ನಿಮ್ಮ ಕೃಷಿ ಕೆಲಸಗಳು ಹೆಚ್ಚು ಸಂತೋಷದಾಯಕವಾಗುತ್ತಿವೆ ಎಂದು ನಿಮಗನ್ನಿಸುತ್ತದೆಯೇ?	मोबाईल फोन असण्यामुळे आपली शेती अधिक मनोरंजक आहे?
select_one choices_scale2	D12	Do you use your phone for entertainment during farming work times, e.g. listening to music or radio?	వ్యవసాయ పని సమయాల్లో వినోదం కోసం మీరు మీ ఫోన్‌ను ఉపయోగిస్తున్నారా, ఉదా. సంగీతం లేదా రేడియో వింటున్నారా?	ಕೃಷಿ ಕೆಲಸಗಳ ಸಂದರ್ಭದಲ್ಲಿ ಮನರಂಜನೆಗಾಗಿ ನೀವು ನಿಮ್ಮ ಮೊಬೈಲ್ ಫೋನ್ ಅನ್ನು ಉಪಯೋಗಿಸುವಿರಾ? ಉದಾ: ಸಂಗೀತ ಅಥವಾ ರೇಡಿಯೋ ಕೇಳಲು	आपण आपला फोन शेतीच्या कामाच्या वेळी करमणुकीसाठी वापरता, उदा. संगीत किंवा रेडिओ ऐकत आहात?

select_one choices_scale3	D13	Does having a phone overall changed your farming?	మొత్తంగా ఫోన్ కలిగి ఉండటం వల్ల మీ వ్యవసాయం చేయు పద్ధతులు మారినాయా?	ಒಟ್ಟಾರೆಯಾಗಿ ಮೊಬೈಲ್ ಫೋನ್ ಬಳಕೆಯಿಂದಾಗಿ ನಿಮ್ಮ ಕೃಷಿ ಪದ್ಧತಿ ಬದಲಾಗಿದೆಯೇ?	एकंदरीत फोन आल्याने आपली शेती बदलली आहे?
select_one choices_yesnoother	D13_1	In a positive or negative way?	సానుకూల మార్పా లేదా ప్రతికూల మార్పా?	ಒಂದು ಧನಾತ್ಮಕ ಅಥವಾ ಋಣಾತ್ಮಕ ಅರ್ಥದಲ್ಲಿ?	सकारात्मक किंवा नकारात्मक मार्गाने?
select_one choices_scale3	D14	Are you interested in relying more on your mobile phone for farming in the future?	భవిష్యత్తులో వ్యవసాయం కోసం మీ మొబైల్ ఫోన్‌పై ఎక్కువ ఆధారపడటానికి మీకు ఆసక్తి ఉందా?	ಭವಿಷ್ಯದಲ್ಲಿ ಕೂಡಾ ನಿಮ್ಮ ಕೃಷಿ ಅಗತ್ಯತೆಗಳಿಗಾಗಿ ಮೊಬೈಲ್ ಫೋನ್ ಬಳಸಲು ನಿಮಗೆ ಆಸಕ್ತಿಯಿದೆಯೇ?	आपणास भविष्यात शेतीसाठी आपल्या मोबाईल फोनवर अधिक अवलंबून राहण्यास रस आहे काय?
text	D15	Do you want to leave a final comment?	చివరిగా మీరు ఏమైనా చెప్పాలని అనుకుంటున్నారా ?	ಒಂದು ಕೊನೆಯ ಅಭಿಪ್ರಾಯ ವ್ಯಕ್ತಪಡಿಸಲು ಇಚ್ಛಿಸುವಿರಾ?	आपण अंतिम टिप्पणी देऊ इच्छिता का ?
text	FINNISH	**Read:** Thank you so much for participating in the study. If you wish to receive more information about the study, feel free to connect with Vanessa Berghoff via e-Mail (v.berghoff@icloud.com) or Facebook.	ఈ అధ్యయనంలో పాల్గొన్నందుకు చాలా ధన్యవాదాలు. మీరు అధ్యయనం గురించి మరింత సమాచారం పొందాలనుకుంటే, Vanessa Berghoff via e-Mail (v.berghoff@icloud.com) or Facebook. ద్వారా కలవడానికి సంకోచించకండి	**ಓದಿ:** ಈ ಅಧ್ಯನದಲ್ಲಿ ಪಾಲ್ಗೊಂಡಿದ್ದಕ್ಕಾಗಿ ನಿಮಗೆ ಧನ್ಯವಾದಗಳು. ಈ ಅಧ್ಯನದ ಕುರಿತು ಹೆಚ್ಚಿನ ಮಾಹಿತಿ ಪಡೆದುಕೊಳ್ಳುವ ಸಲುವಾಗಿ ನೀವು ವೆನೆಸ್ಸಾ ಬರ್ಗಾಫ್ ಅವರನ್ನು ಮಿಂಚಂಚೆ (v.berghoff@icloud.com)ಅಥವಾ ಫೇಸ್ಬುಕ್ ನಲ್ಲಿ ನಿಶ್ಚಿತವಾಗಿಯೂ ಸಂಪರ್ಕಿಸಬಹುದು	वाचा: अभ्यासात भाग घेतल्याबद्दल तुमचे आभारी आहे आपल्याला अभ्यासाबद्दल अधिक माहिती मिळवायची असेल तर मोकळ्या मनाने Vanessa Berghoff ई-मेल (v.berghoff@icloud.com) किंवा फेसबुकद्वारे कनेक्ट करा.

C.2 Choices

list_name	label::English	label::Telugu	label::Kannada	label::Marathi
choices_yes	Yes	हो	ಹೌದು	అవును
choices_yesno	Yes	हो	ಹೌದು	అవును
choices_yesno	No	नाही	ಇಲ್ಲ	లేదు
choices_yesend	Yes	हो	ಹೌದು	అవును
choices_yesend	No - end of the survey	नाही - सर्वेक्षण समाप्त	ಇಲ್ಲ - ಸಮೀಕ್ಷೆಯ ಅಂತ್ಯ	లేదు - సర్వే ముగింపు
choices_yesnoother	Yes	हो	ಹೌದು	అవును
choices_yesnoother	No	नाही	ಇಲ್ಲ	లేదు
choices_yesnoother	No answer	उत्तर माहित नाही	ಉತ್ತರಿಸಲು ಬಯಸುವುದಿಲ್ಲ	సమాధానము ఇవ్వలేదు
choices_scale1	Advanced	प्रगत	ಮುಂದುವರಿದ	చాలా బాగా తెలుసు
choices_scale1	Basic	मूलभूत	ಮೂಲಭೂತ	కొంత తెలుసు
choices_scale1	Not at all	अजिबात नाही	ಇಲ್ಲವೇ ಇಲ್ಲ	ఏమీ తెలీదు
choices_scale2	Always	नेहमी	ಯಾವಾಗಲೂ	ఎల్లప్పుడు
choices_scale2	Often	अनेकदा	ಆಗಾಗ	అప్పుడప్పుడు
choices_scale2	Sometimes	कधीकधी	ಕೆಲವೊಮ್ಮೆ	కొన్ని సార్లు
choices_scale2	Rarely	क्वचित	ಅಪರೂಪಕ್ಕೊಮ್ಮೆ	అరుదుగా
choices_scale2	Never	कधीही नाही	ಯಾವಾಗಲೂ ಇಲ್ಲ	ఎప్పుడూ లేదు
choices_scale3	Very likely	खूप शक्यता	ಬಹಳಷ್ಟು ಸಾಧ್ಯವಿದೆ	చాలా మటుకు
choices_scale3	Likely	शक्यतो	ಸಾಧ್ಯವಿದೆ	అవకాశం
choices_scale3	Neutral	तटस्थ	ತಟಸ್ಥ	తటస్థ
choices_scale3	Unlikely	असंभव्य	ಸಾಧ್ಯತೆಗಳು ಇಲ್ಲ	అవకాశం లేదు
choices_scale3	Very unlikely	फारच संभव नाही	ಸಾಧ್ಯತೆಗಳು ಬಹಳಷ್ಟು ಕಡಿಮೆ	చాలా అరుదు
choices_Surveyor				
choices_State	AndhraPradesh	AndhraPradesh	AndhraPradesh	AndhraPradesh
choices_State	Maharashtra	Maharashtra	Maharashtra	Maharashtra
choices_State	Karnataka	Karnataka	Karnataka	Karnataka
choices_village				
choices_farmer				
choices_PhoneStatus	Call answered	कॉलला उत्तर दिले	ಕರೆಯನ್ನು ಉತ್ತರಿಸಿದ್ದಾರೆ	కాల్ కు సమాధానం ఇచ్చింది
choices_PhoneStatus	Phone off, not answering or busy	फोन बंद, उत्तर देत नाही किंवा व्यस्त आहे	ಫೋನು ಸ್ವಿಚ್ ಆಫ್ ಆಗಿದೆ ಅಥವಾ ಬ್ಯುಸಿ ಇದೆ ಅಥವಾ ಕರೆಯನ್ನು ಉತ್ತರಿಸುತ್ತಿಲ್ಲ	ఫోన్ ఆఫ్ చేయబడినది, సమాధానం ఇవ్వడంలేదు లేదా బిజీగా ఉంది
choices_PhoneStatus	Wrong number or out of service	चुकीचा नंबर किंवा सेवाबाह्य	ರಾಂಗ್ ನಂಬರ್ ಅಥವಾ ಫೋನು ಸರ್ವೀಸಿನಲ್ಲಿ ಇಲ್ಲ	తప్పు సంఖ్య లేదా సేవలు నిలిపి వేయబడినవి
choices_Q2	Yes, I have my own mobile phone	होय, माझा स्वत: चा मोबाइल फोन आहे	ಹೌದು, ನಾನು ನನ್ನ ಸ್ವಂತ ಮೊಬೈಲ್ ಫೋನ್ ಹೊಂದಿದ್ದೇನೆ	అవును, నాకు సొంత మొబైల్ ఫోన్ ఉంది
choices_Q2	Yes, I have access to a phone in the family	होय, मला कुटुंबातील एका फोनचा वापर करतो	ಹೌದು, ನನ್ನ ಕುಟುಂಬದ ಯಾವುದಾದರೂ ಒಂದು ಫೋನ್ ಅನ್ನು ನಾನು ಬಳಸಬಹುದು.	అవును, నాకు కుటుంబంలో ఫోన్ అందుబాటులో ఉంది
choices_Q2	No - end of the survey	नाही - सर्वेक्षण समाप्त	ಇಲ್ಲ - ಸಮೀಕ್ಷೆಯ ಅಂತ್ಯ	లేదు - సర్వే ముగింపు
choices_A1	18-24 years old	18-24 वर्षे	18-24 ವರ್ಷ	18-24 సంవత్సరాలు
choices_A1	25-34 years old	25-34 वर्षे	25-34 ವರ್ಷ	25-34 సంవత్సరాలు
choices_A1	35-44 years old	35-44 वर्षे	35-44 ವರ್ಷ	35 -44 సంవత్సరాలు
choices_A1	45-54 years old	45-54 वर्षे	45-54 ವರ್ಷ	45 -54 సంవత్సరాలు
choices_A1	55-64 years old	55-64 वर्षे	55-64 ವರ್ಷ	55-64 సంవత్సరాలు
choices_A1	Older than 64	64 पेक्षा जास्त	64 ವರ್ಷಕ್ಕಿಂತಲೂ ಅಧಿಕ	64 కన్నా ఎక్కువ
choices_A2	Single	अविवाहित	ಒಂಟಿಯಾಗಿದ್ದೇನೆ	ఒక్కరే
choices_A2	Married	विवाहित	ಮದುವೆಯಾಗಿದೆ	వివాహమైనది
choices_A2	Widowed	विधवा झालेली किंवा विधुर झालेला	ವಿಧವೆ	వితంతువు
choices_A2	Divorced	घटस्फोट घेतलेले	ವಿಚ್ಛೇದಿತ	విడాకులు పొందినారు
choices_A2	No answer	उत्तर देत नाही	ಉತ್ತರಿಸುವುದಿಲ್ಲ	సమాధానం ఇవ్వలేదు
choices_A5	No formal education	औपचारिक शिक्षण नाही	ಯಾವುದೇ ಕ್ರಮಬದ್ಧ ಶಿಕ್ಷಣ ಪಡೆದಿಲ್ಲ	బడికి వెళ్లలేదు
choices_A5	Primary and secondary school (Standard 1 – 7)	प्राथमिक व माध्यमिक शाळा (इयत्ता 1 - 7)	ಪ್ರಾಥಮಿಕ ಶಿಕ್ಷಣ (1-7ನೇ ತರಗತಿ)	ప్రాథమిక మరియు మాధ్యమిక పాఠశాల (తరగతులు 1 - 7)
choices_A5	High school (Standard 8 – 10)	हायस्कूल (इयत्ता 8 - 10)	ಪ್ರೌಢ ಶಿಕ್ಷಣ (8-10ನೇ ತರಗತಿ)	ఉన్నత పాఠశాల (తరగతులు 8 - 10)
choices_A5	Pre university (Standard 11 & 12)	पूर्व विद्यापीठ (इयत्ता 11 व 12)	ಪದವಿ ಪೂರ್ವ ಶಿಕ್ಷಣ (11-12ನೇ ತರಗತಿ)	ఇంటర్మీడియట్ (తరగతులు 8 - 10)
choices_A5	University degree or higher	विद्यापीठ पदवी किंवा उच्च	ವಿಶ್ವವಿದ್ಯಾನಿಲಯದ ಪದವಿ ಅಥವಾ ಅದಕ್ಕೂ ಹೆಚ್ಚಿನ	విశ్వవిద్యాలయ డిగ్రీ లేదా అంతకంటే ఎక్కువ
choices_A5	Other	इतर	ಇತರ	
choices_A5	No answer	उत्तर माहित नाही	ಉತ್ತರಿಸಲು ಬಯಸುವುದಿಲ್ಲ	సమాధానము ఇవ్వలేదు
choices_A8	Pre-Production	पूर्व-उत्पादन	ಉತ್ಪಾದನೆಗೆ ಮುಂಚಿನ	ఉత్పత్తికి ముందు
choices_A8	Production	उत्पादन	ಉತ್ಪಾದನೆ	ఉత్పత్తి
choices_A8	Storage	साठवण	ಸಂಗ್ರಹಣೆ	నిల్వ
choices_A8	Processing	प्रक्रिया करीत आहे	ಸಂಸ್ಕರಣೆ	ప్రాసెసింగ్
choices_A8	Marketing & Sales	विपणन आणि विक्री	ಮಾರುಕಟ್ಟೆ ಹಾಗೂ ವ್ಯಾಪಾರ ಚಟುವಟಿಕೆಗಳು	మార్కెటింగ్ & అమ్మకాలు

choices_A8	Other	इतर	ఇతరే	ఇతరములు
choices_A12	Self	स्वतः	స్వంత	తానే
choices_A12	Husband	पती	పతి	భర్త
choices_A12	Other male relatives	इतर पुरुष नातेवाईक	ఇతర నెంటరు (గండసరు)	ఇతర పురుష బందువులు
choices_A12	Other female relatives	इतर महिला नातेवाईक	ఇతర నెంటరు (మహిళయరు)	ఇతర మహిళా బందువులు
choices_A12	It varies	ते बदलते	అదు బదలాగుత్తిరుత్తద	ఇది మారుతుంది
choices_A12	No answer	उत्तर माहित नाही	ఉత్తరిసలు బయసువుదిల్ల	
choices_A13	Cooking	पाककला	అడుగే మాడువుదు	వంట చేయుట
choices_A13	Washing	धुणे	బట్టె తొళయువుదు	బట్టలు ఉతుకుట
choices_A13	Cleaning	स्वच्छता	స్వచ్ఛ మాడువుదు	శుబ్రము చేయుట
choices_A13	Childcare	लहान मुलांची काळजी	శిశు పాలనే	పిల్లల సంరక్షణ
choices_A13	Elderly care	वृद्धांची काळजी	హిరియర పాలనే	వృద్ధుల సంరక్షణ
choices_A13	Fetching water, fuel or firewood	पाणी, इंधन किंवा सरपण आणत आहे	నీరు, ఇంధన హాగూ సౌద తరువుదు	నీరు, ఇంధనం లేదా కట్టెలు పొందడం
choices_A13	None of the options	ह्या पर्यायपैकी नाही	మేలిన యావుదూ అల్ల	ఎంపికలు ఏవీ సరిపోవు
choices_A13	Does not answer	उत्तर देत नाही	ఉత్తరిసువుదిల్ల	సమాధానం ఇవ్వలేదు
choices_A14	Yes - all year	होय - वर्षभर	హౌదు - వర్షపూర్తి	అవును - సంవత్సరం మొత్తం
choices_A14	Yes - but only outside tomato season	होय - परंतु केवळ टोमॅटोच्या हंगामाच्या बाहेर	హౌదు - ఆదర టొమ్యాటోః సీసన్ హొరతుపడిసి	అవును - కానీ టమోటా సీజన్ వెలుపల మాత్రమే
choices_A14	No	नाही	ఇల్ల	లేదు
choices_A15	Often	अनेकदा	ఆగాగ	అప్పుడప్పుడు
choices_A15	Sometimes	कधीकधी	కెలవొమ్మె	కొన్ని సార్లు
choices_A15	Never	कधीही नाही	ఇల్లవే ఇల్ల	ఎప్పుడూ లేదు
choices_A15	No answer	काहीही नाही	ఉత్తరిసలు బయసువుదిల్ల	
choices_A16	None	नाही	యావుదూ ఇల్ల	లేదు
choices_A16	Bicycle	सायकल	స్కైకల్లు	సైకిలు
choices_A16	Motorbike	मोटारसायकल	బైకు	స్కూటరు
choices_A16	Car	गाडी	కారు	కార్
choices_A16	Tractor	ट्रॅक्टर	ట్యాక్టరు	ట్రాక్టర్
choices_A16	Jeep	जीप	జీపు	జీప్
choices_A17	Almost never: once or twice a year	जवळजवळ कधीही नाही: वर्षातून एकदा किंवा दोनदा	బహుతేక ఇల్లవే ఇల్ల: వర్షక్కె ఒందెరడు బారి మాత్ర	దాదాపు ఎప్పుడూ: సంవత్సరానికి ఒకటి లేదా రెండుసార్లు
choices_A17	Sometimes: every other month	कधीकधी: प्रत्येक इतर महिन्यात	కెలవొమ్మె: ఎరడు తింగళిగొమ్మె	కొన్ని సార్లు: రెండు నెలలకు ఒకసారి
choices_A17	Regular: At least once per month	नियमित: दरमहा किमान एकदा	నియమితవాగి: తింగళిగె ఒమ్మెయాదరూ	రెగ్యులర్: నెలకు ఒకసారి
choices_A17	Often: Every week	सहसा: प्रत्येक आठवड्यात	ఆగాగ: ప్రతి వార	తరచుగా: ప్రతి వారం
choices_A17	Always: Every day or no electricity at all	नेहमी: दररोज किंवा अजिबात वीज नाही	యావాగలూ: ప్రతినిత్య అథవా కరెంటు ఇరువుదే ఇల్ల	ఎల్లప్పుడూ: ప్రతి రోజు లేదా విద్యుత్ లేదు
choices_A18	Excellent	उत्कृष्ट	అత్యుత్తమ	అద్భుతము
choices_A18	Good	चांगले	ఉత్తమ	బాగుంది
choices_A18	Fair	योग्य	సాధారణ	పరవాలేదు
choices_A18	Poor	गरीब	కళపే	పేద
choices_A18	Very poor	अतिशय गरीब	అత్యంత కళపే	నిరుపేద
choices_B1	Basic or feature phone	मूलभूत किंवा वैशिष्ट्य फोन	బేసిక్ ఫోను	సాదారణ లేదా ఫీచర్ ఫోన్
choices_B1	Smartphone	स्मार्टफोन	స్మార్ట్ ఫోను	స్మార్ట్ ఫోన్
choices_B2_1	New	नवीन	హొసదు	కొత్తది
choices_B2_1	Reused	पुन्हा वापरला	ఉపయోగిసిద	పాతది
choices_B2_2	Husband	पती	పతి	భర్త
choices_B2_2	Children	मुले	మక్కళు	పిల్లలు
choices_B2_2	Friends	मित्र	స్నేహితరు	స్నేహితులు
choices_B2_2	None of the options	ह्या पर्यायपैकी नाही	మేలిన యావుదూ అల్ల	ఎంపికలు ఏవీ సరిపోవు
choices_B2_3	Self	स्वतः	స్వంత	నేనే
choices_B2_3	Husband	पती	పతి	భర్త
choices_B2_3	Other	इतर	ఇతరరు	ఇతరులు
choices_B2_4	Pay at once	एकाच वेळी पैसे द्या	ఒందే సలక్కె పావతిసుత్తేనె	ఒకేసారి చెల్లించినాను
choices_B2_4	Save money	पैसे वाचवा	హణ ఉళితాయ మాడుత్తేనె	డబ్బు ఆదా
choices_B2_4	Do not remember	आठवत नाही	నెనపిల్ల	గుర్తు లేదు
choices_C1	At least once a day	दिवसातून एकदा तरी	దినక్కె కనిష్ఠ ఒందు సల	కనీసం రోజుకు ఒకసారి
choices_C1	A few days a week	आठवड्यातून काही दिवस	వారదల్లి ఒందెరడు దిన	వారములో కొన్ని రోజులు
choices_C1	Once a week	आठवड्यातून एकदा	వారక్కొమ్మె	వారమునకు ఒకసారి
choices_C1	Once a month	महिन्यातून एकदा	తింగళిగొమ్మె	నెలకు ఒక సారి
choices_C1	Once a month	महिन्यातून एकदा कमी	తింగళిగె ఒందు సలక్కింతలూ కడిమె	నెలకు ఒకసారి కంటే తక్కువ
choices_C2	Texting	मजकूर पाठवणे	సందేశ కళుహిసలు	సమాచారము పంపుట
choices_C2	Calling	कॉल करीत आहे	కరె మాడలు	మాట్లాడుట
choices_C2	None of the options	ह्या पर्यायपैकी नाही	మేలిన యావుదూ అల్ల	ఎంపికలు ఏవీ సరిపోవు
choices_C3	To keep in touch with family and friends	कुटुंब आणि मित्र संपर्कात रहाण्यासाठी	కుటుంబ సదస్యరు మత్తు మిత్రరొందిగె సంపర్కదల్లిరలు	కుటుంబం మరియు స్నేహితులతో సన్నిహితంగా ఉండటానికి

choices_C3	To coordinate activities, e.g. when to meet	क्रियाकलापांचे समन्वय साधण्यासाठी उदा. कधी भेटायचं	ಚಟುವಟಿಕೆಗಳನ್ನು ಸಂಯೋಜಿಸುವ ಸಲುವಾಗಿ: ಉದಾ - ಯಾವಾಗ ಭೇಟಿ ಮಾಡಬೇಕು?	కార్యకలాపాలను సమన్వయం చేయడానికి, ఉదా. ఎప్పుడు కలుసుకోవాలి
choices_C3	Entertainment, e.g. movies, music, games	करमणूक, उदा. चित्रपट, संगीत, खेळ	ಮನರಂಜನೆಗಾಗಿ: ಉದಾ- ಸಿನೆಮಾ, ಸಂಗೀತ, ಆಟ	వినోదంకొరకు, ఉదా. సినిమాలు, సంగీతం, ఆటలు
choices_C3	Social networking, e.g. Facebook, WhatsApp	सोशल नेटवर्किंग, उदा. फेसबुक, व्हॉट्सॲप	ಜಾಲತಾಣಗಳಲ್ಲಿ ಸಾಮಾಜಿಕ ಸಂಪರ್ಕಕ್ಕಾಗಿ ಉದಾ: ಫೇಸ್ ಬುಕ್, ವಾಟ್ಸ್ಆಪ್	సామాజిక మాధ్యమాలు, ఉదా. ఫేస్‌బుక్, వాట్సాప్
choices_C3	To take pictures and videos	चित्रे आणि व्हिडिओ घेण्यासाठी	ಫೋಟೋ ಮತ್ತು ವಿಡಿಯೋ ತೆಗೆಯುವ ಸಲುವಾಗಿ	చిత్రాలు మరియు వీడియోలు తీయడానికి
choices_C3	Navigation, e.g. to find directions	नॅव्हिगेशन, उदा. दिशानिर्देश शोधण्यासाठी	ಜಾಡು ಪತ್ತೆ ಹಚ್ಚಲು: ಉದಾ - ದಿಕ್ಕುಗಳನ್ನು ಕಂಡುಕೊಳ್ಳಲು	నావిగేషన్, ఉదా. దిశలను కనుగొనడానికి
choices_C3	Online shopping	ऑनलाईन खरेदी	ಆನ್ಲೈನ್ ಶಾಪಿಂಗ್ ಮಾಡಲು	ఆన్‌లైన్ షాపింగ్
choices_C3	To find information	माहिती शोधण्यासाठी	ಮಾಹಿತಿ ಹುಡುಕಲು	సమాచారం కనుగొనడానికి
choices_C3	None of the options	ह्या पर्यायपैकी नाही	ಮೇಲಿನ ಯಾವುದೂ ಅಲ್ಲ	ఎంపికలు ఏవీ సరిపోవు
choices_C5	Cooking instructions	पाककला सूचना	ಅಡುಗೆ ಮಾಹಿತಿಗಾಗಿ	వంట సూచనలు
choices_C5	News	बातमी	ಸುದ್ದಿಗಾಗಿ	వార్తలు వినడానికి
choices_C5	Health	आरोग्य	ಆರೋಗ್ಯ	ఆరోగ్యము
choices_C5	Beauty & fashion	सौंदर्य आणि फॅशन	ಸೌಂದರ್ಯ ಮತ್ತು ಫ್ಯಾಷನ್	అందం & ఫ్యాషన్
choices_C5	Agriculture	शेती	ಕೃಷಿ	వ్యవసాయము
choices_C5	Spelling of words	शब्दांचे शब्दलेखन	ಪದಗಳ ಸ್ಪೆಲಿಂಗ್ ತಿಳಿಯಲು	పదాల స్పెల్లింగ్
choices_C5	Weather forecasts	हवामानाचा अंदाज	ಹವಾಮಾನ ಮುನ್ಸೂಚನೆಗಾಗಿ	వాతావరణ సూచన
choices_C5	None of the options	ह्या पर्यायपैकी नाही	ಮೇಲಿನ ಯಾವುದೂ ಅಲ್ಲ	ఎంపికలు ఏవీ సరిపోవు
choices_C7	Electricity problems	विजेची अडचण	ವಿದ್ಯುಚ್ಛಕ್ತಿ ಸಮಸ್ಯೆಗಳು	విద్యుత్ సమస్యలు
choices_C7	Poor network coverage	खराब नेटवर्क कव्हरेज	ನೆಟ್ವರ್ಕ್ ಸಮಸ್ಯೆಗಳು	నెట్‌వర్క్ కవరేజి సరిగ్గా లేకపోవుట
choices_C7	High cost of operation	ऑपरेशनची उच्च किंमत	ಬಳಕೆಗೆ ತಗಲುವ ಅಧಿಕ ವೆಚ್ಚ	లావాదేవీలకు అధిక వ్యయం
choices_C7	Poor quality and features of the phone	फोनची गुणवत्ता आणि वैशिष्ट्ये	ಫೋನಿನ ಕಳಪೆ ಗುಣಮಟ್ಟ ಮತ್ತು ಕಡಿಮೆ ಫೀಚರುಗಳು	ఫోన్ యొక్క నాణ్యత మరియు లక్షణాలు తక్కువగా వుండుట
choices_C7	Difficulty and complexity of using the phone	फोन वापरण्याची अडचण आणि जटिलता	ಫೋನು ಉಪಯೋಗಿಸಲು ಇರುವ ಕ್ಲಿಷ್ಟತೆಗಳು	ఫోన్‌ను ఉపయోగించడంలో ఇబ్బంది మరియు సంక్లిష్టత
choices_C7	Other family members taking over the phone	कुटुंबातील इतर सदस्य फोन घेत आहेत	ಕುಟುಂಬದ ಇತರೆ ಸದಸ್ಯರು ಫೋನಿನ ಮೇಲೆ ನಿಯಂತ್ರಣ ಸಾಧಿಸುವುದು	ఇతర కుటుంబ సభ్యులు ఫోన్ తీసుకుంటున్నారు
choices_C7	Other	इतर	ಇತರೆ	ఇతరులు
choices_C9	Being more connected with family and friends.	कुटुंब आणि मित्रांशी अधिक संबंध असणे.	ಕುಟುಂಬ ಸದಸ್ಯರು ಮತ್ತು ಮಿತ್ರರೊಡನೆ ಹೆಚ್ಚು ಸಂಪರ್ಕದಲ್ಲಿರುವುದು	కుటుంబం మరియు స్నేహితులతో మరింత దగ్గర అవ్వడం కొరకు
choices_C9	Better income and business opportunities	उत्तम उत्पन्न आणि व्यवसायाच्या संधी	ಹೆಚ್ಚಿನ ಆದಾಯ ಮತ್ತು ಉತ್ತಮ ವ್ಯಾಪಾರದ ಅವಕಾಶಗಳು	మంచి ఆదాయం మరియు వ్యాపార అవకాశాలు
choices_C9	Feeling safer	अधिक सुरक्षित वाटत आहे	ಸುರಕ್ಷಿತ ಭಾವನೆ ಹೊಂದುವುದು	సురక్షితంగా అనిపిస్తుంది
choices_C9	Feeling more independent	अधिक स्वतंत्र वाटत आहे	ಹೆಚ್ಚು ಸ್ವತಂತ್ರ ಭಾವನೆ ಹೊಂದುವುದು	మరింత స్వతంత్రం అనిపిస్తుంది
choices_C9	No positive effects	कोणतेही सकारात्मक परिणाम नाहीत	ಯಾವುದೇ ಧನಾತ್ಮಕ ಪರಿಣಾಮವಿಲ್ಲ	సానుకూల ప్రభావాలు లేవు
choices_C10	Feeling stressed	ताण जाणवत आहे	ಒತ್ತಡದ ಅನುಭವವಾಗುತ್ತಿದೆ	ఒత్తిడికి గురవుతున్నట్లు అనిపిస్తుంది
choices_C10	Unwanted messages and contacts	गरज नसणारे संदेश आणि संपर्क	ಬೇಕಿಲ್ಲದ ಸಂದೇಶಗಳು ಮತ್ತು ಸಂಪರ್ಕಗಳು	అవాంఛిత సందేశాలు మరియు పరిచయాలు
choices_C10	High cost	जास्त किंमत	ಹೆಚ್ಚಿನ ಬೆಲೆ	అధిక వ్యయము
choices_C10	Distraction from work or household duties.	काम किंवा घरगुती कर्तव्ये पासून विचलित.	ಕೆಲಸ ಮತ್ತು ಮನೆಗೆಲಸಗಳಿಂದ ವಿಮುಖರಾಗುವುದು	పని లేదా ఇంటి విధుల నుండి పరధ్యానం.
choices_C10	Spending too much time on it.	त्यावर खूप वेळ घालवत आहे.	ಅದರೊಡನೆ ಅತಿ ಹೆಚ್ಚು ಸಮಯ ಕಳೆಯುವುದು	దానిపై ఎక్కువ సమయం గడపడం.
choices_C10	No negative effects	नकारात्मक प्रभाव नाही	ಯಾವುದೇ ಋಣಾತ್ಮಕ ಪರಿಣಾಮಗಳಿಲ್ಲ	ప్రతికూల ప్రభావాలు లేవు
choices_medium	Calls	कॉल	ಕರೆಗಳು	మాట్లాడుట
choices_medium	Text or voice messages	मजकूर किंवा व्हॉइस संदेश	ಸಂದೇಶಗಳು ಅಥವಾ ಧ್ವನಿ ಸಂದೇಶಗಳು	టెక్స్ట్ లేదా వాయిస్ సందేశాలు
choices_medium	Internet search/ websites	इंटरनेट शोध / वेबसाइट्स	ಅಂತರ್ಜಾಲ ಅಥವಾ ಜಾಲತಾಣಗಳ ಹುಡುಕಾಟ	ఇంటర్నెట్ శోధన / వెబ్ సైట్లు
choices_medium	Videos	व्हिडिओ	ವಿಡಿಯೋಗಳು	వీడియోలు
choices_medium	Apps	ॲप्स	ಆಪ್ಸ್‌ಗಳು	ఆప్స్
choices_medium	Other	इतर	ಇತರೆ	ఇతరులు
choices_D5_2	Calling intermediaries or buyers	मध्यस्थ किंवा खरेदीदार कॉल करीत आहे	ಮಧ್ಯವರ್ತಿಗಳು ಅಥವಾ ಕೊಳ್ಳುವವರಿಗೆ ಕರೆ ಮಾಡಲು	మధ్యవర్తులు లేదా కొనుగోలుదారులతో మాట్లాడుటకొరకు
choices_D5_2	Text or voice messages with intermediaries or buyers	मध्यस्थ किंवा खरेदीदारांसह मजकूर किंवा व्हॉइस संदेश	ಮಧ್ಯವರ್ತಿಗಳು ಅಥವಾ ಕೊಳ್ಳುವವರಿಗೆ ಸಂದೇಶ ಅಥವಾ ಧ್ವನಿ ಸಂದೇಶ ಕಳುಹಿಸಲು	మధ్యవర్తులు లేదా కొనుగోలుదారులతో వచనం లేదా వాయిస్ సందేశాలు
choices_D5_2	Internet sales	इंटरनेट विक्री	ಅಂತರ್ಜಾಲದ ಮೂಲಕ ಮಾರಾಟ ಮಾಡಲು	ఇంటర్నెట్ అమ్మకాలు
choices_D5_2	Apps	ॲप्स	ಆಪ್ಸ್‌ಗಳು	ఆప్స్
choices_D5_2	Other	इतर	ಇತರೆ	ఇతరులు

choices_D6_2	Calling official hotlines	अधिकृत हॉटलाइनवर कॉल करीत आहे	అధికృత హాట్లైన్ సంఖ్యలకి కరే మాడలు	అధికారిక హాట్‌లైన్‌లను పిలుస్తోంది
choices_D6_2	Text or voice messages	मजकूर किंवा व्हॉइस संदेश	సందేశగళు అథవా ధ్వని సందేశగళు	టెక్స్ట్ లేదా వాయిస్ సందేశాలు
choices_D6_2	Internet/ government websites	इंटरनेट / सरकारी वेबसाइट	అంతర్జాల మత్తు సర్కారి జాలతాణగళు	ఇంటర్నెట్ / ప్రభుత్వ వెబ్ సైట్లు
choices_D6_2	Apps	ॲप्स	ఆప్సళు	ఆప్స్
choices_D6_2	Other	इतर	ఇతరే	ఇతరులు
choices_D8	The services are not available for my phone, area or connectivity.	माझ्या फोन, क्षेत्र किंवा कनेक्टिव्हिटीसाठी या सेवा उपलब्ध नाहीत.	నన్న ఫోను మత్తు ప్రదేశదల్లి ఈ సేవెగళు మత్తు సంపర్క లభ్యవిరువుదిల్ల.	నా ఫోన్, ప్రాంతం లేదా కనెక్టివిటీ కోసం సేవలు అందుబాటులో లేవు.
choices_D8	I get my information from other sources.	मला माझी माहिती इतर स्रोतांकडून मिळाली.	నాను ఇతరే మూలగళింద ననగే బేకాద మాహితి పడెయుత్తేనె	నేను నా సమాచారాన్ని ఇతర వనరుల నుండి పొందుతాను.
choices_D8	I do not have the time.	माझ्याकडे वेळ नाही.	ననగే సమయవిల్ల	నాకు సమయం లేదు.
choices_D8	It is too expensive.	ते खूप महाग आहे.	అదు అత్యంత దుబారియాగిదే	అది చాలా ఖరీదైనది.
choices_D8	I do not see the benefit.	मला त्याचा फायदा दिसत नाही.	ననగే యావుదే లాభ కాణిసుత్తిల్ల	నేను ప్రయోజనం చూడలేదు.
choices_D8	I do not trust the information.	मला माहितीवर विश्वास नाही.	ఈ మాహితియన్ను నాను నంబువుదిల్ల	నేను సమాచారాన్ని నమ్మను.
choices_D8	They are difficult to access or understand.	त्यांना प्रवेश करणे किंवा समजणे कठीण आहे.	అవుగళన్ను పడెదుకొళ్ళువుదు అథవా అర్థ మాడికొళ్ళువుదు కష్టదాయక	వాటిని అందుకోవడం లేదా అర్థం చేసుకోవడం కష్టం.
choices_D8	My family does not allow it.	माझे कुटुंब परवानगी देत नाही.	నన్న కుటుంబ ఇదన్ను ఆగగొడువుదిల్ల	నా కుటుంబం దీన్ని అనుమతించదు.
choices_D8	I am just not interested.	मला फक्त रस नाही.	ననగే బిలి కుల్ యావుదే ఆసక్తియిల్ల	నాకు ఆసక్తి లేదు.
choices_D8	Other	इतर	ఇతరే	ఇతరులు
choices_D8	No answer	उत्तर देत नाही	ఉత్తరిసువుదిల్ల	సమాధానం ఇవ్వలేదు
choices_D13_2	positive	सकारात्मक	ధనాత్మక	అనుకూలము
choices_D13_2	negative	नकारात्मक	ఋణాత్మక	ప్రతికూలము

Appendix D: Focus Group Discussion Consent Form

D.1 English Version

(VERBAL) EXPLANATORY STATEMENT FOR FOCUS GROUP DISCUSSION PARTICIPANTS

Purpose:
You have been invited to participate in a focus group sponsored by the Green Innovation Centre India project under the direction of Ms. Vanessa Berghoff. The purpose of this focus group is to explore women tomato farmers' acceptance of mobile phones. The information learned in this focus group discussion will be used to primarily for the Master thesis of Vanessa at Lund University in Sweden and may be published in an academic journal, book or newsletter.

Confidentiality:
Your responses will remain anonymous and confidential, no names will be included in the final report. Your participating is voluntary but will be highly appreciated. If you do not wish to continue, you have the right to withdraw from the study, without penalty and at any time.

Procedure:
As part of this study, you will be placed in a group of 6 women. A moderator will ask you several questions while facilitating the discussion. This focus group will be audio-recorded, and a note-taker will be present. Additionally, the focus group may be accompanied by Vanessa online.

Please note that there are no right or wrong answers to focus group questions. Out of respect, please refrain from interrupting others. However, feel free to be honest even when your responses counter those of other group members, varying viewpoints provide valuable insights.

Safety:
To protect yourself and others, following COVID-19 transmission and protective measures are obligatory:

- ✓ Wear a face mask.
- ✓ Keep a 1.5 meters distance from each other.
- ✓ Regularly Wash your hands with soap and water or use hand sanitiser.
- ✓ Cover coughs and sneezes with a tissue or use the inside of your elbow.
- ✓ If you experience symptoms like fever, cough, shortness of breath, please refrain from participating in the discussion.

Contact:
If you have any questions or concerns regarding this study, please contact:

Vanessa Berghoff
MSc Student International Development and Management
Mobile: +49 174 171 6336

Lund University
Department of Human Geography
E-Mail: lumid@keg.lu.se
Phone: +46 46 222 86 90

Thank you for your participation. Your sincerely,

V. Berghoff
_____
Vanessa Berghoff

INFORMED CONSENT FOR FOCUS GROUP DISCUSSION PARTICIPANTS

- ☐ I agree to participate in this focus group discussion for the Master thesis of Vanessa Berghoff for Lund University.
- ☐ I agree that the discussion will be electronically recorded.
- ☐ I agree that the information learned in this focus group discussion will be used to primarily for the Master thesis of Vanessa at Lund University in Sweden and may be published in an academic journal, book, or newsletter.
- ☐ I have been told of the confidentiality of information collected for this research project and the anonymity of my participation.
- ☐ I have been given satisfactory answers to my inquiries concerning project procured and other matter.
- ☐ I am aware that I can remove myself from the study at any time.
- ☐ I am aware that I can withdraw my consent at any time.

My signature confirms that I do want to participate in this focus group discussion. means that I do want to be in the study.

_____

Print name

_____ _____

Date *Signature*

D.2 Telugu Version

(ಮೌಖಿಕ) ನಿರ್ದಿಷ್ಟ ಗುಂಪು ಚರ್ಚೆಯಲ್ಲಿ ಭಾಗವಹಿಸುವವರಿಗೆ ನೀಡಬೇಕಾದ ವಿವರಣಾ ಹೇಳಿಕೆ

ಉದ್ದೇಶ:
ಗ್ರೀನ್ ಇನ್ನೋವೇಶನ್ ಸೆಂಟರಿನ ಪ್ರಾಯೋಜನೆಯಲ್ಲಿ ವನೆಸ್ಸಾ ಬಾರ್ಘಾಫ್ ಳ ನಿರ್ದೇಶನದಲ್ಲಿ ನಡೆಯಲಿರುವ ನಿರ್ದಿಷ್ಟ ಗುಂಪು ಚರ್ಚೆಯಲ್ಲಿ ಭಾಗವಹಿಸುವ ಸಲುವಾಗಿ ನಿಮ್ಮನ್ನು ಆಹ್ವಾನಿಸಲಾಗಿದೆ. ಟೊಮ್ಯಾಟೋ ಬೆಳೆಯುವ ರೈತ ಮಹಿಳೆಯರಲ್ಲಿ ಮೊಬೈಲ್ ಫೋನುಗಳ ಬಗ್ಗೆ ಇರುವ ಸ್ವೀಕಾರ ಮನೋಭಾವವನ್ನು ಅರಿತುಕೊಳ್ಳುವುದು ಈ ನಿರ್ದಿಷ್ಟ ಗುಂಪಿನ ಉದ್ದೇಶವಾಗಿದೆ. ಈ ನಿರ್ದಿಷ್ಟ ಗುಂಪು ಚರ್ಚೆಯಲ್ಲಿ ಪಡೆಯಲಾಗುವ ಮಾಹಿತಿಯನ್ನು ಪ್ರಾಥಮಿಕವಾಗಿ ಸ್ವೀಡನ್‌ನ ಲುಂಡ್ ವಿಶ್ವವಿದ್ಯಾಲಯದಲ್ಲಿ ವ್ಯಾಸಂಗ ಮಾಡುತ್ತಿರುವ ವನೆಸ್ಸಾ ಎಂಬುವರ ಮಾಸ್ಟರ್ ಪ್ರಬಂಧಕ್ಕೆ ಬಳಸಲಾಗುತ್ತದೆ ಮತ್ತು ಇದನ್ನು ಯಾವುದಾದರೂ ಶೈಕ್ಷಣಿಕ ಜರ್ನಲ್, ಪುಸ್ತಕ ಅಥವಾ ಸುದ್ದಿಪತ್ರದಲ್ಲಿ ಪ್ರಕಟಿಸಬಹುದು.

ಗೌಪ್ಯತೆ:
ಈ ಚರ್ಚೆಯಲ್ಲಿ ನೀವು ನೀಡುವ ಎಲ್ಲಾ ಪ್ರತಿಕ್ರಿಯೆಗಳು ಅನಾಮಧೇಯವಾಗಿ ಮತ್ತು ಗೌಪ್ಯವಾಗಿ ಉಳಿಯುತ್ತವೆ, ಅಂತಿಮ ವರದಿಯಲ್ಲಿ ನಿಮ್ಮ ಯಾವುದೇ ಹೆಸರುಗಳನ್ನು ಸೇರಿಸಲಾಗುವುದಿಲ್ಲ. ಚರ್ಚೆಯಲ್ಲಿ ನಿಮ್ಮ ಭಾಗವಹಿಸುವಿಕೆ ಸ್ವಯಂಪ್ರೇರಿತವಾಗಿದೆ, ಆದರೆ ಅದನ್ನು ನಾವು ಬಹಳಷ್ಟು ಮೆಚ್ಚಿಕೊಳ್ಳುತ್ತೇವೆ. ನೀವು ಈ ಚರ್ಚೆಯಲ್ಲಿ ಮುಂದುವರಿಯಲು ಬಯಸದಿದ್ದರೆ, ಯಾವುದೇ ಸಮಯದಲ್ಲಿ ಅಧ್ಯಯನದಿಂದ ಹಿಂದೆ ಸರಿಯುವ ಹಕ್ಕು ನಿಮಗೆ ಇದೆ ಮತ್ತು ಅದಕ್ಕಾಗಿ ಯಾವುದೇ ರೀತಿಯ ದಂಡ ವಿಧಿಸುವುದಿಲ್ಲ.

ವಿಧಾನ:
ಈ ಅಧ್ಯಯನದ ಭಾಗವಾಗಿ, ನಿಮ್ಮನ್ನು ಆರು ಮಹಿಳೆಯರ ಒಂದು ಗುಂಪಿನಲ್ಲಿ ಸೇರಿಸಿಕೊಳ್ಳಲಾಗುತ್ತದೆ. ಈ ಚರ್ಚೆಯನ್ನು ನಿರ್ವಹಿಸುವ ಸಂದರ್ಶಕಿಯು ನಿಮಗೆ ಹಲವಾರು ಪ್ರಶ್ನೆಗಳನ್ನು ಕೇಳುತ್ತಾರೆ. ಈ ಗುಂಪು ಚರ್ಚೆ ಸಂಪೂರ್ಣವಾಗಿ ಧ್ವನಿ ಮುದ್ರಣವಾಗುತ್ತದೆ ಮತ್ತು ಚರ್ಚೆಯ ಟಿಪ್ಪಣಿ ತೆಗೆದುಕೊಳ್ಳುವವರು ಜೊತೆಯಲ್ಲಿ ಇರುತ್ತಾರೆ. ಇದಲ್ಲದೇ, ಈ ನಿರ್ದಿಷ್ಟ ಗುಂಪಿನಲ್ಲಿ ವನೆಸ್ಸಾ ಸಹಾ ಆನ್‌ಲೈನ್‌ನಲ್ಲಿ ಭಾಗವಹಿಸುತ್ತಿರಬಹುದು.

ಈ ನಿರ್ದಿಷ್ಟ ಗುಂಪು ಚರ್ಚೆಯಲ್ಲಿ ಕೇಳಲಾಗುವ ಯಾವುದೇ ಪ್ರಶ್ನೆಗಳಿಗೆ ಸರಿ ಅಥವಾ ತಪ್ಪು ಉತ್ತರಗಳೆಂಬುವು ಇರುವುದಿಲ್ಲವೆಂಬುದನ್ನು ನೀವು ಗಮನದಲ್ಲಿಟ್ಟುಕೊಳ್ಳಿ. ನೀವು ಇತರರು ಮಾತನಾಡುವಾಗ ಮಧ್ಯ ಪ್ರವೇಶ ಮಾಡುವುದರಿಂದ ಗೌರವಯುತವಾಗಿ ದೂರ ಉಳಿಯಿರಿ. ಹಾಗಿದ್ದರೂ ಇತರರ ಹೇಳಿಕೆಗಳು ನಿಮ್ಮ ಅಭಿಪ್ರಾಯಗಳಿಗೆ ತದ್ವಿರುದ್ಧವೆಂದು ನಿಮಗೆ ಅನ್ನಿಸಿದ ಪಕ್ಷದಲ್ಲೂ ಪ್ರಾಮಾಣಿಕವಾಗಿ ನಿಮ್ಮ ಅಭಿಪ್ರಾಯಗಳಿಗೆ ಬದ್ಧರಾಗಿರಿ, ಏಕೆಂದರೆ ವಿಭಿನ್ನ ದೃಷ್ಟಿಕೋನಗಳು ಈ ಅಧ್ಯಯನಕ್ಕೆ ಹೆಚ್ಚು ಮೌಲ್ಯಯುತ ಒಳನೋಟಗಳನ್ನು ನೀಡುತ್ತವೆ.

ಸುರಕ್ಷೆ:

ಕೋವಿಡ್-19 ಹರಡುವಿಕೆಯಿಂದ ನಿಮ್ಮನ್ನು ಮತ್ತು ಇತರರನ್ನು ರಕ್ಷಿಸುವ ಸಲುವಾಗಿ ಈ ಕೆಳಕಂಡ ಸುರಕ್ಷಾ ಕ್ರಮಗಳನ್ನು ಎಲ್ಲರೂ ಅನುಸರಿಸುವುದು ಕಡ್ಡಾಯವಾಗಿದೆ:

- ✓ ಮುಖಗವಸನ್ನು ಹಾಕಿಕೊಳ್ಳಿ.
- ✓ ಪರಸ್ಪರ 1.5 ಮೀಟರಿನಷ್ಟು ಅಂತರವನ್ನು ಕಾಯ್ದುಕೊಳ್ಳಿ.
- ✓ ನಿಮ್ಮ ಕೈಗಳನ್ನು ಆಗಾಗ ಸೋಪು ಮತ್ತು ನೀರಿನಿಂದ ತೊಳೆಯುತ್ತಿರಿ ಅಥವಾ ಸ್ಯಾನಿಟೈಜರ್ ಅನ್ನು ಬಳಸಿರಿ.
- ✓ ಕೆಮ್ಮು ಮತ್ತು ಶೀನು ಬಂದರೆ ನಿಮ್ಮ ಕರವಸ್ತ್ರದಿಂದ ಅಥವಾ ನಿಮ್ಮ ಮೊಣಕಾಲಿನ ಒಳಭಾಗದಿಂದ ಬಾಯಿ ಮೂಗುಗಳನ್ನು ಮುಚ್ಚಿಕೊಳ್ಳಿ
- ✓ ನಿಮಗೆ ಜ್ವರ, ಕೆಮ್ಮು ಅಥವಾ ಉಸಿರಾಟದ ತೊಂದರೆ ಕಂಡುಬಂದಲ್ಲಿ ದಯವಿಟ್ಟು ಈ ಗುಂಪು ಚರ್ಚೆಯಲ್ಲಿ ಭಾಗವಹಿಸುವುದು ಬೇಡ.

ಸಂಪರ್ಕಿಸಿ:

ಈ ಅಧ್ಯಯನದ ಬಗ್ಗೆ ನಿಮಗೆ ಯಾವುದೇ ಪ್ರಶ್ನೆ/ಕಾಳಜಿಗಳಿದ್ದರೆ ಈ ಕೆಳಕಂಡವರನ್ನು ಸಂಪರ್ಕಿಸಿ:

ವನೆಸ್ಸಾ ಬರ್ಗಾಫ್ಹ
ಎಂ.ಎಸ್ಸಿ ವಿದ್ಯಾರ್ಥಿನಿ (ಅಂತರರಾಷ್ಟ್ರೀಯ ಅಭಿವೃದ್ಧಿ ಮತ್ತು ನಿರ್ವಹಣೆ)
ಮಿಂಚಂಚೆ: v.berghoff@icloud.com
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ಲುಂಡ್ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ
ಮಾನವ ಭೂಗೋಳ ವಿಭಾಗ
ಮಿಂಚಂಚೆ:: lumid@keg.lu.se
ದೂರವಾಣಿ: +46 46 222 86 90

ನಿಮ್ಮ ಭಾಗವಹಿಸುವಿಕೆಗಾಗಿ ಧನ್ಯವಾದಗಳು.

ನಿಮ್ಮ ನಂಬುಗೆಯ,

_____

ವನೆಸ್ಸಾ ಬರ್ಗಾಪ್ಪ

<u>ನಿರ್ದಿಷ್ಟ ಗುಂಪು ಚರ್ಚೆಯಲ್ಲಿ ಭಾಗವಹಿಸುವ ರೈತ ಮಹಿಳೆಯರಿಗೆ ಮೊದಲೇ ತಿಳಿ ಹೇಳಲಾದ ಒಪ್ಪಿಗೆ ಪತ್ರ</u>

- ☐ ಲುಂಡ್ ವಿಶ್ವವಿದ್ಯಾಲಯದ ವನೆಸ್ಸಾ ಬರ್ಘಾಫ್ ಅವರ ಮಾಸ್ಟರ್ ಪ್ರಬಂಧಕ್ಕಾಗಿ ಈ ನಿರ್ದಿಷ್ಟ ಗುಂಪು ಚರ್ಚೆಯಲ್ಲಿ ಭಾಗವಹಿಸಲು ನಾನು ಒಪ್ಪಿಕೊಂಡಿರುತ್ತೇನೆ
- ☐ ಈ ಚರ್ಚೆಯನ್ನು ವಿದ್ಯುನ್ಮಾನ ಮಾಧ್ಯಮದಿಂದ ಧ್ವನಿ/ದೃಶ್ಯ ಮುದ್ರಣ ಮಾಡಿಕೊಳ್ಳಲು ನನ್ನ ಅನುಮತಿಯಿದೆ.
- ☐ ಈ ನಿರ್ದಿಷ್ಟ ಗುಂಪು ಚರ್ಚೆಯಲ್ಲಿ ಪಡೆಯಲಾಗುವ ಮಾಹಿತಿಯನ್ನು ಪ್ರಾಥಮಿಕವಾಗಿ ಸ್ವೀಡನ್‌ನ ಲುಂಡ್ ವಿಶ್ವವಿದ್ಯಾಲಯದಲ್ಲಿ ವ್ಯಾಸಂಗ ಮಾಡುತ್ತಿರುವ ವನೆಸ್ಸಾ ಅವರ ಮಾಸ್ಟರ್ ಪ್ರಬಂಧಕ್ಕೆ ಬಳಸಲು ಮತ್ತು ಇದನ್ನು ಯಾವುದಾದರೂ ಶೈಕ್ಷಣಿಕ ಜರ್ನಲ್, ಪುಸ್ತಕ ಅಥವಾ ಸುದ್ದಿಪತ್ರದಲ್ಲಿ ಪ್ರಕಟಿಸಲು ನನ್ನ ಅನುಮತಿಯಿದೆ.
- ☐ ಈ ಚರ್ಚೆಯಲ್ಲಿ ನನ್ನ ಭಾಗವಹಿಸುವಿಕೆಯು ಸಂಪೂರ್ಣವಾಗಿ ಅನಾಮಧೇಯವಾಗಿರುತ್ತದೆ ಹಾಗೂ ಈ ಸಂಶೋಧನೆಗಾಗಿ ಸಂಗ್ರಹಿಸುವ ಮಾಹಿತಿಯನ್ನಿ ಗೌಪ್ಯವಾಗಿಡಲಾಗುತ್ತದೆ ಎಂದು ನನಗೆ ತಿಳಿ ಹೇಳಿದ್ದಾರೆ.
- ☐ ಈ ಯೋಜನೆಗೆ ಸಂಬಂಧಿಸಿದ ಮತ್ತು ಇತರೆ ವಿಚಾರಗಳ ಕುರಿತು ನನಗೆ ಕೇಳಲಾದ ಪ್ರಶ್ನೆಗಳಿಗೆ ನಾನು ತೃಪ್ತಿದಾಯಕ ಉತ್ತರಗಳನ್ನು ನೀಡಿದ್ದೇನೆ.
- ☐ ಯಾವುದೇ ಸಂದರ್ಭದಲ್ಲಿ ಈ ಅಧ್ಯಯನದಿಂದ ನಾನು ಹೊರಬೀಳಬಹುದು ಎಂಬ ಬಗ್ಗೆ ನನಗೆ ಮಾಹಿತಿಯಿದೆ.
- ☐ ನನ್ನ ಒಪ್ಪಿಗೆಯನ್ನು ಸಹಾ ಯಾವುದೇ ಸಂದರ್ಭದಲ್ಲಿ ಹಿಂತೆಗೆದುಕೊಳ್ಳಬಹುದು ಎಂಬ ಬಗ್ಗೆ ಸಹಾ ನನಗೆ ಮಾಹಿತಿಯಿದೆ.

ಈ ನಿರ್ದಿಷ್ಟ ಗುಂಪು ಚರ್ಚೆಯಲ್ಲಿ ಭಾಗವಹಿಸಲು ಹಾಗೂ ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಪಾಲ್ಗೊಳ್ಳಲು ನನಗೆ ಸಂಪೂರ್ಣ ಒಪ್ಪಿಗೆ ಇದೆಎಂಬುದನ್ನು ನನ್ನ ಸಹಿಯ ಮೂಲಕ ನಾನು ಧೃಡಪಡಿಸುತ್ತೇನೆ.

_____

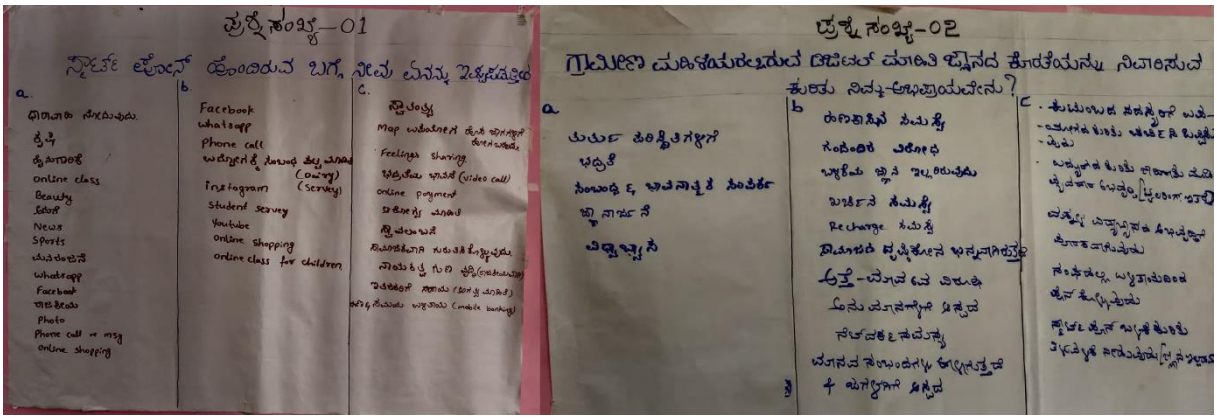
ಹೆಸರನ್ನು ಮುದ್ರಿಸಿ

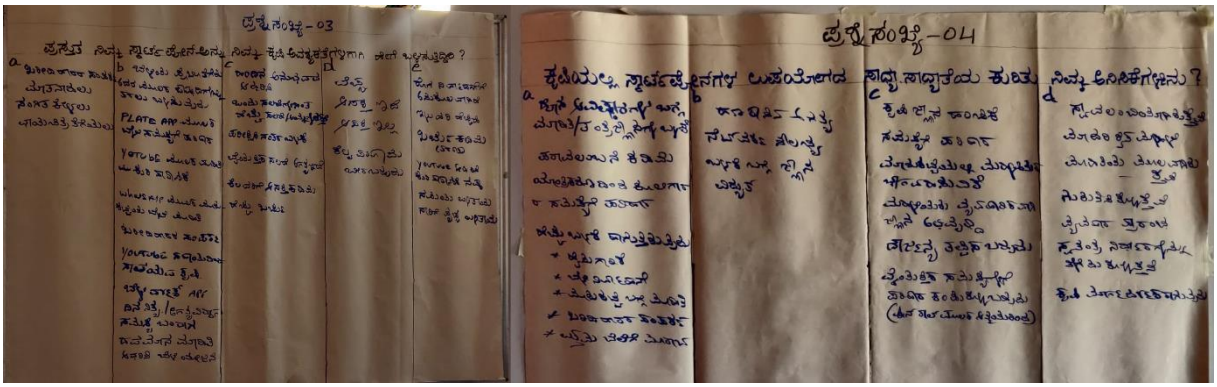
_____ _____

ದಿನಾಂಕ *ಸಹಿ*

Appendix E: Pictures Focus Group Discussion

E.1 Karnataka FDG





E.1 Andhra Pradesh FDG

Appendix F: Focus Group

Table F.1: Focus Group Discussion – Anonymous Overview Participants			
Karnataka	**Age**	**Andhra Pradesh**	**Age**
K1	32	AP	39
K2	23	AP	43
K3	42	AP	45
K4	26	AP	38
K5	27	AP	42
K6	25	AP	32
		AP	37

Appendix G: Statistics

Table G.1: Observations in case study per state		
State	**Survey participants**	**FGD participants**
Andhra Pradesh	79	7
Karnataka	80	6
Maharashtra	72	/
Total	231	13

Table G.2: Survey Variable Frequency Statistics (General)		
Variable	*Frequency*	*Percentage*
Age		
18-24 years	9	3,9
25-34 years	46	19,9
35-44 years	92	39,8
45-54 years	56	24,2
55-64 years	24	10,4
Older than 64 years	4	1,7
Martial status		
Single	1	,4
Married	218	94,4
Widowed	12	5,2
Children		
Yes	222	96,1
No	9	3,9
Agricultural value chain steps		
Pre-Production	152	65,8
Production	209	90,5
Storage	69	29,9

Processing	146	63,2
Marketing & Sales	82	36,4
Other	2	0,9
Responsibilities at home		
Washing	219	94,8
Cleaning	226	97,8
Childcare	194	84,8
Elderly care	131	56,7
Fetching water, fuel or firewood	144	62,3
None of the options	1	0,4
Education		
No formal education	26	11,3
Primary or/and secondary school	46	19,9
High school	99	42,9
Pre university	37	16,0
University degree or higher	23	10,0
Individual land ownership		
Yes	92	39,8
No	138	59,7
Missing	1	0,4
Payment for agricultural work		
Yes	34	14,7
No	196	84,8
No answer	1	0,4
Paid work outside of agriculture		
Yes – all year	98	42,4
Yes – but only outside tomato season	75	32,5
No	58	25,1
Decision making power in the household		
Self	27	11,7
Husband	138	59,7
Other male relatives	17	7,4
Other female relatives	2	0,9
It varies	47	20,3
Power cuts		
Almost never: once or twice a year	16	6,9
Sometimes: every other month	26	11,3

Regular: at least once per moth: every other month	52	22,5
Often: every week	109	47,2
Always: every day or no electricity at all	28	12,1
Network coverage		
Excellent	18	7.8
Good	145	62.8
Fair	62	26.8
Poor	5	2.2
Very poor	1	0.4
Concerns about paying for food, water or health items in the past year		
Often	44	19
Sometimes	133	57,5
Never	54	23,4

G.3: Sample Age Distribution

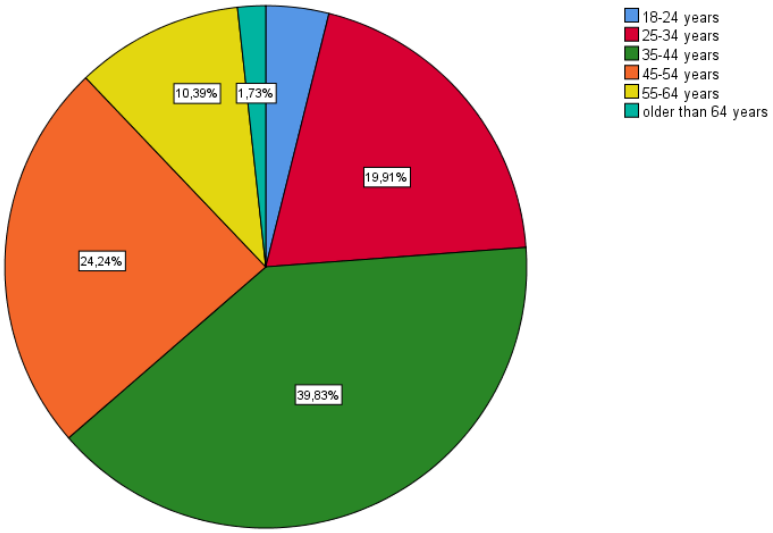


Table G.4: Survey Variable Descriptive Statistics				
	Minimum	*Maximum*	*Mean*	*SD*
Household size	2	13	5,01	1,86
Language proficiency *1-Not at all - 4-advanced*				
English	1	4	1,49	1,44
Local language	1	4	3,26	1,31

(Kannda, Marathi, Telugu)				
Plot size				
Andhra Pradesh	0.5	40	3.66	4.83
Karnataka	1.0	400	155.89	91.85
Maharashtra	13	800	260,54	196,98
Overall	0,5	800	139,91	162,96

G.5 Chi Square Test of Independence: Poverty and State

Table G.5.1: Case Processing Summary

	Valid		**Cases Missing**		**Total**	
	N	**Percent**	**N**	**Percent**	**N**	**Percent**
State*Poverty	231	100%	0	0.0%	231	100%

Table G.5.2: State * Poverty CrossTabulation

			Often	Sometimes	Never	Total
State	Andhra Pradesh	Count	13	56	10	79
		Expected count	15	45.5	18.5	79
	Karnataka	Count	22	40	18	80
		Expected count	15.2	46.1	18.7	80
	Maharashtra	Count	9	37	26	72
		Expected count	13.7	41.5	16.8	72
Total			44	133	54	231

Table G.5.3: Chi Square Tests

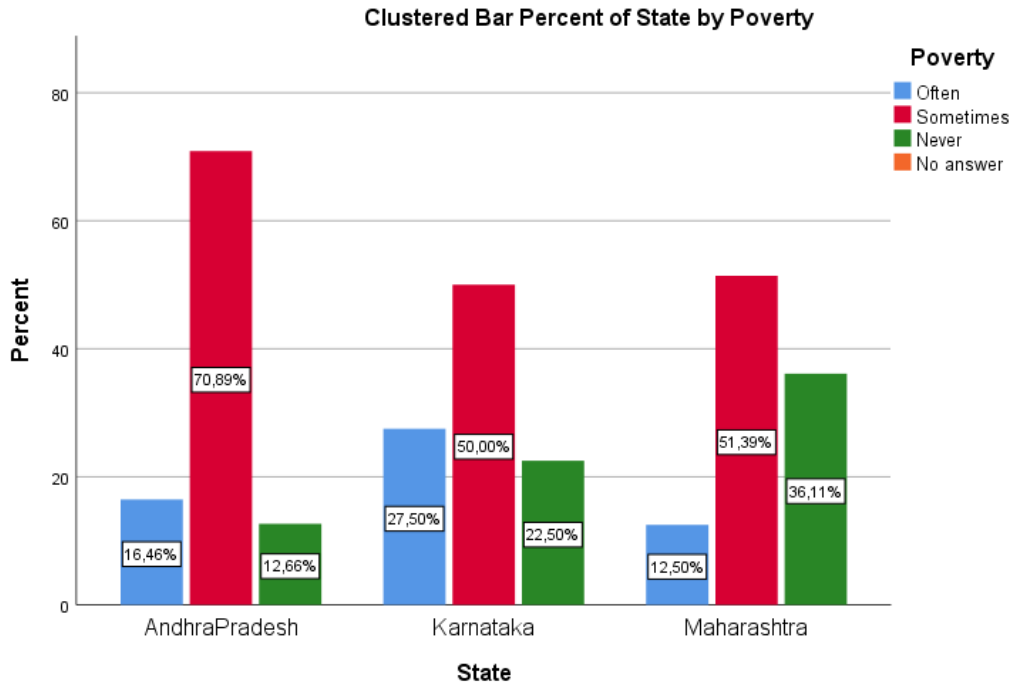
	Value	Df	Significance (2-sided)
Pearson Chi-Square	17.510[a]	4	.002
Likelihood Ratio	17.337	4	.002
N of Valid Cases	231		

[a]0 cells (0%) have expected counts less than 5. The minimum expected count is 13.71.

Table G.5.4: Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.275	.002
	Cramer's V	.195	.002
N of Valid Cases		231	

Figure G.5.5: Clustered Bar Chart of State by Poverty (in Percent)



List G.5.5: Assumption Testing

- The two variables measured are ordinal [Poverty] and nominal [State].
- The two variables consist of two or more independent groups [Poverty: never, sometimes, often; state: Karnataka, Maharashtra, Andhra Pradesh]
- Zero cells have an expected count of less than 5.
- There is scope for error and limitations to generalisability with the convenience random sampling technique.

Table G.6: Survey Variable Frequency Statistics (Phone Adoption)

Variable	*Frequency*	*Percentage*
Phone ownership		
Own phone	173	74,9
Family phone	58	25,1
Phone type		
Basic or feature phone	107	46,3
Smartphone	124	53,7
Phone status		
New	130	56,3
Reused	101	43,7

> Previous owner	N=101	
Husband	67	66,3
Children	29	28,7
Friends	2	2
None of the options	3	1,3
> Payment phone	N=130	
Self	15	11,5
Husband	100	43,3
Other	15	6,5
Women ownership phones		
Yes	219	95,2
No	10	4,3
Other	1	0,4
Women ownership smartphones		
Yes	168	76,7
No	50	22,8
Other	1	0,5
Status symbol		
Yes	56	24,2
No	171	74
Other	4	1,7
Constraints usage		N=299
Electricity problems	110	48
Poor network coverage	115	50,2
High cost of operation	4	1,7
Poor quality and features of the phone	13	5,7
Difficulty and complexity of using the phone	39	17
Other family members taking over the phone	24	10,5

G.7 Chi Square Test of Independence: Ownership & Decision-Making Power Phone

Table G.7.1: Case Processing Summary

	Valid		Cases Missing		Total	
	N	**Percent**	**N**	**Percent**	**N**	**Percent**
State*Poverty	229	99.1%	2	0.9%	231	100%

Table G.7.2: Ownership * Decision-Making Power Phone Cross Tabulation

			Full	Restricted	Total
Phone	Own phone	Count	166	6	172
		Expected count	138.2	33.8	172
	Family phone	Count	18	39	57
		Expected count	45.8	11.2	57
		Expected count	13.7	41.5	16.8
Total		(Expected count)	184	45	229

Table G.7.3. Chi Square Tests

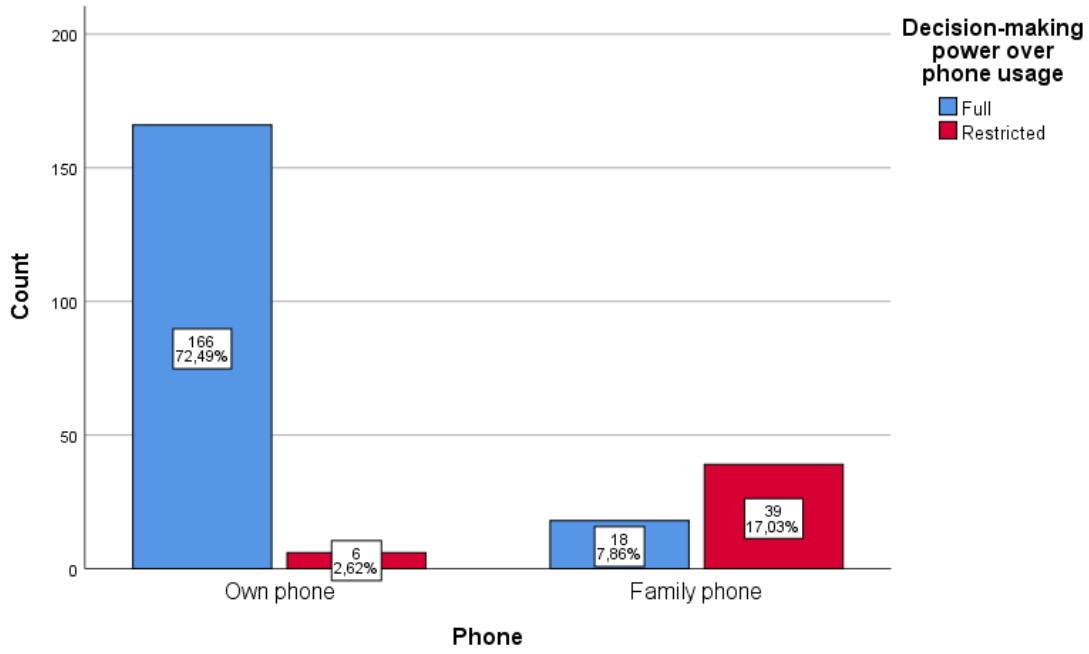
	Value	Df	Significance (2-sided)
Pearson Chi-Square	114.323[a]	1	.000
Likelihood Ratio	103.795	1	.000
N of Valid Cases	229		

[a]0 cells (0%) have expected counts less than 5. The minimum expected count is 11.2.

Table G.7.4: Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.275	.002
	Cramer's V	.195	.002
N of Valid Cases		231	

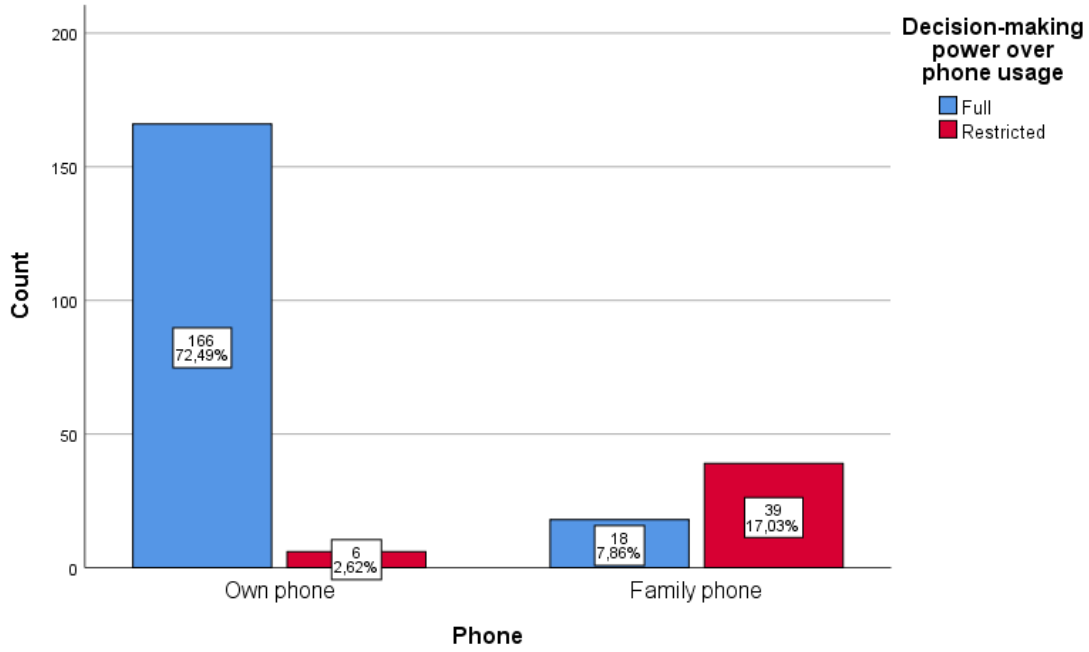
Figure G.7.5 Bar Chart of phone ownership and decision making power



List G7.6.: Assumption Testing

- The two variables measured are nominal [Phone ownership & Phone decision making].
- The two variables consist of two or more independent groups [Decision-making power: full, restricted; Phone ownership: Family phone, own phone]
- Zero cells have an expected count of less than 5.
- There is scope for error and limitations to generalisability with the convenience random sampling technique.

Figure G.7.5: Bar Chart of phone ownership and decision-making power



List G.7.6: Assumption Testing

- The two variables measured are nominal [Phone ownership & Phone decision making].
- The two variables consist of two or more independent groups [Decision-making power: full, restricted; Phone ownership: Family phone, own phone]
- Zero cells have an expected count of less than 5.
- There is scope for error and limitations to generalisability with the convenience random sampling technique.

Table G.8 Survey Variable Frequency Statistics (Phone Usage)

Usage frequency	*Frequency*	*Valid percentage* N=230
At least once a day	223	95.5
A few days a week	8	3.5

Less	0	0
Regular phone usage		N=230
To keep in touch with family and friends	225	97,4
To coordinate activities, e.g. when to meet	103	44,8
Entertainment, e.g. movies, music, games	84	36,5
Social networking, e.g. Facebook, WhatsApp	79	34,3
To take pictures and videos	72	31,3
Navigation, e.g. to find directions	8	2,5
Online shopping	41	17,7
To find information	61	26,4
None of the options	5	2,2
Information searches		N=124 (only smartphone)
Cooking instructions	89	71,8
News	72	58,1
Health	51	41,1
Beauty & fashion	42	33,9
Agriculture	85	68,5
Spelling of words	11	8,9
Weather forecasts	67	54
None of the options	13	10,5
Importance mobile for farming		N=231
Important	137	59,3
Not important	40,3	40,4
No answer	1	0,4
Reasons for non-usage	*Frequency*	*Valid percentage* N=231
The services are not available for my phone area or connectivity	63	27,3
I get the information from other sources	47	20,3
I do not have the time	15	6,5
It is too expensive	7	3
I do not see the benefit	8	3,5
I do not trust the information	7	3

They are difficult to access or understand	50	21,6
My family does not allow it	12	5,2
I am just not interested	6	2,6
Other	45	19,5

Table G.9: Analysis Open Ended Questions (Phone Usage)

Apps most often used	*Frequency*	*Valid percentage* N=231
Messenger		
WhatsApp	94	40.69
ShareChat	1	0.43
Entertainment		
YouTube	75	32.47
Social Media		
Facebook	22	9.52
Instagram	2	0.87
Finances		
Phone Pay	17	7,.6
Indian Pay	1	0.43
Google Pay	2	0.87
Shopping		
Amazon	2	0.87
Flikart	3	1.29
PlayStore	1	0.43
Snapdeal	1	0.43
Business		
Meesho	1	0.43
Zoom	1	0.43
Agriculture		0
Agrowon	1	0.43
Plantix	1	0.43
Raithu Bharos	1	0.43
Other/Unclear		
Extenceapp	1	0.43
Crop Insurance	1	0.43
Farmer App	1	0.43

Table G.10: Survey Variable Frequency & Descriptive Statistics (Phone Usage)

Best practices and advice	*Frequency*	*Valid percentage* N=231
Adopt	159	68,8
Not adopt	66	28,6
No answer	6	2,6
Medium		N=159
Calls	111	69,8
Text or voice message	123	77,4
Internet search/websites	15	9,4
Videos	40	25,2
Apps	16	10,1
Other	3	1,9
Weather forecasts	*Frequency*	*Valid percentage* N=231
Receive	153	66,2
Not receive	76	32,9
No answer	2	0,9
Medium		N=153
Calls	98	64,1
Text or voice message	122	79,7
Internet search/websites	13	8,6
Videos	13,9	20,9
Apps	19	12,4
Compare prices or/and buy inputs, e.g. fertilisers or pesticides	*Frequency*	*Valid percentage* N=231
Mobile usage	116	50,2
Non-usage	107	46,3
No answer	8	3,5
Medium		N=116
Calls	105	90,5
Text or voice message	51	44
Internet search/websites	6	5,2
Videos	6	5,2
Apps	7	6
Other	1	0,9

Information about government subsidies or support schemes for agriculture	*Frequency*	*Valid percentage* N=231
Receive or access	119	51,5
No receiving or access	107	46,3
No answer	5	2,2
Medium		N=119
Calling official hotlines	79	66,4
Text or voice message	104	87,4
Internet/ government websites	10	8,4
Apps	6	5
Knowledge of new information		N=119
Yes	118	99,2
No	1	0,8
Marketing and selling	*Frequency*	*Valid percentage* N=231
Mobile usage	112	48,5
No	114	49,4
No answer	5	2,2
Medium		N=112
Calling intermediaries or buyers	111	99,1
Text or voice messages with intermediaries or buyers	3	2,7
Internet sales	1	0,9
Apps	0	0
Other	1	0,9
Mobile phone make farming work more enjoyable		N=231
Yes	137	59,3
No	93	40,3
No answer	1	0,4

Table G.11: Survey Variable Frequency & Descriptive Statistics (Phone Effects**)**		
Perceived impact		
Benefits		N=231
Being more connected with family and friends	225	97,4

Better income and business opportunities	60	26
Feeling safer	155	67,1
Feeling more independent	138	59,7
No positive effects	8	3,5
Negative effects		N=231
Feeling stressed	14	6,1
Unwanted messages and contacts	16	6,9
High cost	6	2,6
Distraction from work or household duties	12	5,2
Spending too much time on it	15	6,5
No negative effects	196	84,8
Increasing proficiency		
		N=231
Yes	159	68,8
No	72	31,2