ICTs AND POVERTY REDUCTION IN RURAL JAVA: INFORMATION, ACCESS AND MARKETS

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ABSTRACT

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Towards the end of the twentieth century there was a furore of activity and interest regarding the potential of information communication technologies (ICTs) to contribute towards a process of development. The growing interest in ICT for development (ICT4D) resulted in a World Summit held over two stages in 2003 and 2005 and a plethora of initiatives and interventions. However to date, the mechanisms and ways in which ICTs may best be applied to development, and in particular poverty reduction, remain unclear. The study described herein contributes to this debate. The study is concerned with the analysis of a single ICT based intervention in rural Java in the Republic of Indonesia; the e-Pabelan telecentre project. The objective of e-Pabelan was to overcome information asymmetries and improve the market participation of poor rural farmers. The objective of this study is to analyse the impacts of this intervention and its underlying conceptual basis.

In order to facilitate the research a conceptual framework is presented that draws on Richard Heeks' (1999b) concept of the information chain and Stuart Plattner's (1985) concept of equilibrating markets. After Heeks, the conceptual framework emphasises that the assimilation and application of information towards a desired development outcome is a staged process. In order to better contextualise and understand such a process the research presents an analysis of actors, goods and transactions in relation to the market relations of poor farmers after Plattner. The research consists of an extended case study. Two key survey instruments are also employed. One is a survey of 216 poor households and the other is a survey of 70 poor farmers. These survey instruments are employed within a broader research context that utilises participant observation, informal interviews and occasional participatory rural appraisal (PRA) instruments. The research emphasises the importance of contextualisation in seeking to better understand the application of ICT based intervention towards poverty reduction.

The research highlights issues of access within ICT4D and challenges approaches that see ICT4D as universally applicable and relevant. Instead, the research demonstrates that the institutional context that ICT4D initiatives are placed into and implemented through can have significant bearings on the perceived utility of the intervention by the intended beneficiaries. The research shows that a failure to engage with local contexts during the establishing of access to ICTs can result in such initiatives being disempowering rather than empowering. The research also questions conceptualisations of poverty within ICT4D that emphasise the widening of opportunities over and above the increasing of security. With regard to markets the research demonstrates that the received view not uncommon within ICT4D literature of the farmer as a passive victim of impersonal markets is flawed. The research shows that the way in which poor farmer in Java manage risk through their selection of differing crops and the manner in which these farmers play the market is central to understanding how ICT4D interventions are assessed in terms of utility and relevance.

The research concludes that there is a need for greater engagement between the emerging field of ICT4D and the broader field of development studies. There is also a need to better contextualise and target ICT4D interventions in relation to the specific needs and conditions of the intended beneficiaries. Such an approach requires acknowledging that the adoption and application of information will be subject to a process of continual assessment; rather than seeing assessment as a separate stage within the information chain. In this regard a framework for the analysis of market based ICT4D interventions seeking to impact upon poverty is developed via the research from the original conceptual framework outlined above.

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Abbreviations

ADOC- APEC Digital Opportunity Centre
APEC- Asia-Pacific Economic Cooperation
APJII- *Asosiasi Penyelenggara Jasa Internet Indonesia* (Indonesian Internet Service Provider Association)
ARPA- Advanced Research Projects Agency
BAPPENAS- *Badan Perencanaan Pembangunan Nasional* (Indonesian National Development Planning Agency)
BBC- British Broadcasting Corporation
BPS- *Badan Pusat Statistik* (Indonesian Statistical Bureau)
CSR- Corporate Social Responsibility
DAI- Digital Access Index
DfID- Department for International Development (UK)
EAR- Ethnographic Action Research
ECOSOC- United Nations Economic and Social Council
FAO- Food and Agriculture Organisation
GAD- Gender and Development
GDP- Gross Domestic Product
GII- Global Information Infrastructure
HDI- Human Development Index (UNDP)
HDR- Human Development Report (UN)
HIV/AIDs- Human Immunodeficiency Virus / Acquired Immune Deficiency Syndrome
ICT- Information Communication Technologies
ICT4D- Information Communication Technologies for Development
ICT4PR- Information Communication Technologies for Poverty Reduction
IDR- Indonesian Rupiah
IMF- International Monetary Fund
IS- Information System
ITC- Indian Tobacco Company
ITU- International Telecommunications Union
LIPI- *Lembaga Ilmu Pengetahuan Indonesia* (Indonesian Institute of Sciences)
MDGs- Millennium Development Goals
MSME- Micro, Small and Medium Enterprise
MYFF- Multi-Year Funding Framework
NGO- Non-Governmental Organisation
NHDR- National Human Development Report
ODI- Overseas Development Institute
PePP- Partnerships for e-Prosperity for the Poor
PRA- Participatory Rural Appraisal
PWC- Post-Washington Consensus
RRA- Rapid Rural Appraisal
SLA- Sustainable Livelihoods Approach
UGM- Gadjah Mada University, Yogyakarta
UK- United Kingdom of Britain and Northern Ireland
UN- United Nations
UNDP- United Nations Development programme
UNESCO- United Nations Educational, Scientific and Cultural Organisation
UNESCAP- United Nations Economic and Social Commission for Asia and the Pacific
UNICEF- United Nations Children's Fund
UNPF- United Nations Population Fund
UNRISD- United Nations Research Institute for Social Development
UNV- United Nations Volunteer
US- United States of America
WDR- World Development Report (World Bank)
WEF- World Economic Forum
WID- Women in Development
WIDER- World Institute for Development Economics Research
WITSA- World Information Technology Services Alliance
WSIS- World Summit on the Information Society

Acknowledgments

Science was giving birth to more miracles. The legends of my ancestors were being put to shame. No longer was it necessary to meditate in the mountains for years in order to be able to speak to somebody across the seas. The Germans had laid a cable reaching from England to India! And these cables were multiplying and spreading all over the face of the earth. The whole world could now observe the behaviour of any person. And people could now observe the behaviour of the whole world.

The character Minke in Ananta Toer, 1990:321

Chapter 1

Introduction

1.1 Information communication technologies and development

Information has long been at the heart of development. Throughout history, in order to move forward and to improve our material and social condition it has been necessary to access, and then harness, information. For the few, access to new information has been realised through innovation and discovery. For the many, access to information has been dependent on receiving secondary information through pre-existing channels, networks and media. Towards the end of the 1990s there appeared the potential to widen access to information on an unprecedented scale. This potential was driven by the accelerating technological advances and falling costs of ownership of emerging information communication technologies (ICTs). The technological advances associated with these technologies were accompanied by the establishment of a range of initiatives seeking to apply ICTs towards some of the most pressing developmental concerns of our time. Accordingly, towards the end of the twentieth century providing access to information became a key development priority for many and the information poor gained prominence as a legitimate target group for development actions. Within the development community such activities, interests and ideals have come together under the umbrella term of information communication technologies for development (ICT4D). The emerging academic field and development practice of ICT4D during the early 2000s provides the context for this thesis.

ICT4D is a field influenced by the new. There are new technologies, within a new digital age, creating new opportunities, new threats and new development applications and challenges. For the proponents of ICT4D these developments have leant urgency to the need to seek new, or alternative, ways to promote inclusion, limit marginalisation and foster democratic processes of development. The potential of ICTs is so great for some that they represent nothing less than a new developmental dawn. However, the mechanisms involved and how exactly the utilisation of ICTs may benefit the poor and the marginalised remain unclear. A 1999 workshop on ICTs and sustainable livelihoods concluded that '[t]here is a significant amount of literature now circulating regarding the necessary ingredients for successful ICT projects. What we lack is sufficient examples that have pulled this off.' (O'Farrell *et al*, 1999:6). In a related vein, and seven years, later Robin Mansell notes:

> Many of those involved in considering what knowledge societies are, or will become, seem to believe that the very existence of technology will create the conditions for equitable human development. They hold fast to this belief even in the face of accumulating evidence demonstrating that the presence of information and communication technologies is not a sufficient condition to make a difference to poverty reduction.

> Mansell, 2006:vi

At the turn of the millennium ICT4D exhibited promise, but had yet to demonstrate its potential. While significant documentation circulated regarding various ICT4D initiatives, the successes described remained largely anecdotal with limited disaggregation of data with respect to reported beneficiaries and were poorly situated in respect of context.

From a theoretical perspective, there is also a concern that ICT4D has not been overly inclined to engage with theory. Richard Heeks (2001) calls for greater engagement between social science theory and information systems (IS) literature in order to better inform both theory and practice. For Heeks, the few IS writers who are engaging with theory are more concerned with the application of a particular theory to IS rather than with theory building itself. In comparison, Geoff Walsham and Sundeep Sahay (2006), in a review of contemporary IS writings (2000 onwards) on developing countries, find improvement from their earlier survey, on which Heeks draws, a decade earlier. The authors cite a range of theories in use including those of Anthony Giddens (*n.d.*), Arturo Escobar (1995) and Amartya Sen (1999). However, the authors note that within much of 'the existing literature, the precise notion of what development means, and how ICTs can promote it, is implicit or underemphasized. There are clearly opportunities here for future work.' (Walsham & Sahay, 2006:15). Similar concerns are expressed by Maung Sein and Gopalakrishnan Harindranath (2004) at the macro level who note 'that we do not have conceptual clarity on the role of ICT in national development' and stress concern over the largely atheoretical stance adopted within ICT4D (Sein & Harindranath, 2004:15). In this regard the following example is illustrative.

A 2009 edition of the journal *Information Technologies and International Development* (ITID) selected for publication the best papers from the 2nd International Conference on Information and Communication Technologies and Development (ICTD2007), Bangalore, December 2007. The criteria for selection included the position of being 'opposed' to 'primarily theoretical' papers (Parthasarathy & Ramamritham, 2009:iii). Instead, selected papers were expected to show a clear link between ICTs and development. That is, the link was made *a priori* and the subordination of theory to application was clear. The notion that both theory and praxis better inform each other was shunned. The ITID editorial also illustrates well the concern that ICT4D appears, at times, detached from the wider body of work and experience within development studies. For example, the editors speak favourably of how one paper demonstrates the 'limits of thinking about ICT use in terms of women, a biological category' and instead consider that 'gender' and 'class' may be more appropriate (*Ibid*: v). The lack of engagement with development thinking and the efforts to mainstream gender issues over the last 30 years is immediately apparent.[1] ICT4D, as captured within this example, seems to be embarked on its own voyage of (re)discovery. Such reinventing of the wheel casts considerable doubt on the wisdom of being opposed to considering theoretical underpinnings and the

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[1] For a concise overview see Pearson (2000). Pearson notes gender issues came to the fore in the 1970s with a conceptual shift in development thinking from women in development (WID) to the more nuanced gender and development (GAD) really evident in the 1980s. What makes the ITID editorial startling in its detachment is that at the level of implementation, which one assumes the journal is erring towards in its atheoretical stance, it is almost impossible to imagine a project being initiated without specific reference to gender. However, this institutionalism may also be seen as a downside of concerted efforts to 'mainstream' gender within development i.e. attention to gender just becomes another box to tick.

contribution such understandings may contribute to praxis. Within ICT4D this view does not appear uncommon. It is this detachment and, almost active, disengagement by some members of the ICT4D community that is of initial concern and informs the point of departure of this work.

1.2 **Rationale for the research**

The underlying rationale for the research stems from two key observations. Firstly, that there are a lack of contextualised examples of how ICTs may actually be applied within a process of, what may be termed, community based development. Specifically, the research is concerned with ICT based initiatives that seek to reduce poverty through improving the market participation of poor farmers. Secondly, the thesis is concerned with the theoretical foundations that inform and underpin such initiatives. It is argued that a preoccupation with the new within ICT4D has contributed to a distancing from the broader body of development studies and, in turn, the contributions that development studies may make to ICT4D. This distancing, it is argued, is apparent within ICT4D's conceptualisation of the market, which appeared at odds with evolving understandings within development studies at the turn of the millennium. In particular, the shift away from the free market rhetoric of the Washington consensus increasingly emphasises both the role of information and the importance of regulation within markets. This development appears to have been largely missed by ICT4D. Instead within ICT4D the view presented is that poor producers are excluded from effective market participation by what are considered artificial barriers. These barriers are presented as stemming from asymmetrical access to information, which are held to discriminate against producers in favour of traders. The argument follows that by providing more equitable access to information such asymmetries may be overcome and market participation for poor producers may be improved. The research described within takes issue with this view.

The research is guided by a conceptual framework. This framework draws on the understanding that technology plays a facilitating role and that it is the function of information that is of primary concern within ICT4D interventions. It is also understood that it is not enough to simply access information. Instead the assimilation of information and its transformation towards a desired development outcome, poverty reduction in this context, is a staged progress and is dependent on other contributory factors. In this regard the conceptual framework draws on Richard Heeks' (1999b) concept of the information chain. In order to better identify and understand the ability of individuals to assess and then apply information that may be accessed the conceptual framework stresses the importance of analysing existing socio-economic relations. Towards this end the framework draws on Stuart Plattner's (1985) concept of equilibrating markets and stresses the importance of understanding the roles of, and interactions between, actors, goods and transactions within localised markets. As such, the conceptual framework provides an instrument for the analysis of market based ICT4D interventions seeking to impact upon poverty. The conceptual framework is presented in chapter four and its subsequent development within the research is discussed in chapter eight.

The thesis is informed by field research conducted in the Republic of Indonesia between October 2004 and September 2005. A follow-up visit was conducted in early 2006; however, this was not in an official research capacity. Fieldwork was conducted at the e-Pabelan project in the village of Pabelan in Central Java. The United Nations Development Programme (UNDP) in partnership with the Indonesian Development Planning Board (BAPPENAS) established the e-Pabelan project as the initial pilot within their Partnerships for e-Prosperity for the Poor (PePP) programme.[2] The project followed a community telecentre based approach. The telecentre provided a physical space with the necessary resources and equipment (ICTs) to enable the community to access new information. One of the stated aims of the project was to improve market access for poor farmers. Indonesia made significant progress in shaking off the impacts of the economic crisis of 1997, which plunged millions of Indonesians into poverty, and has also made the successful transition to democracy. Indonesia ranks as medium on the Human Development Index (HDI). While poverty remains a key concern and national priority the HDI ranking provides some indication that Indonesia has a moderately well established infrastructure and socio-economic basis upon which the uptake of ICTs may be expected to take root. Indonesia, therefore, provides a potentially fruitful area of exploration for ICT4D. It should also be noted that small-scale producers are considered to be critical development actors, in terms of possessing untapped economic potential, in rural development strategies for Indonesia. It is also widely noted by observers and policy makers alike that a lack of market access is a major limiting factor for many small-scale rural producers in Indonesia.

The research conducted utilised a mixed methods approach that employed both quantitative and qualitative data collection with an emphasis placed on the latter. Two key surveys were conducted; one of 216 poor households and one of 70 poor farmers drawn from the household survey. These surveys were underpinned by participant observation within the community and direct observation at the telecentre itself. Informal interviews were integral to the participant observation conducted. Supplementary participatory rural appraisal instruments were occasionally used. A questionnaire survey of the ICT4D project users was also completed. The above data collection instruments were combined within an extended case study in order to better situate the research. The analysis of data collected during the fieldwork was guided by grounded theory (Glaser & Strauss, 1967). The research method and data collection instruments were chosen with the aim of emphasising and better engaging with context within the study. This approach was guided by the fact that although there are numerous anecdotal reports of ICT4D initiatives within the literature there are few contextualised studies.

It should also be noted that many of the reports emerging from ICT4D at the turn of the millennium were better classified as success stories rather than case studies. These stories were, therefore, promotional by definition. A further justification for the research approach outlined is that there is a lack of extended independent field research analysing the impacts of ICT4D interventions. It is also

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[2] PePP won the APEC Digital Opportunity Centre (ADOC) Awards (Taipei, 30 June 2006) for best practice for bridging the digital divide. See http://www.apecdoc.org/webADOCAwardList.aspx [Accessed 14.3.09].

becoming increasingly evident that many of the earlier ICT4D success stories were largely driven by enthusiasm and were in fact far from successful (Heeks, 2002a; 2005). This situation is discussed further in chapter three. The geographical spread of case studies is also relatively thin. Within Asia most are clustered in South Asia. There are few in Southeast Asia and no extended studies to date in Indonesia. By way of example, Sankaran Ramanathan and Jörg Becker's (2001) compilation the *Internet in Asia* draws examples from the region with chapters dedicated to Vietnam, Malaysia and Singapore, but Indonesia is conspicuously absent. It should be noted, however, that within the Indonesian context there are a number of studies of Internet usage and uptake (Hill & Sen, 1997; Lim, 1999, 2003; Purbo 2004).

1.3 Research aims and objectives

In light of the above and in order to assess and examine the contribution of an ICT based poverty reduction initiative seeking to improve the market participation of poor farmers in rural Java the following research aims and objectives are presented:

1.3.1 Primary research aim

- Explore the contribution of an ICT based development intervention to poverty reduction among poor farmers in rural Java.

This aim is formulated within the context of ICT based interventions that seek to improve poor farmers' ability to participate in markets. The overall aim gives rise to further considerations that are described in the following research objectives.

1.3.2 Secondary research objectives

- Identify how the introduction of new information/communication channels may affect extant relations and power structures within communities.

The above refers to the observation that development is synonymous with change. It is how changes are manifested within communities that will determine the success of an intervention and its relevance to individuals within that community.

- Identify who may benefit from, and who may be disadvantaged by, participation in new ICT facilitated networks.

As such, there is the need to identify who (class, gender, social standing, occupation, educational attainment, political linkages etc) benefits from ICT based interventions and who does not and why.

- Identify if, and why, some may prefer (or are disadvantaged by) ongoing participation in extant networks.

There are risks inherent within any change and, as such, there are risks associated with choosing to participate in external, or non-personal, networks. It is assumed these risks may be greater for the poor. As such, it is important to establish why some may choose not to participate in such networks.

1.4 **Contribution of the research to knowledge**

The research constitutes a unique and contextualised case study of an ICT based poverty reduction initiative from the Javanese context. There have, to the author's knowledge, been no such similar studies to date. The application of the concept of the information chain as utilised within the research project's conceptual framework is the first to date in Indonesia and, as far as the author is aware, Asia. There have been no attempts to apply the concept of equilibrating markets to an analysis of ICT based initiatives (Plattner, 1985). As noted above, both the information chain and the concept of equilibrating markets inform the research project's conceptual framework. This conceptual framework is developed through the research to contribute a framework for the analysis of market based ICT for poverty reduction interventions targeting poor rural farmers. This framework is presented in chapter eight. The framework stresses the centrality of the role of assessment to the adoption of ICTs as opposed to seeing the assessment of information as an independent stage within the information chain. The research illustrates how the utility and relevance of an ICT based poverty reduction intervention seeking to improve the market participation of poor farmers is assessed in relation to risk, which in turn is dictated by the way in which farmers exercise agency, choose goods and play the market. This active engagement with risk and assessing of perceived utility stands in contrast to the popular ICT4D image of the hapless farmer as a victim of an impersonal market.

The research also questions the emphasising of the widening of opportunities within the ICT4D conceptualisation of poverty. This understanding is shown to be partial and at odds with beneficiary understandings that emphasise the importance of security. Similarly, the research demonstrates that viewing the introduction of an ICT based poverty reduction initiative as neutral and universally applicable is flawed. The research highlights that in the Indonesian context a failure within such interventions to engage with local institutions can result in the initiative being perceived as disempowering rather than empowering. With respect to how poor farmers secure their livelihoods through market transactions the research illustrates the need for a more targeted approach within ICT4D. This implies better distinguishing between different market actors and the way in which the choice of goods is central to poor farmers' abilities to play the market. In this regard the research shows that interventions that target primary crops are likely to be placed under far greater scrutiny by the intended beneficiaries than those targeting secondary crops. Further, and contrary to the received ICT4D view, the research demonstrates that poor farmers in Java are reluctant to take on the roles, responsibilities and burdens of traders. Finally, the research highlights the need for a modification of

Plattner's thesis with regard to the benefits of personal exchange. The research describes how farmers mitigate risk within transactions by dealing with traders from a known pool of traders. Again the decision of who to trade with would often be guided by the type of good that was being taken to market.

Findings from the research presented herein (primarily chapter six) have been published as a book chapter (Robinson, 2007). The research findings have also contributed to a World Bank study on ICTs in Indonesia (World Bank, 2005). Upon invite, research findings were also presented to a United Nations Education, Scientific and Cultural Organisation (UNESCO) policy study conference on 'Grassroots Technology and Gender Mainstreaming' (Robinson, 2005a). A further paper was submitted and presented to the Development Studies Association conference in 2005 (Robinson, 2005b).

Note: The research contained herein is concerned with the emerging field of ICT4D and its application at the turn of the millennium. As such, the discussion of ICT4D within chapters two and three are to be read in the context of ICT4D at this point in time extending to the first half of the 2000s. The relationship of the research to subsequent developments in the field since 2005 is discussed in chapter eight.

1.5 Structure of the thesis

The thesis is structured and proceeds as follows:

Chapter two sets the scene for the research and establishes the background to information communication technologies for development (ICT4D). The chapter reviews ICT4D's relationship and positioning in respect to development studies. The chapter also provides working definitions and clarifies positions with regard to contested terms and concepts. The chapter also addresses the concept of the information age and emphasises the difference between immanent and intentional development in this regard.

Chapter three outlines responses to the information age thesis. This begins with a review of initiatives at the multi-lateral level. The chapter then turns to critiques of ICT4D and responses at the macro or broader conceptual level. A review of case studies is then presented. Lessons learned and recommendations from the literature are then addressed. A review and introduction to the significance of alternative understandings of markets is also presented in relation to ICT4D.

Chapter four introduces the research project itself. The research project's conceptual framework is introduced. The research methodology, methods and data collection instruments are introduced and reviewed.

Chapter five provides an introduction to Indonesia and the study location. This is considered essential for initially establishing context. The background to and the aims of the e-Pabelan project are also reviewed and discussed.

Chapter six and chapter seven present the research findings. Chapter six provides a detailed case study and analysis of the implementation of the ICT4D intervention in relation to the establishment of access to technology and access to information. The chapter highlights the significance of local institutions in relation to the project.

Chapter seven is primarily concerned with exploring existing socio-economic relations. The chapter explore how poor farmers secure their livelihoods and manage risk through an examination of actors, goods and transactions. The chapter demonstrates the need for better contextualisation within ICT4D.

Chapter eight concludes the research and details the contributions to knowledge outlined above. The chapter also reviews the research project's conceptual framework and analysis of market-based ICT4PR interventions targeting poor farmers. Findings from the research are related back to key contemporary ICT4D literature published since 2005.

1.6 **The researcher in relation to the researched**

Finally, in the interests of transparency, and in light of the fact that the shackles of subjectivity may not altogether be shaken off, it seems prudent to situate the researcher in relation to the research. This is all the more important in discussions of access, poverty, opportunities and marginalisation. I am a white western male and a product of a European educational system. I am not a technophile. I have acquired, mostly self-taught with occasional advice from friends and colleagues, the ICT skills that I require to function effectively in my work and social life. This is probably a minimum and like many others, to borrow an analogy, I am grateful that my television works and am interested in what it does and its content and impact; however, I have limited interest in wavelengths, cathode ray tubes, liquid crystal displays or similar. In this sense, I may be representative of many. My educational background and interest is development studies and I approach the topic from a desire to understand social relations, differences and conditions.

During the course of this research project and following the completion of my field research I started working for an international non-governmental organisation (INGO) in a management role. This was also in Java. This presented me with the opportunity to apply a number of concepts (notably Heeks' concept of the information chain) and findings from my research in project design and implementation. Needless to say, I also had the privilege to deepen, to a degree, my understanding of Indonesia and all its complexities. Importantly, and in a rather rapid manner I made the transition from an observer of, and commentator on, development to a practitioner of development. As others may well testify, such a transition is rarely problem free. I do feel that this first-hand experience of some of the conflicts that continue to persist between academic values, principles and, to a degree, freedom and the

practicalities and constraints of implementation within development have broadened my knowledge and, perhaps, tempered my critique through first-hand experiences of the difficulties inherent within project implementation. While I have sought to separate the two for the basis of this work, my more recent experiences of working within development as a practitioner have undoubtedly influenced the analysis that follows. What I write now is clearly different from what might have been at the time I concluded my fieldwork. I hope this change is for the better. It is, of course, for the reader to ultimately decide.

Chapter 2

Development, poverty and ICT4D at the turn of the millennium

2.1 **Chapter introduction**

The following chapter sets the scene for the research and establishes the background to information communication technologies for development (ICT4D). The chapter is primarily concerned with ICT4D as an academic pursuit and how the body of work that constitutes ICT4D relates to the wider study of development. The chapter draws on a preliminary literature review and argues that, in the main, the relationship between ICT4D and development studies is poorly conceptualised. It is further suggested that there is a lack of engagement between ICT4D and development studies; a theme that is expanded upon in chapter three. This lack of engagement is viewed as limiting and is considered particularly acute from the position of ICT4D towards development studies. The lion's share of ICT4D literature remains focused on promoting and justifying the use of ICTs towards development ends rather than on an analysis of the actual function and purpose of ICTs within development interventions. Similarly, there appears to be limited efforts to better establish and reinforce ICT4D's conceptual validity as a discipline of study. In this regard, development studies may be considered a polar opposite and actively contested field of study.

Alongside sketching out the ICT4D landscape, the chapter will introduce some general working definitions and key concepts that will be key points of reference throughout. While later chapters are more concerned with understandings from the micro-level this initial chapter takes broader brushstrokes and addresses ICT4D and the study of development from a historical and largely macro viewpoint.

2.2 **Some qualifications and initial positioning of the research**

The research that this chapter introduces is concerned with the impacts of ICT based development interventions with a particular interest in attempts to apply ICTs to the troubling and persisting issue of poverty. With poverty reduction now firmly established (as discussed below) within the development agenda this is an area of contemporary, and challenging, concern. With this in mind it requires stating that this thesis addresses itself to the field of development studies and not ICT4D. The discipline of development studies in this regard is considered to be simply, and somewhat tautologically, the study of development within the social sciences. What development itself actually constitutes will be outlined below. As will become evident, broad and varied understandings of development are generally accepted and this indicates the correspondingly multi-disciplinary nature of development studies. Henry Bernstein captures this breadth in his discussion of the early broadening of development studies' academic scope:

> [T]he study of society and of history cannot be pursued separately. The subject matter of the specialized domains of social science- 'the' economic, 'the' political, 'the' sociological and 'the' psychological- are inextricably related to reality.

<div align="right">Bernstein, 1973:18 [3]</div>

Development studies, therefore, casts its net wide in its attempt to understand the processes and impacts of socio-economic change. It is how such understandings are framed, presented and justified in relationship to lived human realities that is this work's concern.

The term ICT4D used herein refers to the body of work including books, academic articles, donor and implementer documents and reports, and media articles and stories as well as practical actions and initiatives concerned with the application of ICTs towards development ends. In this sense ICT4D is seen as a collective grouping with common characteristics and a shared vision and purpose. These characteristics may be summarised as follows:

a. A shared view that the use of ICTs can initiate and/or improve a process of development.
b. A common concern that ICTs can and should be actively applied towards development ends.
c. An understanding that 'a' and 'b' have a universal relevance and are globally applicable.

The adoption of this position towards ICT4D leaves an opening for charges of homogenisation and a possible disregard for difference within ICT4D. Such charges may well have some validity. However, this analytical device of convenience is chosen to reflect what is viewed as the persisting and dominant discourse within ICT4D at this time.

Within what follows development studies is viewed as the senior partner and point of conceptual reference. This is justified by the historical longevity of development studies in terms of contested academic discipline and practice. It is also supported by ICT4D's references and referrals back to the field of development studies. It is also evident that development studies benefits from the more substantive body of work accumulated over time. This body of work, therefore, also presents the advantage of a wider range of contexts and experiences. This breadth should also warn the reader that this account cannot claim to be exhaustive.

2.3 **The nature of development and points of departure**

The intention to begin with development as the contextual point of reference is somewhat problematic. Development is open to a wide range of interpretations that can hinder the establishment of a concrete point of reference. An initial position is to recognise development as being a process of

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[3] Bernstein quotes Clifford Geertz (1963), no stranger to Java, who noted: 'An adequate understanding of the new countries of the 'third world' demands that one pursue scientific quarry across any fenced-off academic field into which it may happen to wander.' (in Bernstein 1973:13).

change.[4] This position may be expanded to note the teleological nature of development and the way development seeks to influence, and is in turn influenced by, events over time. This results in development as both concept and practice constantly in need of adjustment and re-positioning. For some commentators this flux results in an 'amoeba-like' quality that renders the task of defining development futile (Sachs, 1992:4). However if one chooses to persist, it is clear that development is at least identifiable. It is also the case that development is very much a loaded term that has been, and remains, unavoidably and intrinsically linked to dominant conceptualisations of progress and improvement. This idea of progressive betterment indicates the normative nature of development in striving for how things 'ought to be' (Bernstein, 1973; Schuurman, 2000). This generalised ideal (however, it may be imagined) highlights the inescapably political nature of development as both concept and praxis. Development is both the imagining of a future and the allocation of means and resources towards the realisation of that image.

The politics of development are clearly captured through Dhirubhai Sheth's (1993) compilation of opinions from the South in which development is linked to turmoil, oppression, the annexing of states and the hosting of foreign troops, increasing female abortion rates due to advancements in technology allowing the sex of unborn children to be identified, and environmental degradation to name but a few.[5] In these commentaries development arrives from the outside and is not always a welcome guest. For others, the normative and prescriptive nature of the type of development that has been thrust onto the developing world is little more than a continuation of colonialism (Kothari, 1988). The moral destitution that this is taken to imply alongside what is the perceived failure of development, as seen in persisting poverty and rising inequality, have led for searches for alternatives (Schumacher, 1975; Norberg-Hodge, 1991; Shiva, 1991). Nevertheless, for some the failure of development is so profound that there is a need to abandon it, as both concept and practice, urgently and altogether (Escobar, 1995).

In contrast, it may be noted that such extreme opinions are selective and ignore changes and responses that have occurred within development over time. These include paradigmatic shifts within key development institutions (Cornia *et al*, 1987; Stiglitz, 1998, 2003), the evolving nature and function of non-governmental organisations (Korten, 1990), Japan's rapid industrialisation (Sugiyama, 1988) or even the eradication of smallpox (Hopkins, 1983).[6] All fall squarely under the remit of development and may be read as rendering the call for abandonment as fulfilling little other purpose that promoting 'resistance rather than transformation or emancipation.' (Nederveen Pieterse, 2000:187). A more sympathetic reading of development's troubles may suggest that we may learn

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[4] Robert Chambers offers perhaps the most succinct definition with development simply being 'good change' (Chambers 1997:xiv). Post-development and (some) alternative development writers would beg to differ.
[5] Sheth uses the term 'South' as an alternative to developing or less developed areas in order to remind that the point of reference for such comparisons is the state of development that has been achieved in Western Europe and the United States. Sheth questions if this is either correct or desirable. However, the examples of Singapore and Australia among others illustrate the problems with this particular choice of terminology.
[6] Hopkins (1983) notes the last recorded case of smallpox in occurred in 1978. This was 10 months after the quarantine of the last case of endemic smallpox, which occurred in Somalia. Janet Parker, a medical photographer, became infected from a laboratory in Birmingham, England.

from these critiques without dismissing them (Brigg, 2002). Although problematic, contested and, at times, ambiguous it is evident that development can be addressed, reflected upon and challenged. It is not beyond the pale of recognition.

While one may flounder in providing a suitably definitive answer to what development is, it is possible to identify tendencies and contributory factors. In this regard, Frans Schuurman (2000) argues that development may be characterised by persisting shared paradigms. These, Schuurman argues, are a constant in spite of historical trends and passing theoretical fashions within development and its study. These paradigms are:

- The essentialisation of the Third World and its inhabitants as homogeneous entities.
- The unconditional belief in the concept of progress and in the makeability of society.
- The importance of the (nation)state as an analytical frame of reference and a political and scientific confidence in the role of the state to realise progress.

Schuurman, 2000:8

Schuurman's paradigms assist in building an understanding of the nature of development. Schuurman, much like Edward Said (1978) before him, reminds us how the West has shaped and defined the object of its intent.[7] In development terms our collective other and analytical point of reference are the 'underdeveloped', the 'less-developed' and the 'poor'. It is against the hegemonic experience of the West that development is ultimately positioned and defined. It is towards this end that all should move. This conceptualisation is reflected, and at times amplified, within ICT4D. The second of Schuurman's paradigms concerns progress and clearly here ICT4D and development share much in common. The third is perhaps less clear. Schuurman maintains that the decline of the nation state, as heralded by the onset of globalisation, has not occurred. This perhaps offers a warning to ICT4D that not all is new. However, for the purposes herein it is sufficient to note that the state remains a major player with respect to the promotion and adoption of ICT4D (the e-Pabelan project was established by a state agency) and that it is at the state level that much developmental indexing, analysis and comparison still resides. ICT4D with its global indices is no different in this regard. Schuurman's paradigms, therefore, prove helpful in noting parallels and firmly situating ICT4D within the broader field of development. From this perspective, any persistence in trying to establish ICT4D as entirely new or as an alternative to development appears misplaced.

Without further dwelling on trying to grasp the essential nature of development, and equipped with an overview of development's general condition and purpose, it will prove productive to note the leanings of this research. This research is influenced by what is commonly referred to as community development. It is in this sense concerned with localised development interventions of a limited scale. The research project is primarily concerned with such interventions in rural settings within a developing country context. Understandings of development in this sense stem from an early

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[7] See also Sachs (1976).

dissatisfaction with conflating economic growth, as measured by national income data, with development. This narrow view of development led to increasing critique and the publishing of Dudley Seers' (1969) now classic article *The Meaning of Development*. By critiquing the monolithic notion of development as economic growth and through suggesting alternative measures of development such as localised poverty incidences, rates of child mortality and income inequality Seers paved the way for more complex and contextualised understandings of development.[8] Such understandings question and draw attention to the welfare, capabilities and quality of life of individuals and communities. These understandings are representative of a human development approach.

With regard to the nature of human development Amartya Sen (1999) argues that '[h]uman development is first and foremost an ally of the poor, rather than of the rich and the affluent.' (Sen, 1999:144). As such, human development seeks to provide a counter to hegemonic conceptualisations of development and aims to reposition development in alternative contexts. Correspondingly, development's remit is broadened and is expanded beyond the economic sphere to include the social, cultural and political vagaries of life. Importantly, this understanding strives to position the poor, or beneficiaries, or even clients in today's development vernacular, as central to the development process. For Robert Chambers (1997) such a shift requires conscious and radical political action (a fact overlooked today in many 'participatory' approaches) that centres on the active participation and prioritisation of the poor and their understandings in development processes (Chambers, 1997).[9] As such, the political nature of development is rendered more explicit and the contextual complexity of development is brought to the fore.

The broader contextualisation that human development offers urges engagement with so-called 'soft' development issues including voice, representation and agency. The acknowledgement of agency, that is '[t]he actions of individuals or groups, and their capacities to influence events' is particularly relevant to community based development (Thomas & Alan, 2000:189). Agency is critical in understanding how development interventions may be received, accepted or disrupted at the local level as James Scott's (1985) work in rural Malaysia during the Green Revolution illustrates. Addressing agency urges engagement with emic (insider) understandings of development, and to contrast and compare these with etic (outsider) conceptualisations (Sheth, 1993; Turner, 2003). Although challenging, failure to incorporate local understandings and rationalities risks patronisation, misrepresentation and the abuse of privileged positions of power as writers such as Frantz Fanon (1961) and Edward Said (1978) have demonstrated. A greater awareness of how outside interventions may be received further highlights development's contested nature and the existence of localised and multiple sites of resistance. Viewed in this light, the dangers and risks inherent in approaching development as a universally benevolent or neutral act become apparent.

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[8] Seers (1969) also notes that national income statistics are particularly ill-suited to developing countries due to a lack of data from predominantly rural areas.
[9] Chambers (1997) was highly influential in promoting the concept of participation that is widely used (and abused) in development today.

Today human development, and the broader understandings the concept suggests, is institutionalised. The approach has become well ensconced within development parlance and objectives. It is also notable that the concept constitutes the basis for the UNDP's Human Development Index (HDI) as initiated by Mahbub Al Haq in 1990. The index is the global point of reference for development status and progress (or decline). Human development also laid the groundwork for the establishment of the United Nations Millennium Development Goals in 2000.[10] While one may bemoan human development's drift from radicalism that such institutionalisation unavoidably implies it is hard on balance to not feel some sense of relief that human development is positioned where it is today.[11] Human development provides us with an improved, if flawed, point of reference. This is important, for development continues to embody value judgements that, one hopes, are based on 'the awareness that only with a universal morality of justice is there a future for humanity' (Schuurman, 2000:19).

In summary, it is clear that development is diverse, disputed and political. Development's normative nature has also been highlighted. It has also been suggested that there are advantages in adopting a broader understanding, although such an approach unavoidably increases complexity. While one may disagree with how development is best done, if it should be embarked on at all, one may concur that '[t]he purpose of development is to create an environment in which all people can expand their capabilities, and opportunities can be enlarged for both present and future generations.' (UNDP, 1994:13). It is within this context that the merits of ICT based interventions for rural development are to be assessed.

2.3.1 Development's uneasy relationship with poverty

It almost seems counter-intuitive to consider that development and poverty have not always been explicitly linked. Nevertheless, this has not always been the case. While it is clear that poverty is an age-old concern, and to suggest that it has not been a constant concern for many would be fallacious, it is only relatively recently that the reduction of poverty has become a specific aim within the global development policy arena. In order to better understand this relationship it is helpful to briefly review the Bretton Woods institutions.

The formal institutionalisation of development is generally traced to the end of the Second World War with the establishment of the International Bank for Reconstruction and Development (World Bank) and the International Monetary Fund (IMF) at Bretton Woods, New Hampshire, United States (US) in

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[10] United Nations Millennium Declaration September 8th 2000 adopted under General Assembly resolution 55/2. Eight goals and 21 targets to be achieved by 2015: reduce poverty, achieve universal primary education, promote gender equality, reduce child mortality, combat HIV/AIDS (plus other diseases including malaria), ensure environmental sustainability, and develop global partnership for development. http://www.un.org/millenniumgoals/index.shtml
[11] Sen and the UNDP remind us of human development's far older roots in Aristotle's observation that 'wealth is evidently not the good we are seeking, for it is merely useful and for the sake of something else' (Sen 1999:14; UNDP 1994:14). Sen also references early Hindu teachings and there are clearly comparisons in other religious traditions and philosophies.

1945.[12] The idea that development was born with the establishment of the Bretton Woods institutions is not accepted by all (Cowten & Shenton, 1996; Thomas, 2000). Nevertheless, it is as Bernstein notes:

> In the period since the Second World War [that] development has become a global aspiration and effort. […] A strategic contrast with many earlier conceptions is the emphasis on conscious action to effect large-scale change in a desired direction, utilizing in a centralised or at least co-ordinated way the resources available to given political units.

> Bernstein, 1973:13

Within development, the dominant policies of the day are still set by the Bretton Woods Institutions with the World Bank taking the lead with, as Jean-Pierre Cling and colleagues (2003) note, the International Monetary Fund (IMF) and then the national aid ministries, with varying enthusiasm, following suit. Following the Second World War development policy focused on growth maximisation. The battery of policy tools applied included '[i]mport substitution, five-year plans, government ownership and control of strategic industries, regulation of the labour market and state controls over the flows of savings and investments.' (Fine *et al*, 2003:xv). Within the corresponding conceptualisation of development as economic growth (as critiqued by Seers), poverty was not a targeted concern. The understanding being that the benefits of economic growth would 'trickle-down' through all layers of society of their own accord.

During the 1970s, however, these interventions seemed less effective at delivering growth and there was growing concern over rising inequality. Such observations resulted in widespread adoption of the 'basic needs' approach to development. This approach stressed the need for intervention in alleviating poverty and the provision of basic needs and services (Cornia *et al*, 1987). Within the World Bank under Robert McNamara's stewardship (1968 to 1981), tackling extreme poverty was highlighted as being a priority (Marshall, 2008). Concerned with extreme rural poverty McNamara directed the World Bank's attention towards agriculture in developing countries with a focus on small-scale farms as opposed to earlier large-scale sectoral interventions (Pincus, 2001).

During the 1980s such focuses became overshadowed by a new political and economic agenda. Mirroring the developed country policies of Margaret Thatcher and Ronald Reagan structural adjustment became the clarion call for development. The structural adjustment programmes (SAPs) of the World Bank and IMF focused on macro-economic stabilisation, trade liberalisation and, in sharp contrast to earlier approaches, the rolling back of the state in favour of a liberalised and globalised market. This was very much a one size fits all strategy and, as Ben Fine and colleagues (2003) explain, the view was simply that '[f]ree-market economics [...] would take care of the problems of the

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[12] For Esteva the birth of development is traced to then US President Harry S Truman's speech (20 January 1949): 'We must embark on a bold new program for making the benefits of our scientific advances and industrial progress available for the improvement and growth of underdeveloped areas. The old imperialism - exploitation for foreign profit - has no place in our plans. What we envisage is a program of development based on the concept of democratic fair dealing.' (in Esteva 1992:6)

developing countries.' (Fine *et al*, 2003: xiv). These policies were promulgated globally by the World Bank and IMF, by both carrot and stick, and are commonly referred to as the Washington consensus. Poverty, meanwhile, at the policy level dropped off the agenda. Unwavering faith in the reified (and altruistic) powers of the liberalised market deemed further consideration unnecessary. Thatcher's reported musings summarise this enthusiasm well: 'I knew from my father's accounts that the free market was like a vast, sensitive nervous system, responding to events and signals all over the world to meet the ever-changing needs of people in other countries' (in Adams, 5.4.09).[13]

By the turn of the millennium it became clear to all but the most hard-headed that these policies had failed (Stiglitz, 1998). The failure of the Washington consensus was nowhere more clear than in the inescapable fact that by the World Bank's own reckoning of poverty almost half of the world's population were living on less than two dollars a day and a fifth were living in extreme poverty at under a dollar a day (World Bank, 2001). The fiercely contested notion that poverty reduction would simply be a by-product of development was finally laid to rest. Poverty was rediscovered to require effective policy and targeted action at all levels. While the discussion here has focused on the World Bank, due to its uniquely influential position as the largest development funder, it should be noted that other institutions had taken an earlier lead. In 1987, for example, UNICEF published *Adjustment with a human face* (Cornia *et al*, 1987) and poverty reduction as a global development priority was formalised at the World Summit for Human Development in Copenhagen in 1995 (Cling *et al*, 2003).

Importantly, it was towards the turn of the millennium that there was a convergence that allowed the adoption of a working definition of poverty that linked clearly with a humanistic understanding of development. This is rendered all the more important as it was against this backdrop that ICT4D emerged and sought, in varying degrees of clarity, to position itself. As such, the working definition and conceptual point of reference used herein sees poverty as 'the denial of choices and opportunities for living a tolerable life' (UNDP, 1997:2). This definition dovetails with the understanding of human development presented above.

2.4 **Information communication technologies and poverty reduction**

With respect to ICTs this study is primarily concerned with the Internet. According to Manuel Castells (2002) '[t]he Internet is a communication medium that allows, for the first time, the communication of many to many, in chosen time, on a global scale.'(Castells, 2002:2). For Ramanathan and Becker (2001) the defining feature of the Internet lies in its potential and the 'degree to which it permits individual as well as mass interaction, providing new possibilities for creativity, expression and provision of personal services while raising new dangers of exploitation of citizens.' (Ramanathan & Becker, 2001:x). Heeks (1999a) defines ICTs in general as being '"electronic means of capturing, processing, storing and communicating information." ICTs are based on digital information held as 1s

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[13] Adam's (2009) notes this may be a somewhat fanciful recollection from that most infamous and divisive of grocer's daughters.

and 0s, and comprise computer hardware, software and networks.' (Heeks, 1999a:2). Heeks also notes the importance of not overlooking 'organic' (based on a person's body; sound and brain waves) and 'literate' (information held in texts) technologies in development interventions (*Ibid*:3). More pertinently Heeks asks '"What do [digital] ICTs do?" They handle information in digital format. That's all.' (Heeks, 2002b:2).

With regard to the utilisation of ICTs towards poverty alleviation the research draws upon the outline of development and poverty presented above. In this respect the analytical point of reference is based on the assumption that ICTs may be utilised to contribute towards poverty reduction through bringing about improvements in three related areas; empowerment, opportunities and security (World Bank, 2001). This reflects broader understandings of poverty in line with the human development approach adopted. Poverty is also recognised as being a relative and/or absolute condition. Peter Townsend (1979) describes the relative nature of poverty as follows:

> Individuals, families and groups in the population can be said to be in poverty when they lack the resources to obtain the types of diet, participate in the activities and have the living conditions and amenities which are customary, or at least widely encouraged or approved, in the societies to which they belong. Their resources are so seriously below those commanded by the average individual or family that they are in effect, excluded from ordinary living patterns, customs and activities.

> Townsend, 1979:31

Although rarely specified this is the contextualisation of poverty that is frequently used within ICT4D. The benchmark provided is that of a global and interlinked society and the ability of individuals to participate in that global society. The questioning of what marks the point against which others should be judged is clearly open; however, it is worth noting that a clearer distinction regarding poverty may be beneficial within ICT4D. A more explicit acknowledgement of the relative nature of poverty may also prove helpful in diffusing some more vigorous criticisms. One such memorable offering is suggested by Nuimuddin Chowdhury (2000) who notes the cynics as complaining that: 'ICTs do not have any more to do with poverty and food security in the developing countries than rain dances have to do with rain' (Chowdhury, 2000:3). An approach that conceptualises ICTs as potentially contributing to poverty reduction through enhancing opportunities and participation in relation to changing social norms and standards within particular communities may be more helpful.

In short, an acknowledgement that ICTs may raise both new opportunities and risks for individuals and communities reflects the research project's broader understanding of development and poverty. Again, this reflects development as being politically charged and largely context dependent and anticipates agency and, potentially, resistance. Further it serves to remind that the introduction of a new technology or development initiative may, inadvertently, increase emic understandings of relative

poverty in comparison with others (Norberg-Hodge, 1991).[14] Finally, it requires clarification that the project is concerned with 'intensive' applications of ICTs, that is, their application to pre-existing development processes and concerns (Narasimhan, 1983). The project is not concerned with their 'extensive' use in creating new products and services (*Ibid*).

2.5 **Situating ICT4D**

In situating ICT4D it is customary to trace interest to the late to mid 1990s depending, as Marianne Franklin (2004) drily points out, 'on where the point of reference is' (Franklin, 2004:3). This is not to exclude earlier interest in communication technologies (and in bridging technological divides) such as the Maitland Commission's (1985) *Missing Link* report on access to telephones in rural areas. It is simply to reflect the speed and breadth of the diffusion of new digital technologies at this time. It was this acceleration in uptake that sparked heightened interest in the elaboration of a thesis that stresses the emergence of a new age or dawn. This information age thesis is outlined below. From this outline it will be argued that the information age thesis does little to explain the actual application of ICTs within development beyond establishing a vague and general need. The influence of the information age thesis within ICT4D is best seen as establishing and sustaining a broad conceptual backdrop that emphasises the provision of technology. Such an understanding is best encapsulated within attempts to bridge the so-called 'digital divide'.

While the notion of an information age or society precedes the popularisation of the Internet, it is worth briefly reviewing the Internet's birth and subsequent rise. It is, after all, the development of the Internet, the World Wide Web and related ICTs that have brought the concept of the information age to the fore. The roots of the Internet may be traced back to the development of the US government's ARPANET programme during the Cold War.[15] ARPANET focused on establishing a decentralised and networked communications system that could continue to operate in adverse conditions such as in the event of a nuclear attack. The solution was a network of decentralised nodes. If one node was incapacitated, it could be bypassed and information could still flow through the overall network. To achieve this information was broken up into packets that could be transmitted via varied routes. The packets would then be reassembled at the receiving end.[16] In 1969 four US universities were connected and the first message transmitted 26.10.09. (Thomas & Wyatt, 2000; Castells, 2002).[17]

Alternative dates of conception, such as 1971 (the introduction of the Internet protocols used today) and 1972 (the connection of ARPANET to ALOHAnet in Hawaii), are debated (Thomas & Wyatt,

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[14] Norberg-Hodge (1991) describes how the arrival of television made Ladakhis acutely aware of their (relative) poverty. While there is an element of romanticism to some of the writing, and some notable omissions such as the impact of road building for the Indian military to better access the troubled Indian state of Jammu and Kashmir (of which Ladakh is a part), the point is illustrative.

[15] ARPA: Advanced Research Projects Agency, US Defense Department

[16] The process known as packet switching.

[17] The message was to be the word 'login', however, the system crashed partway through resulting in the first message sent over the Internet being 'lo' (Wikipedia accessed 7.4.09).

2000). By 1971, ARPANET had grown to cover around 24 computers at 15 sites with accelerated growth marked by the development of a high-speed backbone by the US National Science Foundation in 1986 (Norris, 2001). However, for the general observer the major point of interest came with the invention of the World Wide Web by Tim Berners-Lee in 1991 at the European Organisation for Nuclear Research (CERN) in Geneva. The wider potential of the Internet then came into being with the development of more user-friendly interfaces. In 1993 the early graphical Web browser Mosaic was released.[18] This was followed by the Netscape browser in 1994.[19] As Pippa Norris (2001) notes these developments 'removed the need for any technical expertise in accessing the Web beyond the ability to point and click' (Norris, 2001:27).

By the close of 1995 'the first year of widespread use of the world wide web [sic], there were about 16 million users of computer communication networks in the world.' (Castells, 2002:3) By March 2000 a United Nations (UN) high-level panel of experts reported there were approximately 276 million global Internet users and more than 1.5 billion web pages growing at a rate of around 2 million pages per day (UN, 2000:4). Nevertheless, the UN panel cautions that these figures represent 'activity by less than 5% of the world's population' (Ibid). The United Nations Development Programme (UNDP) disaggregate similar figures and emphasise that '[t]he typical Internet user worldwide is male, under 35 years old, with a college education and high income, urban-based and English speaking- a member of a very elite minority worldwide.' (UNDP, 1999:63).

The most prolific commentator on the changes brought about by the emergence and rapid uptake of these technologies is Manuel Castells. Castells (2000a) argues that we are witnessing a major paradigm shift in the socio-economic development of the world. Castells describes how, after Karl Marx, we are at a point of historical discontinuity that is heralding in a new age.[20] For Castells these changes amount to no less than:

> [T]he emergence of a new mode of development, informationalism, historically shaped by the restructuring of the capitalist mode of production towards the end of the twentieth century. [...] what is specific to the informational mode of development is the action of knowledge upon knowledge itself as the main source of productivity [...] I call this new mode of development informational, constituted by the emergence of a new technological paradigm based on information technology
>
> Castells, 2000a:14-17

This perceived shift from industrial to informational capitalist development is for Castells characterised by a 'social organization in which information generation, processing, and transmission become the

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[18] Mosaic released by National Center for Supercomputing Applications, Illinois, US.
[19] Netscape released by Netscape Communications Corporation, Virginia, US.
[20] In Marx's prose: 'At a certain stage of development it [a mode of production] brings forth the material agencies for its own dissolution. From that moment new forces and new passions spring up in the bosom of society; but the old social organisation fetters them and keeps them down. It must be annihilated; it is annihilated. Its annihilation, the transformation of the individualised and scattered means of production into socially concentrated ones, of the pigmy property of the many into the huge property of the few.' (Marx, 1977:715).

fundamental sources of productivity and power' (*Ibid*: 21). It is, for Castells, a new age characterised by networks of unprecedented flexibility and reach. As Meheroo Jussawalla (1986) points out just as some countries in the Asia-Pacific region were beginning to get a grip on industrialisation the goal posts were moved.[21]

A comprehensive critique of Castells is provided by Nicholas Garnham (2004). Garnham claims Castells is vague in the use of the term information, does not describe the underlying driving force of capitalism, is technologically deterministic, and fails to note that markets have always been networks. For Garnham, this final point leads Castells to overemphasise the effect of networks within the new economy that he describes. Frank Webster (2002) is concerned with the idea of historical discontinuities within Castells' work. Webster sees this as overly convenient and a typical, and self-important, tendency of people from every age wanting to be different from their predecessors. Webster also suggests Castells wants the best of both worlds. Webster's reading sees Castells at pains to stress continuities with earlier forms of capitalism, but unable to escape his promotion of a paradigmatic shift. Webster does not find this tension sits easily within Castells' work. Castells does indeed emphasise continuity. He notes the ongoing significance of the state and the fact that 'not everything is global in the [new] economy: in fact, most production, employment and firms are, and will remain, local and regional.' (Castells, 2000a:101). With respect to rural development this last point is significant.

Castells points to new opportunities within the informational society such as the ability of suitably equipped to command, in real time, global access to resources and markets. The possibility of countries being able to leapfrog stages of economic growth instead of a more traditional march through the sectors is also noted (Castells, 1999). However, it is the view that the networked nature of informational capitalism allows it to bypass what is irrelevant to its capitalist 'logic' that is of major concern. The result for Castells is 'the consolidation of black holes of human misery' and the emergence of a 'fourth world' of social exclusion that transcends national boundaries (*Ibid*, 1999:10; 2000b:2). It is the accelerated rate of this exclusion, polarisation and inequality that Castells finds most concerning and the waste of human potential through the 'marginalization of entire countries, cities or neighbourhoods' (*Ibid*, 1999:12). The destructive side of informational capitalism is exacerbated by the creation of new forms of underdevelopment:[22]

> This fourth world of social exclusion, beyond poverty, exists everywhere, albeit in different proportions- from the South Bronx to Mantes-la-Jolie, from Kamagasaki to Meseta de Orcasitas and from the *favelas* of Rio to the shanties of Jakarta. And there is […] a systemic

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[21] Castells lays no claim to introducing terms such as information age, information society and 'informatization' noting their collective origins ('*johoka shakai*') to be in Japan in the 1960s (Castells, 2000a:21). Castells' debt to Daniel Bell's (1973 [1980 edition]) concept of a post-industrial society is also explicit.

[22] Castells' work draws parallels with earlier Marxist influenced dependency theory writers in that the capitalist development of the West *under*-develops the third world. The difference is that while dependency theory emphasises an exploitative (and dependent) relationship between the developed and under developed, Castells suggests a more extreme view in that the link between the developed and underdeveloped is broken altogether and the underdeveloped are cast away as irrelevant.

relationship between the rise of informational, global capitalism, under current conditions, and the extraordinary growth of social exclusion and human despair.

Ibid, 1999:10

It is this bleak picture and concern that reverberates through the call to bridge the digital divide. Castells presents a strong call to action and it was this message that Castells chose to emphasise to the development community at the 1999 United Nations Research Institute for Social Development (UNRISD) conference on Information Technologies and Social Development, Geneva, Switzerland. Castells argued that to prevent and overcome such exclusion and despair would require:

[M]assive technological upgrading of countries, firms, and households around the world- a strategy of the highest interest for everyone, including business, and particularly for high technology companies. (An appropriate use of the Internet is in fact the most important feature in such an upgrading).

Ibid: 12

As will be described in chapter three Castells concerns bore resonance and also captured the imagination of many. The concern, however, is that Castells addresses development, after Marx, as an 'immanent' [*sic*] process unfolding historically (Cowton & Shenton, 1996). With regard to what can be done in terms of 'intentional development' (*Ibid*) to offset the negatives and destruction inherent within the process of immanent development little is offered by the information age thesis. In fact, the primary justification for the application of ICTs to intentional development has been, as Castells himself suggests, the call to bridge the digital divide.

The basic premise of the digital divide argument is not particularly nuanced. Simply, it may be read as viewing a lack of ICTs as being 'inextricably' linked to poverty (Flor, 2001). The argument is extended on the premise that people are impoverished and will remain poor due to a lack of access to digital ICTs (Alampay, 2006; Burtseva *et al*, 2007). This conflating of cause and effect fails to acknowledge that the digital divide 'is a symptom (among many)' of poverty 'and not a diagnosis' (McNamara, 2003:6). The oversimplification of poverty and exclusion within a digital divide approach is problematic for many (Marker *et al*, 2002). The distillation of poverty to a single technological factor could not contrast more with the complex understandings of poverty that are stressed within a human development approach and as outlined above. While the notion of a digital divide may have utility in drawing comparisons of ICT diffusion between populations (Sciadis, 2005), as a means towards targeted and intentional development it is hard to view the concept as much more than a caricature of overly simplistic understandings of poverty. The concern that this gives rise to is that the digital divide may be read as mirroring, and subsequently ignoring, many earlier lessons from the wider field of development. This is a conceptual concern that materialised in very real ways within the e-Pabelan project.

2.6 **An alternative contextualisation for positioning ICT4D**

The primary weakness of the idea of an information age as a process of immanent development is that the notion does little to explain exactly why, or how, or to what ends ICTs should be applied within a process of intentional development. This is problematic if ICT4D continues to cling to the information society thesis as its fundamental justification for, and call to, action. The twin concerns that the thesis presents, increased opportunities for a few and accelerated polarisation for many, are clearly of interest to the development community. However, the argument that in terms of development praxis the solution is to ensure inclusion through providing access to and exploiting new technologies is not. As has been noted, such a digital divide approach obscures complexity and the lived realities of many surviving in conditions of poverty. The unavoidable conclusion is that apart from promoting the provision of access to technology neither the information society thesis nor the digital divide approach offer much to explain what should then be done assuming access to technology is assured. It is at this point that ICT4D seems to have stalled. The situation is compounded (as will be addressed in the following chapter) by there being very few, and possibly no, clear examples of how providing access to ICTs has contributed to reducing poverty. Furthermore, ICT4D as a body of work appears to have engaged little with changes within development thinking in recent years; and it is, perhaps, here that insights could be gained.

In terms of policy and approach, perhaps the most significant change in development thinking in recent times has been the move away from the Washington consensus. This policy rethink refers to the about-turn and the implicit acknowledgment by the World Bank and, to a lesser extent, the IMF of their policy failure. The Washington consensus had not worked. The prescriptions of the Washington consensus that focused on liberalisation of the market and rolling back the state had failed to deliver and had actually had been a contributory factor in the persistence of poverty and increasing polarisation between rich and poor. As such, the Washington consensus gave way to the post-Washington consensus (PWC). The PWC was elaborated in a paper titled *More instruments and broader goals: Moving towards the post-Washington consensus* presented by Joseph Stiglitz at the 1998 World Institute for Development Economics Research (WIDER) annual lecture in Helsinki, Finland.[23]

Stiglitz sets out to discuss two things. One is a better understanding of how markets work. This is through a critique of the Washington consensus that held that markets would work for themselves once governments had "'got out the way'" (Stiglitz, 1998:1). The role of government was merely to set the scene through liberalising trade, providing macro-economic stability and 'getting prices right' (*Ibid*). From then on in it was all down to the market. Stiglitz finds the Washington consensus lacking in focusing largely on low inflation and in ignoring 'fundamental issues' including sound financial regulation, transparency and establishing policies for technology transfer. Secondly, Stiglitz notes the broadening of the term development (as discussed above) and that in searching for policies that

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support development (noted as being sustainable, egalitarian and/or democratic) and the better functioning of markets there will be tradeoffs in the policy arena.

With regard to the first topic Stiglitz points to East Asia and notes that the development success of countries in this region was in fact due to not following too closely the policy recommendations of the Washington consensus. With regard to the East Asian crisis beginning in Thailand in 1997 Stiglitz claims this does not rebuke the success of countries in the region. Taking South Korea as an example he claims the problem was that governments did not regulate enough in contrast to the Washington consensus prescription of deregulation. Stigltz contends neither the success nor the problems of East Asia could be understood through the framework offered by the Washington consensus. Stiglitz also notes the Washington consensus underplays the importance of education, which he recognises as long being central to development, and the transfer of technology. Stiglitz breaks drastically with the Washington consensus by emphasising the need for improved regulation and robust financial systems (which he likens to the brain of the economy) in order to reduce risk, improve resource allocation and reduce economic contractions. To achieve this intervention and regulations are required as '[l]eft to themselves financial systems will not do a very good job in fulfilling these functions.' (*Ibid*: 7).

For Stiglitz the most important factor stemming from a study of markets is 'the pervasiveness of market failure.' (*Ibid*). He sees this as particularly severe within the financial sector where incomplete information and incomplete markets are commonplace. Here legal frameworks are required. Better regulation does not only make better economic sense for Stiglitz, it also allows the direction of resources towards underserved groups and, therefore, has an important social function. Again, the split with the Washington consensus is stark. Nevertheless, Stiglitz should not be read as dismissing all within the Washington consensus as he still stresses the need for competitive markets. These he claims were misunderstood within the Washington consensus as the concept of competitive markets was confused with trade liberalisation. For Stiglitz, government is the complement to markets. This is particularly the case where there are incomplete markets or incomplete information. It is within the PWC that the themes of imperfect information, development and markets merged at the turn of the millennium.

Ben Fine (2003) points out that what made this rejection of the Washington consensus remarkable was that:

> This proposed intellectual and policy watershed did not emanate from some disillusioned academic or NGO activist. Stiglitz was serving as Senior Vice President and Chief Economist to the World Bank as well as having previously chaired the US Council of Economic Advisors. In short, the Washington consensus was under assault from within.

> Fine, 2003:2

The ICT4D community seems to have missed this political paradigm shift by, arguably, the most powerful policy institution operating within the field of development. This is intriguing for a number of

reasons. From one perspective it may be regarded as a further example of ICT4D's lack of engagement with wider development discourse. This appears all the more pertinent when one considers the emphasis on information and markets within the PWC. At the core of the PWC is the idea of information asymmetries that can be traced to George Akerloff's (1970) classic study *The market for lemons* (see chapter three below). The notion of information asymmetries in markets is often cited as a key justification for the application of ICTs within a process of intentional development. As such, the idea of using ICTs to intervene in markets may be viewed as owing more to the PWC than the notion of an information age. Curiously, the PWC is conspicuous in its absence within ICT4D literature.[24] In fact, it is suggested that this lack of engagement with the PWC, which provides a clearer policy justification for the application of ICTs, is symptomatic of ICT4D's failure to engage with broader understandings of markets. This is considered particularly acute with relation to how poor individuals secure their livelihoods and operate within localised markets. It is this theme that is further explored in the following chapter and within the e-Pabelan case study.

In short, ICT4D seems to have been blinded by the new and its own constructed parameters based upon the perceived emergence of a new dawn. In this sense ICT4D appears to have adopted what may be referred to as a 'sanctioned discourse' that reflects and prioritises understandings that seek to serve ICT4D's internal and shared vested interests.[25] Simply, what lies outside of the information thesis, or that does not serve the purposes of promoting ICT4D, need not be addressed. The significance of the World Bank, or knowledge bank as the World Bank now prefers to be known, as a key player and early promoter of ICT4D and paymaster of numerous ICT4D initiatives is not overlooked. The World Bank clearly noticed ICT4D even if ICT4D seems to have taken its eyes off the World Bank.

2.7 **Chapter summary**

The initial chapter has argued that ICT4D has conceptually set itself apart from the wider field of development studies and is to a large extent embarked on its own journey of (re)discovery. This has been presented as erroneous and places ICT4D at risk of not learning from wider body of development experiences. It has also been suggested that the notions of development and poverty

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[24] References to the PWC and ICT4D are hard to come by, however, they do exist. An explicit mention was put forward by Laura White (2007) in a review of Torero, M & von Braun J (eds). 2006. *Information and Communication Technologies for Development and Poverty Reduction: The Potential of Telecommunications*. John Hopkins University Press, Baltimore. White notes the following: 'Indeed, whilst the conclusions about the current role of ICT in development are not wholly positive, with various practical problems and issues highlighted in each chapter, the book is lacking in critical reflection about the ways in which ICT is being applied in development programmes and why. Thus, in terms of both theory and content it falls firmly within the agenda of post-Washington consensus of the dominant development community.' (White, 2002:362). Note that White's observation is within a political science periodical. An oblique reference comes from Thankon Arun and David Hulme (2008) who in a discussion of microfinance briefly speculate on the potential of low-cost ICTs to contribute to the rolling out of further services in the future. While not directly addressing ICTs, the authors note the following and offer a caution: 'Microfinance today is about drawing the benefits of contemporary capitalism down to those with low incomes, rather than promoting alternatives to capitalism. It is part of the post-Washington consensus (Stiglitz, 1998) and not an alternative to the orthodoxy.'(Arun & Hulme, 2008:3). The paper is published by the Brooks World Poverty Institute the chair of which is Joseph E. Stiglitz.
[25] Attributed to Charles Tripp (1996) (in Allan, 2001:182). Although tautological the concept emphasises how what is and can be discussed may be further shaped and bounded by vested interests.

are often poorly defined within ICT4D, if at all. Nevertheless, it is evident that ICT4D has commonalities and shares clear paradigms with development as both an approach and study. In this respect, ICT4D as a field of study needs to be situated within the study of development if it is to be better understood; ICT4D should not, therefore, be seen as radical and distinct. Such an approach requires an acknowledgment of complexity and potential ambiguity within a complex and contested field.

With regard to development it has also been argued that ICT4D has focused, in the main, on the emergence of historical discontinuities as represented through the information age thesis as its primary justification. This has shown to be wanting as such an approach does little to describe the utility of ICTs within specific human development contexts. In this regard the distinction between immanent and intentional development is helpful. With regard to better understanding the latter, it has also been suggested that changes in approach to development policy at the multi-lateral level at the turn of the millennium provide pointers for better understanding the application of ICTs. These policy changes indicate interest in the function of information within the markets in which individuals secure their livelihoods.

Chapter 3

ICTs and development in practice

3.1 Chapter introduction

The previous chapter presented a brief introduction to development and poverty and the relationship of ICT4D as a body of work to development studies. In this regard it has been suggested that ICT4D's relationship to development is somewhat detached. While this may be indicative of an emerging field seeking to establish a distinct identity, the concern is that such a situation could be detrimental to ICT4D overall. Through taking Castell's work as being representative of the informational society thesis it has been suggested that what may be seen as a new age presents new, and accelerated, risks and also new opportunities for those suitably equipped. This in turn may be taken to explain much enthusiasm for, and a sense of urgency within, ICT4D. This is reflected within the notion of needing to bridge the digital divide. Nevertheless, we have also seen that this does little to explain the intensive application of ICTs within intentional development interventions.

The chapter proceeds as follows. Firstly, responses to the information age and attempts to 'upgrade', to borrow from Castells, at the multi-lateral level are addressed. The chapter then turns to a number of critiques of ICT4D and responses at the macro or broader conceptual level. A review of case studies is then presented. Lessons learned and recommendations from the literature are then addressed. The chapter seeks to review literature and prepare the groundwork to enable the thesis to present alternative understandings of the workings of markets that are of benefit to ICT4D.

3.2 Upgrading with the multi-laterals

The multi-laterals were not slow to pick up on interest in either the information society thesis or ICT4D. In 1995 the World Bank established their infoDev grant funding initiative. InfoDev funds are allocated to ICT4D initiatives that support the Millennium Development Goals (MDGs). Particular reference is laid on poverty reduction and sustainability. The United Nations (UN) also took strides to seize the moment with both the UNDP and the United Nations Educational, Scientific and Cultural Organization (UNESCO) being active early players. The subject of ICTs for development was included in the 1999 Human Development Report (HDR) on globalisation. The 1999 HDR is optimistic regarding the potential of new technologies to alleviate poverty and, following Castells, the possibility that '[i]nformation and communication technology can also open a fast track to knowledge based growth' (UNDP, 1999:6). The UN *Report of the high-level panel of experts on information and communication technology* (2000) also takes an optimistic stance regarding the potential of ICTs. The panel sees an urgent need to ensure all enjoy the benefits of ICTs and claims 'ICT brings early,

tangible and important benefits to the poor' (UN, 2000:4).[26] Among its recommendations the report urges:

> The United Nations, at the Millennium Assembly in September 2000, should proclaim the right of universal access to information and communication services, such as the Internet, as an important new component of the United Nations principles and conventions on human rights and development
>
> UN, 2000:5

While drawing shy of recommending a right to access (to technology) as a human right, the UN *Millennium Declaration* (2000) resolves '[t]o ensure that the benefits of new technologies, especially information and communication technologies, in conformity with recommendations contained in the ECOSOC 2000 Ministerial Declaration, are available to all' (UN Resolution 55/2, III:20). The reference to the UN Economic and Social Council (ECOSOC) refers to a declaration on the role of ICTs within the global knowledge-based economy that notes:

> The ICT revolution opens vast new opportunities for economic growth and social development but also poses challenges and risks. Along with important economic and social benefits, it can lead to further widening disparities between and within countries. While considering the impact of ICT on the creation of a global knowledge-based economy, we highlight that the majority of the world population still lives in poverty and remains untouched by the ICT revolution. The emerging new economy, characterized by a rapidly increasing reliance of value creation on information and knowledge, still remains concentrated in the developed countries. Unless access to and use of ICT is broadened, the majority of people particularly in the developing countries will not enjoy the benefits of the new knowledge-based economy.
>
> ECOSOC declaration 2000, point 5

The influence of the information society thesis is evident within the emphasis to bridge the digital divide and provide access to technology. Both concepts are, therefore, sanctioned at the highest level within the *Millennium Declaration* (2000). A further contribution of the UN high-level panel was to recommend the establishment of the UN ICT Task Force. The task force, combining UN, government and non-government actors, was established in late 2001 to coordinate and utilise ICTs towards achieving the MDGs. The establishment of the United Nations Information Technology Service (UNITeS) was brought into play as an initiative under the UN Volunteers (UNV) programme in order for organisations or individuals to volunteer and contribute their ICT4D related expertise.[27] In 2000 the UN Economic and Social Commission for Asia and the Pacific (ESCAP) proposed the establishment of a national information index to measure e-readiness in the region (UN Wire, 20.6.2000).

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[26] The report, with a flair for the dramatic, urges nations 'to catch the "Internet Express" without further delay' (UN, 2000:5).
[27] In early 2009 the news section of the UNITeS website did not show any news since 2004. However, UNV does have an online volunteering service (www.onlinevolunteering.org).

Governments were similarly taking up the call to digital arms. The G8+1 Summit at Kyushu-Okinawa, Japan (2000) initiated the establishment of the DOTForce coalition aimed at integrating attempts to bridge the digital divide. Selected developing country representatives, including Indonesia, attended. The Okinawa summit resulted in the adoption of the *Charter on the Global Information Society* (2000), which again notes the 'revolutionary' changes taking place globally and stresses the importance of inclusion in all the opportunities presented by the new age. The G8's Genoa Plan of Action in 2001 further stressed the importance of ICT for human development. Of further note is the Global Knowledge Partnership (GKP) established in Canada in 1997 as a multi-stakeholder (public, private, multilateral and civil society) initiative in order to advance knowledge for development and ICT4D. The World Summit on the Information Society (WSIS) was subsequently held in two phases in Geneva (2003) and Tunis (2005).

The plethora of multi-lateral summits and initiatives from the World Bank, the UN, and the G8 among others (such as the International Telecommunications Union, ITU) contributed towards the United Kingdom's (UK) Department for International Development (DfID) coming full circle in 2002 and calling for the better co-ordination of multi-lateral ICT initiatives to meet international development targets. For DfID there was a clear need for some form of a division of labour among actors. DfID, added the waiver that the establishment of yet another global ICT acronym may not be the best way forward. Notably, the DfID report urges a move away from a digital divide approach and indicates a more cautious stance towards ICTs in development. DfID's caution is important to note as it is not isolated. The stance adopted by DfID is that '[i]mproving information flows and communication services is a necessary but not sufficient condition to eliminate poverty.' (Marker *et al*, 2002:9).

Similar sentiments seeking to acknowledge the complexity of poverty and the need for more focused applications, and difficulties associated in attributing impacts to ICT, are not uncommon in the run up to WSIS 2003 (Chapman & Slaymaker, 2002; Fust, 2003; McNamara, 2003). It should also be noted that the bursting of the speculative dotcom financial bubble in 2001 was somewhat sobering (Cassidy, 2002). Nevertheless, plenty of enthusiasm remains. Jose Maria Figures (2003), the head of the UN ICT Task Force, espouses enthusiasm for information kiosks as they empower and provide an outlet of voice for the poor and Bruno Lanvin, manager of infoDev, notes 'evidence is now sufficient to affirm that information technology, telecommunications and connectivity in general are significant contributors (and in some regards prerequisites) to poverty reduction.' (in Badshah *et al*, 2003:xi). Unfortunately, in the run up to WSIS there was, and still is, little hard evidence to support either of these optimistic claims.

3.3 Challenging ICT4D

The optimism expressed by governments and multi-nationals is not shared by all and a body of more critical literature has emerged. The following critiques challenge the conceptual basis upon which the members of the development community outlined above have based their enthusiasm. Susanne

Schech (2001) seeks to establish direct links between the ICT4D proponents and ICT4D critics and differing development discourses. Schech goes on to suggests an alternative approach that draws on the knowledge-power nexus of Foucault. For Schech, the ICT4D proponents reflect modernisation theory thinking and the ICT4D pessimists are aligned with dependency theory and post-colonial thought. While similarities exist there are a number of issues. Modernisation theory was about transferring a particular type of knowledge from the developed to the developing world. Schech is concerned that within ICT4D it is western knowledge that is the standard by which all should be judged. Anything different is seen as less, deficient and is subsequently dismissed. Further, the application of ICTs to transfer such knowledge is seen as a neutral act of universal relevance in ICT4D. This is reflective of Schuurman's view that development as both discipline and praxis sees society as 'makeable'. Schech, however, tends to conflate modernisation theory with neo-liberalism. As such, rather than critiquing a specific development theory, she rallies against the development orthodoxy. Schech addresses the 1998/99 World Development Report (WDR) and reads it as being representative of ICT4D optimism. However, a close reading of the 1998/99 WDR shows that ICTs are backgrounded in favour of knowledge, information and PWC thinking.[28] PWC, in turn, urges intervention by the state and related institutions in sharp contrast to neo-liberal free-market ideology. While a desire to critique the orthodoxy is understandable, and one may argue desirable, it is important to note when the orthodoxy moves on if such critiques are to have purchase.

Equating the ICT4D pessimists with dependency theory and post-development thinking is tempting; as both sought to challenge orthodox development thinking. Nonetheless, it is problematic. The dependency theorists claimed the development of the West 'underdeveloped' the periphery (the colonies). This extractive process prevented the periphery from developing outright. It is not clear that this neatly fits with ICT4D cynicism. Cynicism of ICT4D generally questions the role of ICTs within development rather than the broader process of development itself. Schech also notes this in her observation that 'there is an important difference. It is exclusion of peoples and territories from the informational mode of development, rather than their dependent integration, which constitutes the problem.' (Schech, 2002: 18). Schech does not clarify the term post-colonial discourse; however reference to the work of Arturo Escobar (1994) suggests a post-development stance. Post-development theory sees development as destructive and an abject failure that should be abandoned without delay. Post-development has been heavily criticised as it does not offer an alternative (see chapter two above).

Schech's contribution is significant as it is a rare and concerted effort to situate ICT4D within wider development discourse. Nevertheless, it should be noted that differences in the focus of development theories over time do not neatly equate to an evolution of thought, policy or action and that influences of each may be found in current development interventions (Houston & Jackson, 2003). It also seems

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[28] The 1998/9 WDR is entitled *Knowledge for development* and as with all WDRs the report is presented as a broad ranging development report with a clear policy focus of global relevance. The 1998/9 WDR is well cited within the ICT4D literature, however, its PWC influence is not. The report was prepared under the direction of Joseph Stiglitz. The major ICT emphasis within the report is on telephones.

the case that ICT4D, as represented by efforts to bridge the digital divide, has a stronger affiliation with neo-liberalism than the modernisation theory that Schech suggests. Within digital divide style approaches ICTs are endowed with special purpose and almost mystical qualities that allow them to contribute to development. Much like leaving all ills to be solved by the unfettered market of neo-liberalism, this is reductionist in the extreme. Despite the difficulties in neatly aligning ICT4D with particular development theories, Schech draws attention to important considerations. These urge a questioning of who produces information/knowledge and for what purposes and on whose terms. These relations of power and the way that the production of knowledge legitimises power at particular historical junctures, after Foucault, are important to note. Whether this is new to development or in any way specific to ICT4D is, however, a different matter.

In what sets out in a related vein, Linda Main (2001) examines the establishment of the global information infrastructure (GII) and promises an exploration of whether this is reflective of a new imperialism. Main provides a number of examples whereby the Internet has provided an outlet of voice to marginalised groups or communities in adverse situations. Examples include use by the Zapatistas in Mexico to promote their cause and by priests and individuals during the Balkans conflict. The examples given are seen as empowering by Main. These examples may also be viewed as sites of resistance in which individuals and communities are able to find their own space and voice in spite of the dominant discourse. Noting the importance of access (to technology) Main reviews options for rolling out connectivity through different cable and satellite configurations. Main claims access to ICTs are increasingly seen to have a strong correlation with poverty and notes that providing connectivity is not enough. Main notes ICT usage is dominated by the elite and that most content is in English. Main is concerned with such barriers to access (it is not explicit as to whether this refers to technology or information), but falls short of exploring if this is reflective of a new imperialism or not.[29] The question is left open.

Mark Thompson (2004) draws on Foucault and Escobar to critique the Development Gateway; a World Bank ICT4D resource initiative.[30] Thompson critiques the Gateway for its lack of transparency and for not being more explicit in making it clear it is, in fact, a World Bank initiative. Thompson sees the Gateway as a tool for the World Bank to promote its dominant development agenda. In spite of the lack of acknowledgement of the World Bank's involvement in the Gateway, Thompson claims (in spite of the contradiction) that 'it is to the Global Development Gateway […] that the Bank has nailed its colours.' (Thompson, 2004:3). For Thompson the Gateway is 'truly a developmental panopticon' and, therefore, a means to suppress and control (*Ibid*: 5).[31] Drawing on discourse analysis Thompson goes on to examine a speech on ICTs and development by the then World Bank president James Wolfensohn at Cambridge University in 2000. Through this analysis Thompson seeks to position

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[29] The conflating of access to technology and information are a recurring theme in much ICT4D literature.
[30] www.developmentgateway.org
[31] The Panopticon was a type of prison designed by Jeremy Bentham (1785). The Panopticon allowed prisoners to be observed without knowing if they were under observation. Foucault draws on the idea in *Discipline and Punish* (1995). Thompson mentions 'the normalising, neutral terms of development discourse' (Thompson, 2000:5). The normative nature of development does not imply neutrality.

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ICT4D as synonymous with development in the eyes of the World Bank. However, it is not clear that ICTs are in fact the primary focus of the World Bank as a whole.

Chrisanthi Avgerou (2000) also questions what is presented as legitimate (or rational) knowledge within ICT4D and how alternative understandings may be dismissed by a dominant discourse. Avgerou sees the ICT4D project as representing a particular western techno-scientific economic rationality. A key issue for Avgerou is that the West, based on its own historical and intellectual experiences, identifies both the problem and the cure. This has also been indicated in the review of the digital divide above. Avgerou illustrates her argument through drawing on the work of Escobar and his view of development as a discourse (again following Foucault). This implies development legitimises and accepts only certain understandings within a particular space and time. For Avgerou the enlightenment tradition of the West, concerned with absolute truths, coupled with the doctrine of free-market economics are seen as destroying alternative rationalities. These alternative rationalities include local cultures, politics and knowledge. Avgerou, like Schech, reminds us of the importance of acknowledging difference. Avgerou further stresses the need for ICT specialists to acknowledge and account for localised values and histories. Very little, she claims, has been done to assure this. Nevertheless, she doubts if such actions will be sufficient as ICT specialists are equally bound by their own discourse and cultural norms. Again, following the post-development literature from which she draws, Avgerou does not offer an alternative path for ICT4D.

A more recent contribution is provided by Savita Bailur. Bailur's (2008) paper is of interest as it provides a gauge for how conceptual critiques have evolved (or not) and as it directly addresses (albeit through secondary data) initiatives aimed at providing access to ICTs in the field. Bailur draws on post-colonial theory to examine the function of telecentres. Telecentres take the form of buildings, rooms or similar spaces equipped with ICTs and provide localised ICT access points within under-served communities. Telecentres are generally considered to differ from other access points, such as commercial Internet cafes, through having a development focus (Badshah *et al*, 2003). e-Pabelan was established within this format. Bailur's paper, therefore, serves to lead the discussion towards a review of initiatives in the field in the following section.

In contrast to Avergou, Bailur explicitly notes the heritage of post-colonial theory in literature and literary studies. Bailur draws on Said (1995), Homi Bhabha (1994) and the subaltern studies of Gayatri Spivak (1988). These writers challenge universal meta-theories and stress the way the West constructed what we claim to 'know' about the former colonies, their cultures and peoples, in contrast and opposition to itself. That is, the point of reference derives from the West and it is on those terms that value and worth is judged. Such constructions tend to either demonization or over-romanticism. Spivak notes how the West speaks on behalf of the colonised and questions if the colonised (the subaltern, or beneficiary in development-speak) can ever speak as their voices are always contained and constrained within an overpowering and dominant discourse originating from the West. Through this lens Bailur critiques notions of participation in telecentre implementation and suggests, after Spivak, the literature 'shows a reluctance or an inability to let the subaltern speak.' (Bailur, 2008:11).

Bailur's critique of participation seems well placed and she cites a range of authors who call for the need for participation in ICT4D (see below). The examples given are recent forays into the field of participation and were published between 1999 and 2005 and herein lies a concern. Participation emerged as a counter to top-down development, as represented by modernisation theory, in the 1970s. The work of Chambers (1983, 1997) was highly influential in popularising the concept and (in varying guises) participation is now well entrenched within orthodox development thinking and praxis. As an example, the WDR 1998/99 stresses the need for participation at length. The World Bank's main contemporary poverty reduction policy vehicle, the poverty reduction strategy papers (PRSP), also claim participation to be at their core.

The 'discovery' of participation by ICT4D is, therefore, somewhat odd. Bailur seems right to question how participation is presented within ICT4D and to question if it is genuine in its intent and purpose. However, again the issue is in no way constrained to participation in ICT4D projects. The issues that Bailur raises may be addressed to participation within development in general. The late discovery of participation by ICT4D, and the need to single it out for attention, again suggests a disjuncture with wider development thinking. On the one hand, ICT4D may be considered to be playing catch-up; at worst it is woefully informed. On the other, due to the peculiar 'neo-liberal' nature assigned to ICTs any further action outside of providing 'access' is deemed superfluous. The extent that ICT4D has positioned itself as a distinct development exercise appears increasingly irresponsible and damaging. There is also the concern that within ICT4D praxis the concept of participation is seen increasingly as a tool to sell ICTs as a meaningful development concept to beneficiaries, who may otherwise be unconvinced.

3.3.1 Critiques of ICT4D in relation to development studies

The above examples draw our attention to important issues relating to ICT4D. These include the imposition of dominant (or Western) cultures, values and understandings on to individuals and communities in the developing world. This in turn may be viewed as silencing the beneficiaries and dismissing alternative understandings or simply a failure to understand the realities of others. Alternatively, as Main suggests, new opportunities for self-representation and expression may be presented. This has a range of implications ranging from extreme cultural domination to simply implementing projects that are inappropriate, not needed or not desired. Alternatively, sites of resistance, as Main infers, may be created. All the same, while ICTs may facilitate the creation of new forms of communication, it is hard to imagine any resistance fighter worth their salt packing up and calling it a day through a lack of access to ICTs. Overall, these conceptual critiques single out ICT4D for particular attention while drawing on post-development critiques of development that inevitably must conclude with the abandonment of development altogether. They are not, as such, in any way specific to ICT4D, but rather reflect wider concerns with development itself.

It should also be noted that post-colonial and post-development critiques tend to fall foul of homogenising the West (and/or the notion of development) and do not recognise that 'multiple centres, also in the South, now shape development discourse' (Nederveen Pieterse, 2000:178). Creating a monolithic West that exerts its will on the (homogenously silenced) Third World denies the very diversity that post-development seeks to defend. Jan Nederveen Pieterse (2000) notes a further contradiction in that '[p]ost-development arrives at development agnosticism by a different route but shares the abdication of development with neo-liberalism' (*Ibid*: 187). Nederveen Pieterse goes on to challenge such assumptions and notes the rejection of development need not be the only outcome from the insights post-development presents (*Ibid*). It is also notable that post-development 'elides the fact that many Third World governments and subjects have actively embraced development' (Brigg, 2002:425). The argument to abandon development is not, therefore, entirely convincing.

While one may reject the whole, one may well make use of some of the parts. The critiques above encourage awareness of alternate rationalities and relations of power in ICT4D. They draw attention to concerns of representation. With respect to poverty reduction they ask for consideration of who defines the poor and on what grounds and for what reason. Also, the question of who is defining the solution needs to be asked. Issues of agency and voice also come to the surface. In a reading of development that acknowledges complexity and contested understandings, as has been shown, this seems neither unreasonable nor surprising. The rise of post-development is one (seemingly fleeting) critical point of departure in a long history of dissatisfaction and a quest for alternatives. The words of Vandana Shiva (1991) stemming from an earlier activist tradition reflect many of the insights also arrived at through post-development critiques. Shiva calls for alternatives to the mainstream and writes from what she terms an 'eco-feminist' perspective:[32]

> Throughout the world, a new questioning is growing, rooted in the experience of those for whom the spread of what was called 'Enlightenment' has been the spread of darkness, of the extinction of life and life-enhancing processes. A new awareness is growing that is questioning the sanctity of science and development and revealing that these are not universal categories of progress, but the special projects of modern western patriarchy.

> Shiva, 1991:49

It is evident that the approaches adopted to critique ICT4D outlined above are framed within the critiques and discourse of the wider body of development studies. They also benefit from developments contested discursive history. As such, it is hard to concur that ICT4D is challenged in any way that is particular or specific to ICT4D *per se*. Instead, it is the underlying principles and foundations of development itself that are challenged and it is how development is done that is questioned.

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[32] That is, the same constructs and representations that allow the destruction of the environment allow justification for the subjugation of women.

The critiques above are directed from the wider field of development discourse towards what is, apparently, viewed as the isolated island of ICT4D. Development studies, therefore, also seems to promote the view that ICT4D is distinct and the lack of engagement appears mutual. The relationship between development studies and ICT4D is neither an exchange among equals nor one based on common understandings. On the part of ICT4D there seems little desire to offer up any particular conceptual questioning from within. The fundamentals are sound we are left to assume and the discourse is constrained and indeed sanctioned. The situation is reminiscent of the rift that developed between (theoretical) anthropology and the sub-field of (applied) development anthropology. As James Ferguson (2006) notes:

> [D]evelopment anthropology has plodded along as a subfield in a way that even its own practitioners insist is characterized by a striking lack of self-consciousness or critical awareness (Chambers 1987; Gow 1993; Redclift 1985). Largely oblivious to current theory and historically grounded criticism alike, development anthropology seems hardly to care if its most central assumptions are regarded as untenable or worse in the wider discipline.

Ferguson, 2006:148

Ferguson's words become all the more pertinent if one reminds oneself of the 'discovery' of both gender and participation by some in ICT4D in recent years. The signs are there that ICT4D must, and will when pushed, draw on experiences from the wider discipline to maintain legitimacy and relevance. However, the reluctance seems ingrained. As the basic tenets of ICT4D are considered largely irrevocable and historically determined, any foray into the wider body of development to borrow from experience is merely to tune and tweak an otherwise sound idea.

3.4 **The application of ICTs in development**

The relationship between ICTs and development and poverty reduction is open to a multitude of interpretations. This is particularly dependent on how the constructs of development and poverty are conceptualised and is naturally exacerbated within a broader understanding of development. Within the ICT4D literature the following are indicative of varied approaches to the applications of ICT4D. The topic of technological diffusion at the national level is tackled by Francesco Caselli and John Coleman (2001). African connectivity and its relationship to health, governance and education is the topic of choice for Olivier Couer de Roy (1997). Robin Mansell and Uta Wehn (1998) examine the potential of less-developed countries to participate in the knowledge society and establish their INEXSK model, which attempts to evaluate the capabilities of a country with regard to its infrastructure, experience, skills and knowledge. The information literacy needs of NGO workers in Australia and Timor Leste are addressed by Camille McMahon and Christine Bruce (2002). Layton Montgomery's (2002) thesis is concerned with NGOs' Internet usage in Nepal. Grant Boyle (2002) studies institutional applications in establishing a research network in a Vietnamese university. Varying social attitudes and responses, ranging from fatalism to individual determinism, towards

information technology are discussed by Paul Licker (2001). Louis Lefebvre and Élisabeth Lefebvre (2002) and Andrea Goldstein and David O'Connor (2002) focus on e-commerce. Firoze Manji *et al* (2002) tackle healthcare training and learning in Africa. Tim Unwin (2004) focuses on the utilisation of ICTs for education primarily in Africa.

Needless to say the following review cannot claim to be exhaustive. Focus is restricted to ICT4D efforts seeking to widen socio-economic opportunities for the poor; primarily in rural areas. ICT4D attempts that seek, to raise, or contribute towards raising, the income generating potential of the poor through improving individuals and groups capacities to operate within markets are emphasised. The following proceeds with a review of a number of case studies and is followed by an overview of approaches and lessons learned.

3.4.1 ICT4D Case studies

While not directed at poverty reduction *per se* Sugata Mita's hole-in-the-wall experiment provides a relevant starting point as it draws attention to issues of access (Mita 2000; Madhusudan 2002). The experiment in India involved placing a computer (with Internet access) in a wall adjacent to a New Delhi slum and another computer in a semi-urban school setting in Madhya Pradesh (without Internet access). The experiment was funded and resourced by the software and training company NIIT, India as an experiment in 'minimally invasive education'.[33] The experiment provides indications of possible outcomes from the introduction of technology in underserved areas and was based on the assumption that:

> The acquisition of basic computing skills by any set of children can be achieved through incidental learning provided the learners are given access to a suitable computing facility, with entertaining and motivating content and some minimal (human) guidance.

> Mita, 2000: 3

The experiment showed that with minimal guidance children were able to teach themselves basic computer skills including Internet use. The majority of users were younger children from the neighbouring slum in the Delhi experiment. Teenagers, with some computing experience, dominated in the Madhya Pradesh experiment with some adult users and no women users observed. No adult users were observed in Delhi. Mita notes: 'One elderly lady asked if it [the computer] would provide food for them. Parents in general felt that while they could see no need for the kiosk, it was very good for the children.' (*Ibid*: 14) The hole-in-the-wall experiment is interesting as parallels may be drawn with user groups at e-Pabelan. However, there is a concern that the experiment could be misunderstood as suggesting that ICT4D interventions in general require no intervention. It is

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[33] NIIT was awarded the Digital Opportunity Award by the World Information Technology Services Alliance (WITSA) in 2008 for their work on minimally invasive education (http://www.niit.com/aboutniit/Pages/Overview.aspx accessed 12.4.09)

interesting that a number of ICT4D initiatives, e-Pabelan included, have underestimated the resources required for effective implementation in favour of providing technology.[34] A further issue illustrated by the hole-in-the-wall experiment is disaggregated data within ICT4D. It is hard to assess the overall impact of the experiment as the numbers of users are not specified.

Perhaps one of the best known ICT4D projects is the Gyandoot, meaning 'Purveyor of Knowledge', project implemented in Madhya Pradesh India in 2000 (Bhatnagar *et al*, 2003:1). The project sought to provide linkages between rural villages and government services via the establishment of information kiosks in 38 villages. The kiosks were established in predominantly poor 'tribal' areas of Madhya Pradesh. (*Ibid*). Each kiosk contained a computer and basic ancillary facilities including a printer. For a small fee, users are able to search for government services and file complaints in Hindi. Services included filing for driving licences, land records and the posting of exam results for pupils. Subnash Bhatnagar *et al* (2003) reported 'moderate' activity levels at the kiosks in the first year, but note 'diminishing levels of activity, placing in question on [*sic*] the long-term viability of the project.' (*Ibid*: 1). Bhatnagar and colleagues noted the number of complaints received by the district government increased. No examples of responses to complaints were given. However, a perceived reduction in corruption was noted by villagers with some reporting quicker action by government officials. The authors noted low-awareness of the project by villagers in general. This observation was confirmed by an Indian Institute of Management (2002) study that reported low usage and poor documentation of usage and users. Simone Cecchini and Monica Raina (2004) also noted low usage figures (requiring the researchers to drop their planned sample sizes dramatically from 200 users to 40) and cast doubt on whether the benefits of Gyandoot were reaching the poor. Nevertheless, Bhatnagar *et al* maintain that the project had significant potential to empower the poor. Cecchina and Raina (2004) also did not give up on the overall notion, although they were sceptical of the digital divide approach and progress to date at Gyandoot.

Of particular interest was the provision of market prices for crops within the Gyandoot project. This was claimed to be empowering to farmers in their negotiation with buyers (Bhatnagar *et al*, 2003:1-2). Bhatnager *et al*, reported that farmers were able to sell potato crops in a market 100 miles away to gain an increased price. Other farmers were reported to have travelled 40 miles to gain better prices for wheat. This raises a number of questions, as the capacity to sell in distant markets assumes command over a range of resources. No disaggregated data was provided in this regard, although the ability to travel and having enough produce to sell implies the farmers concerned were not poor. This interpretation is confirmed by the Institute of Management report, which noted that 50% of respondents (from a sample of 32) accessed market information, but some respondents noted this only benefitted 'medium to rich farmers or grain merchants' (Indian Institute of Management, 2002:13). Nevertheless, Gyandoot won the Stockholm Challenge IT Award in 2000 and an award

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[34] Sending second-hand computers Africa, or 'technology dumping', without regard to context and resources available at the receiving end is a case in point (BBC, 1.5.03). See also http://www.digitalpipeline.org/, http://www.computers4africa.org.uk/. Furthermore, a BBC report claims only 10% of second-hand computers sent to Ghana are usable. The other 90% are headed for landfill sites. Computer waste cannot be exported under international law, but second-hand computers can be under a variety of pretexts. (BBC, 5.8.08).

from the Computer Society of India (Heeks, 2005). It should also be noted that 'Gyandoot pioneered the idea of rural telecentres in India.' (Bhatnager *et al*, 2003:1).

A further well-cited example is the Kothmale radio project in Sri Lanka (UNESCO, 2001; UNDP, 2006; Tacchi, 2006). The Kothmale community radio station was established in 1989 by the Sri Lankan Broadcasting Corporation. In 1996 the radio station was combined with Internet access with support from UNESCO. The idea being that using a hub and spokes model the radio station could broadcast and widen access to information from the Internet for the surrounding community. There are also a limited number of Internet access points at the radio station itself. The project was widely regarded as a success; although the developmental impacts appeared anecdotal and were presented in isolation. For example, Wijayanandra Jayaweera (2001) noted a baker found new recipes, an undertaker learned about new embalming techniques, a farmer found improved techniques for tomato growing and so on. It is not clear this information led to an improved livelihoods outcome. Jayaweera noted a mid-term review (unspecified, *n.d.*) indicated increased awareness regarding new livelihoods options. No further clarifications were provided. Jayaweera also noted:

> Empowering marginalized people to expand their knowledge base is one of the most effective ways the Internet can support people in their efforts to alleviate poverty. The technical and market information available via the Internet, if provided in an assimilative manner, can contribute to increased productivity and commercialization of local products.

> Jayaweera, 2001:1

As noted, no clear evidence was provided to support these claims. Maartje Op de Coul (2003) claimed the weekly provision of national (not local) market price information is of the 'utmost importance' to farmers and stated farmers could no longer be 'fooled'. It was not clear that farmers operated in these national markets; however, it seems safe to assume poor farmers would be more likely to operate in localised markets. Ian Pringle and Kothmale project team colleagues (2002) suggest 'the project does demonstrate the potential of the model to apply tangible ICT benefits in a rural area,' through citing the same unsituated examples as Jayaweera above (Pringle & David, 2002:4).[35]

South Asia would appear to have more than its fair share of initiatives. Another, oft-cited example is the e-Choupal project and 2005 Development Gateway Award Winner (FEER, 2003; Development Gateway 2005; UNDP 2006a). The project differed from the above examples in that it was a private sector initiative established by the Indian Tobacco Company (ITC) in 2000. ITC is a major agri-business with annual revenues of US$2.6 billion (FAO, 2005). However, the e-Choupal project is usually presented from the point of view of the farmers who are often portrayed as the primary beneficiaries in the literature. The project sought to enable farmers to bypass the established market system and sell directly to ITC via a local operator (usually a senior farmer) who gained commission

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[35] Jo Tacchi (2006) also saw the Kothmale model as relevant in combining old and new media towards poverty reduction ends and empowerment. However, again specific examples of impacts were lacking.

on every transaction. Ketan Chitnas *et al* (2007) noted the project allowed farmers to avoid the 'ruthless middlemen'. The cause or nature of this particular ruthlessness was assumed rather than explained. One is also left to assume ITC, the tobacco giant, was in contrast a benevolent, if perhaps monopolising, buyer.

ITC only bought certain crops from farmers and only twice a year at the main harvest periods. Crops that did not meet ITC's quality standards were not accepted. For lower quality crops and at other times of the year (especially for soy, wheat and chickpeas) the farmer still had to use the established spot markets. These spot markets, therefore, could be seen as acting in the favour of poor farmers who may still have been able to sell lower-quality produce; poorer farmers being less able to afford wastage. ITC also used the e-Choupal system to sell its own consumer products and services, including insurance, to farmers. On the one hand, the e-Choupal system seemed to provide certain farmers (who could meet standards) with an occasional alternative market. On the other hand, the project allowed better control of the supply chain, multiple markets for products and services and a very visible (and presumably marketable) corporate social responsibility (CSR) initiative for ITC. The structure of the project seems geared towards ITC's interests overall. This should not be surprising, but it is in contrast to how the e-Choupal project is, in the main, presented in the literature.

A similar initiative presented as benefiting rural farmers were the milk collection centres of the Anand Milk Union Ltd (AMUL) of Gujarat, India (UNDP, 1996b; Chakravarty, 2000, Rama Rao, 2003). The project sought to improve procurement between farmers and milk cooperatives through a smart card system that that allowed farmers (as it is usually presented) to save time and receive more rapid payments. The UNDP (2006b) provides a typically isolated ICT4D success story in which a migrant widowed woman claimed the new sales process took her 60 seconds instead of 20-30 minutes and she no longer argued over the quality of the milk she was selling. The woman had a herd of 25 cows and planned to start acquiring new breeds. (UNDP, 2006b). If nothing else, the example serves to warn against patronisation and reminds us that migrant widowed women are neither necessarily poor nor disempowered.[36]

The Wired Village project established in 1998 by the Indian National Informatics Centre (NIC) in partnership with the Government of Maharashta and an amalgamation of sugar cane and dairy cooperatives sought to improve the market participation of farmers. The project connected 70 villages in a relatively prosperous area via networked computer kiosks to a central computer network. The target groups were farmers alongside the wider community. The project sought to provide access to agricultural information including pests, diseases, and market and price information. (UNDP, 2006c). The UNDP (2006c) noted underutilisation and, again a general lack of awareness and interest despite the relatively high-incomes in the area. Similar results for the Wired Village initiative were found by

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[36] By way of comparison, livestock such as cows are the preserve of the better off farmers in Java. Livestock (goats, sheep, cows) will often be jointly owned by poorer individuals. Offspring will often be divided between owners. A single individual acquiring 25 head of milch cattle is no mean feat.

Cecchini and Raina (2002) who note '[i]nformation on sugar cane growing and agricultural prices lies unutilized and has not been updated since 1998.' (Cecchini & Raina, 2002:1).

In Africa a noteworthy study is that by Richard Duncombe and Richard Heeks on ICTs and micro, small and medium enterprise (MSMEs) development in Botswana (Duncombe, 1999; Duncombe & Heeks, 1999). The study surveys, via semi-structured interviews and a postal questionnaire, formal enterprises towards the larger end of the MSME spectrum.[37] The study provides important pointers for research into ICT4D initiatives targeting poor small-scale producers, primarily, as the study emphasises the information needs of MSMEs rather than a focus of establishing the impacts of introduced technology as in the examples above. The systematic view that Duncombe and Heeks present strongly influences the research within and is further addressed in the following chapter.

Findings from Duncombe and Heeks' research include the wide use of informal information channels (often quick and regarded as trustworthy); the dependence on entrepreneurs' 'internally generated knowledge and experience'; the value of telephony in providing real-time communication; the restriction of, and interest in, the Internet to particular sectors (e.g. IT, tourism); the high-regard for face-to-face communication (Duncombe & Heeks, 1999:6-7). The authors do not see the immediate relevance of the Internet to enterprises operating in local markets until sufficient local content is available. However, considering the reported value placed on informal information and face-to-face communication one may question if this condition may be sufficient in itself. The authors report critical developmental problems for MSMEs relate to limited access to skills, markets and finance. The authors identify the need for better market/demand information as a crosscutting theme. A further recommendation from the authors is the need to consider the use of 'intelligent intermediaries' to provide access to information from ICTs to those that do not have the resources to procure and/or access such technologies themselves (*Ibid*: 12). Duncombe (1999) provides more detailed background information including supportive government policies and an overview of constraints for MSMEs in Botswana including a lack of education, skills and entrepreneurial capacities. Neither report details elaborates specific market constraints at the level of the individual enterprise.

Duncombe (2006) draws on the above work alongside further studies from Botswana to examine the potential for the sustainable livelihoods approach (SLA) in an analysis of poverty reduction. The SLA framework was adopted by DFID in a 1997 White Paper on international development (Solesbury, 2003).[38] Duncombe's work focuses on rural micro-enterprises, which are defined in Botswana as having less than six workers (including the owner) and annual sales of less than the equivalent of US$ 1,250. Duncombe notes individuals (and households) employ multiple livelihoods strategies that vary over time and that micro-enterprise activities do not contribute much in terms of income to the

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[37] The authors note the use of a postal survey may have skewed results towards educated respondents, larger enterprises and possibly existing ICT users.
[38] Solesbury (2003) notes the earlier heritage of the SLA in the research community in the 1980s. However, Jane Clark and Diana Carney (2009) who were key players in the establishment of the SLA at DFID lamented its fall from grace in 2002-2003 with DFID choosing to focus policy more at the level of national development.

very poor.[39] Of critical importance to Duncombe is an understanding of the differing portfolios (of assets and resources), vulnerabilities and capabilities of the poor. Duncombe takes an information first approach and provides a disaggregated analysis of the function of information within the SLA. Duncombe sees information at work at all stages of the SLA. Similar findings in this respect are suggested in a 2008 infoDev report on rural livelihoods (McNamara, 2008).[40] However, Duncombe distinguishes between the analytical function of information (for researchers, planners and the poor themselves) in understanding livelihoods strategies and the functional role in which information may be used to act upon events and processes and contribute towards securing livelihoods outcomes.

Duncombe follows Robert Chapman and Tom Slaymaker (2002) and distinguishes between short and long-term information applications. The former may for example relate to day-to-day decision-making and the latter to longer-term knowledge acquisition. Duncombe notes the former is more relevant to operating in local markets and the latter is more applicable to accessing more distant markets. Information according to Duncombe has a role in strengthening both short and long-term strategies of the poor. However, Duncombe notes the mechanisms by which ICTs may contribute to poverty reduction are little known and finds little promise for information and ICTs to reduce the complex vulnerabilities of the poor directly, but rather sees them as having enabling potential.

Paul Ulrich (2004) provides a comparative survey of the impacts of community information centres in rural China. Ulrich's findings are mixed. Due to widespread access to telephones and television the new Internet access and video facilities provided were not considered to be 'filling a fundamental void in access to information and means of communicating' (Ulrich, 2004:5). However, benefits relating to access to new ICTs were reported. In the second poorest county studied, villagers reported significant financial benefits from Internet access. Ulrich speculates this may be related to receiving agricultural and price information. However, the data analysed did not score highly in the amount of variation explained implying other factors may be at play. Ulrich's study illustrates the need for disaggregated data to more fully understand the impacts of such interventions. Ulrich also questioned the long-term sustainability of the projects as their funding neared an end.

Research into the sustainability question comes from a DfID funded comparative study by Simon Bachelor *et al* (2003). The projects studied used ICTs towards a range of development aims including capacity building, resource management, local government accountability, participatory planning and increasing livelihood incomes (three cases). The study did not provide definitive evidence that such projects can be economically sustainable, or that aims of income generation could offset the costs of such projects. However, the authors suggested there were indications that this may be happening in

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[39] 'A livelihood comprises the capabilities, assets (including both material and social resources) and activities for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base.' (Chambers & Conway, 1992:9)
[40] The report was developed in partnership with the Overseas Development Institute (ODI), UK. ODI has been active in reviewing ICT4D initiatives for some time. In this regard Chapman and Slaymaker (2002) address the potential of ICTs for rural development. Chapman and Slaymaker already saw signs of an impasse between 'the technology drivers and the development agencies' emerging by 2002 due to an 'inherent mutual lack of understanding' (Chapman & Slaymaker, 2002:2). Nevertheless, while drawing attention to the multi-dimensional nature of poverty the authors find the flexibility of ICTs as having significant potential.

some cases. A lack of willingness to pay for information was reported. Regarding social and institutional sustainability, the authors were more optimistic noting that other benefits may outweigh cost recovery. Bachelor and colleagues support the idea of 'dis-intermediarisation', or the removal of 'middlemen'. Dis-intermediarisation is, more accurately, termed 're-intermediarisation' by the authors. The replacement of 'middlemen' with a 'vested interest in a transaction' by a technical intermediary (who facilitates access to ICTs) was considered a desirable development aim (Bachelor *et al*, 2003:10). With regard to risk the authors consider it unlikely that new technical intermediaries would abuse their position as knowledge brokers as 'there are potentially thousands of ICT intermediaries for each activity' (*Ibid*). The availability of so many suitable candidates is questionable and contrasts Duncombe's emphasis on intelligent intermediaries.

3.4.2 <u>Lessons learned and critiquing practice within ICT4D</u>

The review of case studies above indicates a number of issues including low participation rates, sustainability concerns and a lack of demonstrable positive impacts over time. What impacts that may exist are usually presented positively, yet tend to be presented in isolation and are lacking in contextualisation. A number of strategies have also been indicated that may ameliorate some of these difficulties including increased use of participatory methods in research and design and the need to focus on information rather than technology. Crucially, a small number of authors have sought to better link assessments of ICT4D within established development frameworks in an attempt to better engage with, and respond to, the complexity encountered in practice (Chapman & Slaymaker, 2002; Duncombe, 2006; McNamara, 2008). The following section summarises further considerations and approaches in this vein.

The topic of gender, as indicated within the ITID editorial, has not always been at the fore in ICT4D. This presumably stems from the recurring theme that the benefits of accessing ICTs fall evenly to all. Findings, such as from the hole-in-the-wall experiment indicate this is not the case. As Nancy Hafkin (2003) succinctly notes: 'If ICT and telecommunications were gender-neutral, affecting men and women equitably, then special attention to women would not be necessary. As they are not, such special attention is needed.' (Hafkin, 2003:1). Hafkin calls for more disaggregated statistics and indicators. This need is reflected in a UNESCAP (2001) report on the implementation of the *Beijing Platform for Action* that noted women benefited less from, and were disadvantaged more by, technological advances in general.

Michael Gurstein (2003) claims the digital divide amounts to little more than a marketing campaign (dominated by the corporate sector) and calls for the effective and active use of ICTs in development. Gurstein also questions the link between access and development outcomes and notes that after access (to technology) is secured there will be other considerations (e.g. knowledge and skills) that enable that access to be used constructively. Gurstein, therefore, does not escape being led by access to technology, but does acknowledge its limits. Gurstein instead promotes the 'effective' use of

ICTs, which he defines as '[t]he capacity and opportunity to successfully integrate ICTs into the accomplishment of self or collaboratively identified goals.' (Gurstein, 2003:1). The influence of participatory approaches is, therefore, readily apparent. However, the idea that marginalised beneficiaries with little awareness of ICTs, or what they may be used for, may be able to integrate the use of ICTs into self-identified goals appears optimistic and ambitious. Nevertheless, the emphasis on the effectiveness of interventions in relation to localised needs is helpful. In a related vein, Erwin Alampay (2006) draws on Sen's capability approach and reminds that the utilisation of ICTs is dependent on an individual's capabilities and their ability to command entitlements to resources.

The issue of design-reality gaps is taken up by Heeks (2002a). Heeks notes that many ICT projects fail either totally or partially in relation to realisation of stated goals. However, due to a lack of evidence, which Heeks contributes to a lack of literature, a lack of evaluation and a focus on case studies that do not allow wider comparison, it is not clear if failure and success rates vary between developed and developing countries.[41] Heeks suggests a number of design-reality gaps that may be taken to explain the seemingly high-failure rate. These include country level gaps with Northern designed systems not necessarily being suitable to developing country realities, differing management systems and varied skills levels of staff. Heeks emphasises the need to better consider potential gaps between perceived and real information needs and the application of relevant technological interventions based on actual needs.

The topic of public access points, or telecentres, is taken up by a number of writers. Francisca Proenza *et al* (2001) study telecentres in South America and note, in general terms, that for telecentres to be effective they must target low-income groups (*c.f.* Heeks, 2005) and be run by committed and knowledgeable individuals. With regard to sustainability issues the authors recommend a business model be incorporated. Ted Tschang *et al* (2002) note issues relating to both financial and social (in terms of service provision and relevance) sustainability and also favour entrepreneurial approaches. Judd Antin (2005) stresses the need for understanding local cultural contexts in telecentre deployment and design. Scott Robinson (2000) notes the lack of tangible impacts, yet still sees the importance of universal access through such initiatives. Robinson notes a lack of awareness (and inertia) amongst policy makers and current initiatives and suggests an integrated approach that combines telecentres with microcredit initiatives (financed by economic migrants in the North; remittances) and e-commerce information and resources.

Roger Harris *et al* (2003) note the difficulties inherent in top-down government led rural initiatives in Nepal in which central planners may not be attuned to local needs. Harris and colleagues see social mobilisation strategies as offering potential for increasing the potential of communities to benefit from telecentres. Harris *et al* also note the need to identity and respond to information needs. The authors call for an active approach based on what they term 'infomobilisation' that seeks to raise awareness

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[41] Heeks cites research in developed countries indicating around one-fifth to a quarter of IS projects fail totally, one-third to three-fifths fail partially and the remainder are successes. Total failure according to Heeks includes those projects that never came to be implemented; one may, however, consider a choice to not implement, after weighing up the available options, a positive step. This is even more the case if scarce resources are diverted to better ends.

of information needs through participatory processes and link these to development aspirations within a community based learning approach (Harris *et al*, 2003).[42] Don Slater and Jo Tacchi (2004) stress the need for building links between social and technical networks in ICT4D interventions and promote ethnographic action research (EAR) as a means to achieve this. In EAR the ethnographer (often a trained local project staff member) is an integral part of the project and seeks to establish an ongoing feedback loop between the community and the project. Both the idea of infomobilisation and EAR were stressed in e-Pabelan's design. Richard Gerster and Sonja Zimmerman (2005) also emphasise the need for prior participation alongside a multi-stakeholder approach in order to better anticipate complexity. Such an influence was also apparent in e-Pabelan's design. The authors further stress the need for a minimum level of physical and human infrastructure if ICT based interventions are to be successful.

3.5 **Markets, producers and traders**

As has been indicated, the potential of ICT4D to improve the way in which small-scale producers, within which farmers are included, operate within markets has received significant attention. However, to date, there has been little firm evidence to suggest that such interventions have been effective. Additionally, there has been no research that has sought to firmly situate ICT4D interventions within the markets they seek to influence. Despite allusions to the importance of markets within ICT4D, the centrality of markets to small-scale producers as the primary institution in which the majority are dependent for their livelihoods has received minimal attention within ICT4D. This is despite the emphasis on the significant potential of ICT4D to influence market participation and is, as such, surprising. The following addresses the topic of markets in more detail and questions how understandings of markets are presented within ICT4D. The section then proceeds through presenting alternative understandings of markets from the wider field of development studies that are of relevance to better understanding the potential and limitations of ICT based interventions targeting small-scale producers.

3.5.1 ICT4D and 'the market'

Stuart Plattner (1985) provides a working definition of the term market as being 'the social institution, meaning any domain of economic interactions where prices exist which are responsive to the supply and demand of the items exchanged.' (Plattner, 1985:viii). In this regard, and as has been indicated, access to ICTs is widely held to provide the potential to influence market participation and allow small-scale rural producers to:

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[42] See also Beardon *et al* (n.d.) from an implementer's perspective.

- Better compete within known markets through improved access to information. This often refers to the assumption that producers require access to price information. The underlying justification is that producers are exploited by unscrupulous 'middlemen' who have a monopoly on such information.
- Empower producers to access new markets and to exploit new economic opportunities within such markets. ICTs are seen as overcoming the constraints of distance and bringing such opportunities, which have hitherto been out of reach, within the grasp of the poor.

Although not readily acknowledged within ICT4D, and despite the allusion to multiple localised markets, the views above are reflective of a neo-liberal understanding of 'the' market. The market model employed in this sense is the idealised and abstracted market of perfect competition that allocates resources to achieve equilibrium and social (Pareto) efficiency.[43] The driving force behind such an understanding of the market is that of individual self-interest and profit seeking. This is the free market view of the Washington consensus. The function of development in this neo-liberal sense is to remove artificial barriers and, as noted, let the market take care of the rest. Within ICT4D the parallels with neo-liberal thought are evident and may be summarised as follows:

- The proper functioning of the market is unfairly distorted and manipulated by actors and/or institutions that exploit asymmetries and seek to exclude others. The crux of the issue is that there is nothing wrong with the market, which is viewed ideologically and is considered to be a natural and irreducible state. The fault lies with exploitative market actors or institutions.
- Once asymmetries (or other artificial) barriers are removed the benefits of the market become accessible to one and all. The market is thus viewed as benign and does not discriminate.[44]

Such understandings approach the market as an abstract economic entity that exists beyond the bounds of social relations and constructs. It is enough, the argument follows to access the market in order to tap into its, almost mythical, wealth and benefits. ICTs in this sense are the key to removing barriers, overcoming asymmetries and widening opportunities. However, it should be noted that 'reification of the market', as Peter Preston (1994) indicates, is not confined to ICT4D. Rather it is a tradition inherited from the social sciences in general:

> Such reification is evident not merely within the intellectual sphere of the neo-classicists, and of late of the New Right, but also within the common discourse of social science itself. Reflecting on the ideology of markets we can identify a habit on the part of social scientists to adopt uncritically the naturalistic economists' model of a market: this represents an intellectual, professional and political failure.

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[43] Pareto optimality refers to an idealised condition whereby all changes in an economy have been made and the economy is socially optimal. Any subsequent changes that result in making an individual better off in the economy can only have the result of making others worse off. See, for example, John Sloman (2000).
[44] In a challenge to the assumed benign, or even benevolent nature, of markets Sen's work on famines should not be overlooked. The significance of Sen's (1981) entitlement theory is that it explains how it is in fact the 'normal' workings of markets, rather than food availability decline that can lead to increased vulnerability, dearth and famine.

Within an optimistic consideration of the information age ideological views of the market receive added weight from the idea that the market is now global and within reach of anyone with access to digital ICTs. The networked world and the global market become one and the same. ICTs, therefore, present unprecedented opportunities to remove barriers and ensure equal access and opportunity within a levelled playing field (Cairncross, 1997). Within such a view both the market and ICTs become conflated and endowed with innate developmental and poverty reducing traits (see above).[45] Universal access is all that is required and the ICT-market nexus will provide the rest.

If the developmental potential of ICTs is taken as the point of reference, in contrast to Schech's observations, it is not predominantly modernisation theory that the ICT4D optimists reflect. Rather it is a worldview that seems framed, and accordingly constrained, by a narrow neo-liberal ideology. Viewed in this light, and despite the radical promises of pluralism and alternative routes to development that ICT4D postulates, ICT4D seems remarkably conservative. The conservativism of ICT4D in this regard currently seems to surpass that of the traditional development orthodoxy as represented by the World Bank. An observation, no doubt, many proponents of ICT4D would fiercely contest on principle. However, such objections would require engagement with the theoretical shift away from neo-liberalism within the development orthodoxy. Simply, ICT4D has failed to notice the wider conceptual shift within development towards the generally accepted understanding that markets are socially constructed and regulated. This suggests a need to assess alternative understandings.

3.5.2 Alternative understandings of markets

The notion of a universal self-regulating market has long been subject to criticism. Karl Polanyi (1957) argues that the conflation of market with economy, and the separation of market from society, was a unique construct stemming from nineteenth-century English *laissez-faire* capitalism. In contrast to a view that sees an ahistorical market being a natural condition, Polanyi argued that a strong state was required to promote and support the *laissez-faire* system. Interventions included the establishment of laws, regulations and financial institutions. The socially embedded nature of markets (in the plural) is noted by Polanyi as follows:

> While history and ethnography know of various kinds of economies, most of them comprising the institution of markets, they know of no economy prior to our own, even approximately controlled and regulated by markets. […] The outstanding discovery of recent historical and anthropological research is that man's economy, as a rule, is submerged in his social relationships. He does not act so as to safeguard his individual interest in the possession of

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[45] See Martin Hand & Barry Sandywell (2002) for a similar critique with regard to the assumed democratizing potential of the Internet.

material goods; he acts so as to safeguard his social standing, his social claim and his social assets. He values material goods only insofar as they serve his end.

Polanyi, 1957:44-46

Polanyi draws attention to the existence of multiple markets and their context dependent nature.[46] Johan Pottier (1999), further argues that within a developing country context the idea of there being starkly different traditional and modern markets breaks down under the realisation that all markets 'are now understood to be equally "embedded" in culture and produced by power relations.' (Pottier, 1999:101).

Pottier also suggests that '[m]arkets and debates about market organization are inherently about ideology and social engineering, about what kinds of people there should be.' (*Ibid*: 99). In a related vein, Bernstein notes 'that regulation is a generic feature of markets, referring to how they are structured by different forms of power and control in both their conditions of existence and their 'internal' functioning- and, of course, by how these elements interact.' (Bernstein, 1996:122). In short, the notion of the existence of a natural (free) market that exists independently of social and political relations is hard to maintain in the face of multiple, and potentially overlapping, markets that are regulated by cultural and socio-political relations and norms. With regard to ICT4D, understandings of markets as complex relations in time and space remind of Garnham's critique (above) of Castells' omission to see all markets as being networks. Understandings of markets that view markets as being multiple and as being influenced, and regulated, by social conditions and norms deserve closer attention within ICT4D. This is particularly the case within interventions that seek to build the resilience, and increase the livelihoods opportunities, of the poor through market based interventions. It may be expected that interventions targeting markets are unlikely to be uniform and are very likely to have context specific impacts.

3.5.3 Traders and markets

Within the ICT4D literature the role of traders ('middlemen') is particularly one sided. Equally, the source of this representation, invariably negative, is little mentioned let alone explored. Traders are presented in direct opposition and in contrast to producers; the latter often being farmers in the representation of the digitally un-connected rural/traditional economies that is sketched. Traders and farmers are presented as in a perpetual state of conflict; with traders having the upper hand. Often this conflict is taken to stem from what is suggested as some innate, and 'ruthless' (see above), characteristic of traders. The origin of such representations is not discussed within the ICT4D

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[46] Also: 'It is gross ethnocentrism to assume that the monk, the feudal lord, the Inca priest-king, the commissar and the Trobiander are directed in their material lives to abide by the same market rules that drive the London stockbroker and the Iowa wheat farmer.' (Dalton, 1968:xxix).

literature; however, it appears to be an *a priori* understanding that emphasises that traders make rational choices in order to maximise profit at the expense of all other considerations in a typical neo-liberal vein. The argument follows that traders are at an advantage in markets through having a monopoly on information. This is often, as has been noted, related to price information. Such unequal access to information leads to information asymmetries as Stiglitz, after Akerloff (1970), emphasises within the PWC. Again, such contextualisation is not addressed within ICT4D.

With traders having better access to price information, benefits accrue to traders and, the argument follows, a corruption of the (idealised) workings of the market occurs. Traders are, therefore, able to (and, one assumes, are compelled to) command higher prices and in so doing exploit, and deceive, farmers. On the one hand, within ICT4D the behaviour of traders appears explainable through the inherent neo-classical economic desire to maximise profits. Farmers, the argument implies have the same profit seeking motive, but are simply denied the opportunities to realise their latent desires. They would, simply, if they could. On the other hand, what appears to be presented as a normal condition of self-interest and competition within the normal workings of the market is also deemed unacceptable within the literature. Intervention is thus called for on moral grounds. ICTs present the tools with which to overcome such information asymmetries through providing equal access to information. Information in this broad sense is thus viewed as a non-excludable and non-rivalrous public good that all can access without detriment to another.[47] This is the view of knowledge emphasised within the 1998/9 WDR. Information in this sense is, therefore, not viewed as a private good that the ease of exclusion implied by the actions of traders would seem to indicate. It is, again, an ideological viewpoint. In this manner, the conceptual link is completed through consideration that justification for the utilisation of ICTs to improve the livelihoods of rural producers is also influenced by the post-Washington consensus. While it is the market of the Washington consensus that appears reflected in the ICT4D literature, it is the post-Washington consensus that provides the justification for action.

Through providing access to market and price information, poor producers are considered to be empowered thus enabling them to better compete. The argument is extended to justify the removal of traders from market systems in order that producers have direct access to markets themselves. A further extension, suggested within Richardson *et al*'s notion of re-intermediarisation, is the call to replace traders with ICT intermediaries more suited to ensure the proper flow of information and, one assumes, the 'proper' functioning of the market. The parallels with Pottier's comments regarding social engineering are evident. Importantly, the above considerations raise a number of questions alongside unveiling a number of presumptions:

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[47] The important feature of a public good here is that of non-excludability. That is, if one individual consumes a public good it cannot be withheld from others. Governments therefore, rather than the private sector which cannot gain higher returns from their supply, have traditionally been associated with public goods. Mancur Olson (1971) adds that 'jointness' of supply is also important meaning that if a good can be supplied to one individual it can at low or no cost be supplied to others. The Internet, assuming one has access, of course being a prime contemporary example for supplying public goods. Olson also, in contrast to some ICT4D commentators, notes that a public good may not necessarily be in the interest of a whole group and that one group's public good may be a 'public bad' to another. (See Olson, 1971)

- Information asymmetries are a root cause of poverty (in terms of exclusion and denial of opportunities) and justify prioritisation over other possible factors.

- Both producers and traders are driven by the desire to maximise profits; there are no other considerations.

- Both producers and traders possess the necessary attributes, resources and will to maximise profits within the market once artificial barriers are removed.

- Poor producers are easily exploited and this is compounded by their lack of information/knowledge. Producers, therefore, are presented as lacking agency and as being essentially disempowered or, possibly, ignorant.

Overall, the concern is that the argument promoted within the ICT4D literature reflects a long-standing romantic notion of the self-contained farmer who is subject to the tyranny of traders. This, it should be said, is not peculiar to ICT4D and Bernstein (1990) sees such *a priori* preferencing of farmers as populist sloganeering that harks back to an imagined Golden Age. Hans-Dieter Evers & Heiko Schrader (1994) in their discussion of markets and traders note 'it is astonishing to note that the persons occupying centre stage in this cultural drama, the traders, have filled a rather ambivalent position in many societies throughout history' (Evers & Schrader, 1994:3). The authors go on to note how this ranges from the romanticism and glorification of 'Sindbad the trader and seafarer' to 'folklore about the shabby travelling salesman' and on to the 'despised pedlar' (*Ibid*).[48] ICT4D is evidently more inclined towards the latter. Needless to say alternative and contextualised representations of traders and their *modus operandi* exist and warrant attention.

3.5.6 Trading as networked social interactions

An obvious point of departure is a review of the 'traders' dilemma' as described by Hans-Dieter Evers *et al* (1991). The traders' dilemma emphasises the dyadic aspect of trade and also emphasises context. As such, it suggests a more complex picture of social relations. The traders' dilemma is seen as particularly acute in small rural communities; or what were more frequently referred to as peasant societies.[49] The dilemma describes the pressures faced by traders when they are required to buy from, or sell to, members of their own community. In such a situation traders face a choice of two mutually excludable options. The options are, on the one hand, the desire to maximise profits and, on the other, the need to maintain social standing and status. Simply, if a trader was to repeatedly exploit their neighbour or kin in order to maximise profits they would run the risk of being ostracised. Exploitation in localised markets, therefore, presents rapidly diminishing returns to a trader. This stands in sharp contrast to ICT4D understandings. Evers and colleagues suggest that traders seek to

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[48] The fact that traders often stem from religious or ethnic minorities is also noted by the authors.
[49] The view sees peasant societies as having a high degree of coherence and solidarity (See Scott, 1976). In Java such ideals persist in the concepts of *kerja bakti* (voluntary service often within a community) and *gotong royong* (mutual self-help or cooperation). Evers notes such characteristics, but warns against neo-romanticism in this regard.

overcome these cultural barriers through solidarity and group establishment among traders and the creating of social and cultural distance between traders and the actors with whom they deal.[50]

The traders' dilemma may be amplified if producers have the option of selling to multiple traders within a market. Within such a scenario the risks of ostracisation through not complying to social norms are increased and the onus is placed further on the trader to maintain a reputation and standing that will not place them at a disadvantage. The idea that poor producers may have a choice of traders, and express agency through choosing a particular trader over another, is neither acknowledged nor explored within the ICT4D literature. With regard to prices Barbara Harris-White (1999) presents a further alternative view that suggests that prices in commodity markets are set by the speculating activities of larger farmers (not traders *per se*) by controlling the supply of marketed surplus. Smaller farmers are distinguished in this view by being 'price takers' in comparison to larger producers (Harriss-White, 1999:15). This observation also serves to remind of the diversity captured within the term farmer.

In contrast to the ICT4D literature, the picture of trading that is presented within the wider literature is one of heterogeneity. Traders in Ghana have been shown to increase security by evening out the supply of food over time during periods of food scarcity (Clark, 1991). The extension of credit to producers by traders is well noted and suggests more complex interactions and relations beyond simple market exchange (Olsen, 1999). Many traders operate within highly marginal conditions and some may be poor themselves (Evers *et al*, 1991). Jennifer Alexander's (1987) ethnographic study of markets in Java reveals the very small margins (reflecting the very small quantities of produce sold) that many rural traders operate within. While dealing in small quantities and margins avoids the traders' dilemma through an inability to extract and command high returns, such a situation does little to suggest a viable route out of poverty for the traders concerned. Further an understanding of more complex networked relations between traders and producers suggest the possibility that an increasing dependence on a market-economy may result in the displacement of traditional social safety nets and coping strategies (Mackintosh, 1990).

Alexander's (1987) work is important to understanding the functioning of markets in rural Java. Alexander describes a relatively simple market structure (or network) involving the sale of cabbages grown in the more temperate highlands of central Java. Firstly, it is important to note that farmers have a range of options; they may sell cabbages either to larger trader (*juragan*) or agent (*agen-* who buys on behalf of a third party) directly from the field, alternatively they may chose to travel to a local (spot) market and sell directly to a *bakul* (small trader), or they may choose to sell the cabbages directly to a depot (*depot*). Aside from the cabbages sold to the *bakul*, which are sold on directly to consumers at the market, the cabbages are collected (bulked) at the depot and then sold on to *juragan* in a larger district market. In a reverse process to bulking the cabbages are broken down into

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[50] The five solutions Evers suggests to the traders dilemma are: '1. immigration of trading communities; 2. formation of ethnic or religious groups; 3. accumulation of status honour (cultural capital); 4. emergence of a cash-and-carry petty trade; 5. the depersonalisation (disembedding) of economic relations.' (Evers, 1994:10)

smaller quantities for sale to *bakul* in district markets. These *bakul* sell on to local village traders (also called *bakul*), local stores (*warung*) or directly to (rural or urban) consumers. Alexander notes that at the point of final sale the cabbages themselves are broken down to bundles of leaves as it is rare that anyone would buy a whole cabbage. Alexander also notes the different prices at each stage of the network. Such networks ensure distribution and food security for rural and urban consumers; many of whom may be poor.

The picture painted by Alexander stands in sharp contrast to that found within ICT4D and is particularly pertinent to the e-Pabelan case study that follows. The simple assumption that farmers in Java equipped with new information will be able to bypass traders appears decidedly more complex and problematic. To whom should farmers sell and at which point and at which price? While it may well hold that information is central to each market transaction, the workings of real markets appears far more complex than the simplistic formula presented within the ICT4D literature. What information is it that farmers actually need to make use of new market opportunities? Is the provision of information alone enough or do farmers require access to other resources? Would required resources vary at different points of the network? What would the impact on poverty be if farmers were able to bypass poor traders? These are all questions relevant to ICT4D that Alexander's description brings to mind.

3.6 Chapter summary

The preceding discussion has highlighted that there have been a number of conceptual challenges to ICT4D. Theoretically, these have tended to be dominated by post-development inspired discourse and as such are not specific to ICT4D alone. However, such critiques are important in reminding of how ICT4D reflects dominant conceptualisations of progress and warn of the danger of a lack of contextualisation. It has also been noted that there have been an array of attempts to utilise ICTs to improve market participation for the poor. Nevertheless, there is a dearth of disaggregated and convincing data to support such optimism within the literature.

Further, it has been argued that ICT4D has been conservative in its approach to the functioning of markets and has provided little in the way of reflection or analysis. While claiming to offer new opportunities, ICT4D clings to an increasingly challenged and ideological view of markets that is inspired by neo-liberal thought and is increasingly seen as being at odds to the reduction of poverty. In contrast, it has been shown that there is an array of understandings from the wider literature that present more nuanced and complex understandings of the workings of real markets. It is within such markets that many of the world's poor secure their livelihoods. Such understandings further support the view outlined in chapter two that greater contextualisation and reflection is required in order to better understand the relevance of ICT4D to intentional development.

Chapter 4

The research project

4.1 Chapter introduction

This chapter introduces and establishes the research project. As indicated, there is much speculation that ICTs may be used towards increasing the livelihoods opportunities of the rural poor. This speculation remains in spite of a range of initiatives, as indicated, that offer little in the way of supporting evidence aside from uncontextualised examples or success stories. The lack of disaggregated data associated with such initiatives has also been noted. Those studies that have, in contrast, sought to better contextualise ICT4D interventions, such as Duncombe's study of MSMEs, have reached far more cautious conclusions with regard to the potential impact of ICTs on poverty. However, studies that prioritise the context into which ICT based interventions are introduced remain few and far between in comparison to those that prioritise the act of intervention itself. Part of the reason for this state of affairs would seem to be largely explained by the predominance of cross-sectional case studies; and a desire to demonstrate the utility of ICTs in broad terms rather than establishing specifically how ICTs may be utilised within development. As such, there is a pressing need for better contextualisation within ICT4D interventions. This in turn, demonstrates the need for extended studies that can assess the impacts of ICT based interventions over time.

The previous chapters also argued that ICT4D has not effectively engaged with the wider body of development studies. Preferring to focus on preventing exclusion within what has been identified as an immanent process of development *a la* the digital divide, ICT4D has achieved little in demonstrating practical applications towards the aim of poverty reduction. However, and although poorly conceptualised, it has been suggested that ICTs may assist poor small-scale producers (particularly farmers) improve the way in which they participate in markets in order to contribute to the reduction of poverty. While this is an intriguing thought, this has yet to be convincingly demonstrated. There have also been no attempts to gain deeper contextualised understandings of the relationship between poor farmers and ICT based poverty reduction initiatives in rural Java. The chapter proceeds in describing how that may be done.

4.2 Conceptual framework

In order to assess the relationship between ICT4PR and the way in which poor farmers secure their livelihoods a conceptual framework is presented that draws on, and combines, the work of Stuart Plattner (1985) on markets and Richard Heeks (1999a) on understanding the role of information in ICT based development interventions.

4.2.1 Equilibrating markets

Stuart Plattner's (1985) work on 'equilibrating markets' explores why individuals may, and under what conditions, prefer personal over impersonal modes of exchange.[51] As such, Plattner's work provides a sound basis for the examination of ICT4D interventions aimed at increasing market participation in external or non-personal networks. Plattner demonstrates that in market environments with low or asymmetrical access to information, actors may prefer personal market networks in order to minimise risk. Plattner (like Stiglitz) draws on George Akerloff's (1970) *The market for lemons*. Akerlof illustrates, by way of example, how sellers of second-hand cars have an information advantage over buyers as they know more about the quality of their (non-standardised) product. Buyers on the other hand may be unable to ascertain if a used car is good or bad (a 'lemon') and seek to pay a lower price reflective of a lower quality good. Sellers of good used cars are unable to command what they may view as a fair price and will either accept a lower price or stay out of the market. Correspondingly, sellers of lemons may seek a higher price in what they see as a favourable market. The upshot is that there is a risk the market will become saturated with lemons. The extension of the argument is that markets, without government intervention, may cease to function in extreme cases of asymmetrical information.

Plattner draws on ethnographic studies to show how actors in markets may seek to reduce the risks related to asymmetrical information through establishing long-term trading relationships. This is, as Plattner notes, particularly relevant to markets in developing countries that are characterised by unstandardised and variable quality goods. In such markets the establishment of value is problematic due to larger knowledge gaps.[52] For Plattner, a rational economic strategy to overcome the risks associated with asymmetric information is to personalise trading and form reciprocal relationships between actors. Plattner summarises the choices as follows:

> There are two contrasting ways to buy or sell in a market: you can search for the best deal available at that time, or you can establish a relationship with a customer with whom you expect to deal on a reciprocal basis. [...] reciprocal economic relationships are instrumental responses to social constraints. They reduce risk in transactions that would otherwise be too uncertain or expensive to undertake.
>
> Plattner 1985:133

Plattner describes how the goal of long-term 'equilibrating' relationships is still 'economic self-interest'; however, the seeking of short-term gains, that are characteristic of impersonal modes of exchange, are subordinate to maintaining the relationship (*Ibid*: 136). Over the longer-term the expectation is that the relationship will provide greater positive returns. Plattner suggests this may mean accepting some

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[51] Plattner does not use 'equilibrating' in the strict economic sense, but rather prefers it to 'reciprocal'.
[52] In Bank speak these knowledge gaps refer to knowledge gaps about attributes. See the 1998/99 WDR (World Bank, 1999).

shortfalls in the short-run. Plattner emphasises the importance of understanding the goods, actors and transactions within a market.

Plattner notes the classic model of perfect competition is based on full information for goods, transactions and actors, but that in the real world this is never the case. Goods may be characterised as having 'search' or 'experience' attributes (Nelson, 1970). Goods with high search quality are those that are standardised and have known attributes. The example Plattner provides, after Akerloff, is a new car. The car is seen as standard and the buyer will search for the best deal. The lemon, however, has experience attributes that will only become known through use. Equilibrating relationships are more likely to form to alleviate information problems associated with experience goods. Many goods in local developing country markets are likely to have high experience attributes.

In terms of transactions Plattner notes that the most important information relates to price, conditions of payment and the probability the transaction will be completed successfully. However, Plattner clarifies that price information alone is not sufficient without an understanding of context. The example provided by Plattner is during the hike in oil prices in the 1970s in the US when some regular customers found it beneficial to visit their local gas station during the off-hours to get a better ('under the counter') deal. The conditions of payment include the timeframe for payment and may include the extension of credit. The existence of laws to protect consumers is not sufficient if what Plattner terms 'social resources' are not in themselves sufficient; the implication being that actors in markets may 'have little faith in transactions with distant partners' (*Ibid*: 141). Reflecting the value placed on face-to-face communication, as noted by Duncombe and Heeks (see above), Plattner notes risks associated with judging the accuracy and relevance of information increase with distance from personal networks. An understanding of transactions would, therefore, appear essential within ICT4D actions targeting markets. Following Plattner, information asymmetries create increased demand for actors to know more rather than less, as ICT4D seems to imply, about who they are dealing with. Plattner points out that in market environments where information problems are severe the most relevant information concerning actors will often relate to social factors such as class, caste or affiliation. In such a situation benefits may accrue from reduced transaction costs through repeat trade with known actors.

Plattner's work focuses on what he terms market societies (see Polanyi above); however, he sees his work as being applicable to any economic exchange (e.g. barter). Plattner stresses that the focus of his analysis is on rational choice rather than social or cultural factors. However, he does not dismiss such factors. The concept of equilibrating markets that Plattner proposes describes how actors faced with information asymmetries may seek to mitigate economic risk through utilising personal networks over and above impersonal modes of exchange. This is particularly the case where goods have high experience attributes and transactions are characterised by potentially high transaction costs caused by information problems. It may be reasonably expected that such conditions are exaggerated for the poor and the goods they produce. These insights sit in contrast to the impersonal market exchange, associated with search goods, that appears dominant (if not specified) within the concept of the market alluded to within ICT4D.

4.2.2 <u>The information chain</u>

The project's conceptual framework draws on the concept of the information chain from Heeks (1999b) and as utilised by Duncombe and Heeks' study in Botswana (1999). The information chain draws on a systematic model that Heeks proposes to better understand the function of ICTs in development. Heeks presents both the systematic model (Figure 4.1 below) and the information chain in the context of micro and small enterprise development. Heeks stresses that ICTs cannot be understood without understanding 'information and its role' and 'the institutional and factoral environment.' (Heeks, 1999a:3). As such, Heeks separates information and technology and sees them as independent parts of an information system with information at the core. This system, in turn, needs to be contextualised and is dependent on the environment of institutions and other potentially impacting factors that it inhabits.

Figure 4.1 A systematic view of information and communication technologies
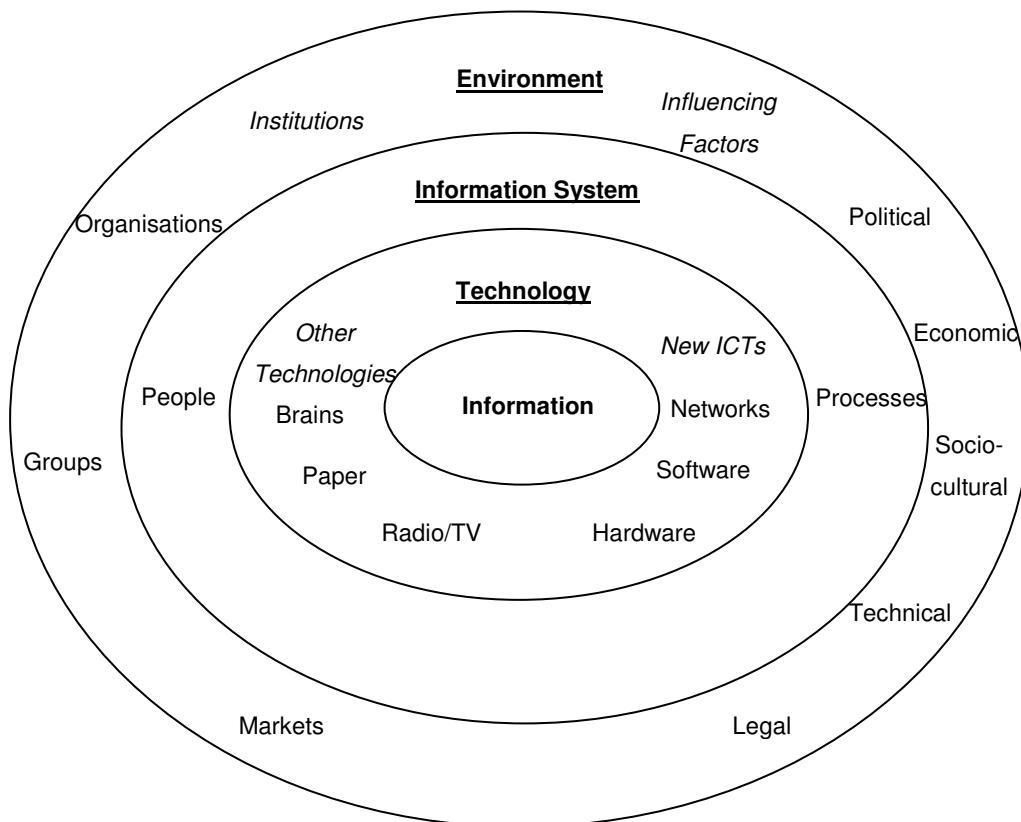
Source: After Heeks, 1999a.

Heeks clarifies the role of information within the systematic model through the concept of the information chain. This is presented in Figure 4.2 below. Heeks describes how the information chain

shows a 'staged process' whereby data is transformed into 'useable information' (Heeks, 1999a:5). If individuals have the necessary resources and information is assessed as relevant, information may be applied and result in a development action.

Figure 4.2 The information chain
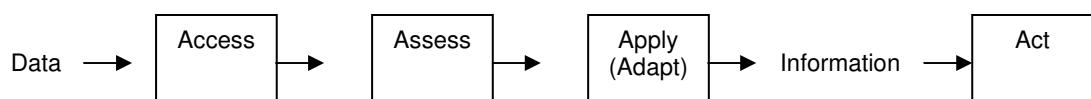
Source: After Heeks, 1999b.

The information chain, along with understandings drawn from Plattner, forms the basis of the research project's conceptual framework as illustrated below. Heeks notes the importance of overt resources, such as a telecommunications and electrical infrastructure, if access to information is to be achieved through ICTs such as the Internet. Within the wider ICT literature this distinction is not always explicit with 'access' seemingly synonymous with access to information and access to technology; this appears exaggerated within a digital divide approach. For this reason, the conceptual framework below distinguishes clearly between the two. Heeks also notes that a range of resources will be required to assess and apply information. Heeks summarises these as 'source proximity', 'trust', 'knowledge' and 'confidence and security' (*Ibid*: 6). Source proximity, according to Heeks, refers to the fact that data reflects the context in which it was created. If recipients of information do not share values and understandings common with those that created the information, this may render the information irrelevant. This observation is lent weight by Plattner's understandings of markets as described above. The information chain further reminds that recipients will need to assess the value of any information accessed in relation to their particular context.

With regard to knowledge, Heeks notes that 'information creates knowledge, but knowledge is also needed to create information', therefore, without knowledge information can neither be accessed nor assessed (*Ibid*). This indicates the need for ICT4D interventions to take into account the existing knowledge base upon which the intervention is expected to act. With regard to the information chain as presented by Heeks in Figure 4.2, it seems reasonable to question the situating of 'information' between 'apply' and 'act'. This appears confusing. Instead, in the framework below information is viewed as being part of the entire chain. Further, it may be noted that assessment and application may be read as being representative of the transformation of information into knowledge.

4.2.3 <u>The conceptual framework</u>

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Drawing upon the above, the project's conceptual framework is presented in Figure 4.3 below. As noted above, the framework distinguishes between accessing technology and accessing information in order to make the distinction from a digital-divide approach explicit. The stages of the information chain are then situated within specific contexts that relate to the research aims and the objectives of the ICT4D project to be researched.

Figure 4.3 A conceptual framework for the analysis of ICT based interventions aimed at poverty reduction
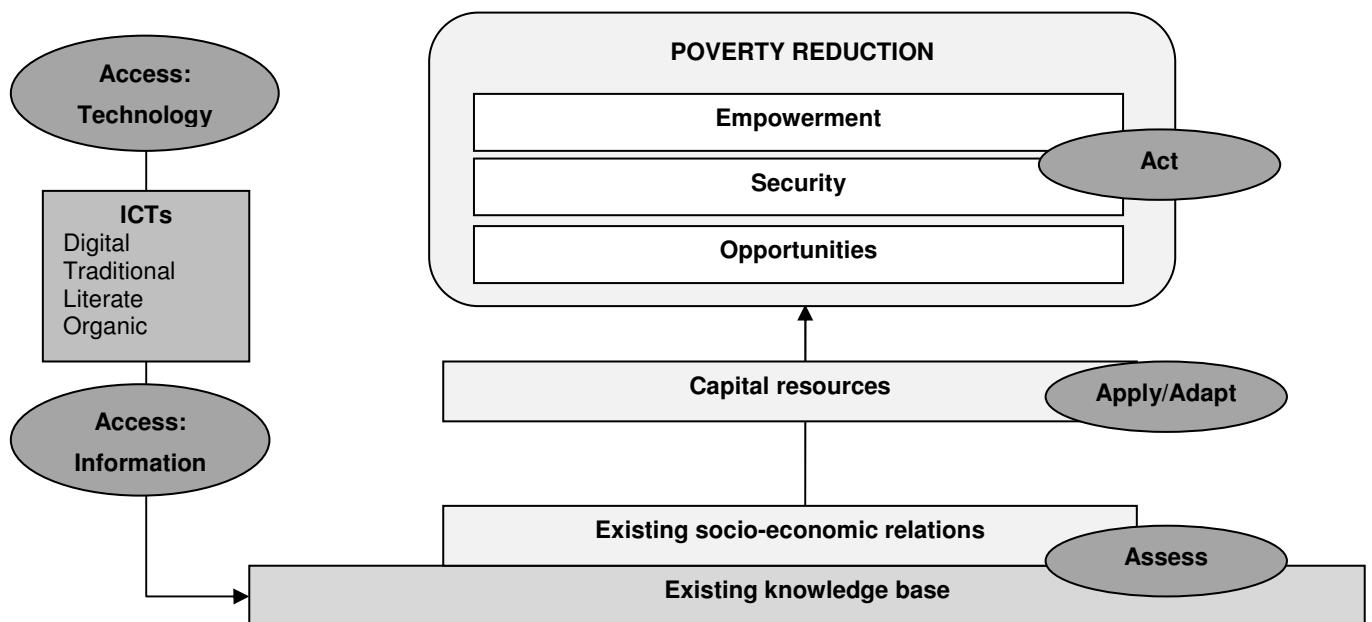
Source: Author.

Duncombe and Heeks (1999) note that for the majority of poorer producers information will be received through informal channels that are regarded as trustworthy; a view supported by Plattner's personal modes of exchange. Heeks (2002a) also notes that developing country contexts can be risk-averse. This in turn implies the need for confidence and security, which in itself requires assessment within the context of existing experiences and knowledge. For the poor it is unlikely to be simply just a matter of exchanging one information source for another. Rather, it is more likely to be a question of weighing up longer-term costs and benefits. The conceptual framework, therefore, stresses the importance of understanding both the existing knowledge base and existing socio-economic relations. The latter is characterised, after Plattner, by the goods, actors and transactions that operate within the prevailing market system. It is within this context that new information will be assessed by poor farmers as either relevant or dismissable.

The ability of an individual to apply information will not only be dependent on the above factors. Heeks (2002b) expands that individuals will require both economic and social resources in order to transform data within the information chain. These resources are summarised as capital resources within the conceptual framework. These resources draw on the SLA and are; human, social, economic, natural and physical capitals. These capital resources may, in turn, be viewed as application resources within the framework. Heeks (2002b), however, refers to such resources as 'action resources' and places these at the end of the information chain. In this regard, the information chain is not always clear regarding the difference between applying information and the resultant act. Heeks notes that the end point of the chain 'is effective action for development' (Heeks, 2002b:7). The application of information, therefore, may be read as a contributing factor towards a development act. This, for example, may be seeking a new buyer in a new market (applying information) that leads to an overriding development act, such as a reduction in poverty through increased sales. Capital resources are needed if individuals are to apply information, which may require adaption according to resources to hand. The conceptual framework, therefore, equates capital resources with applying and adapting information within the information chain. The development action with which the research is concerned is poverty reduction as previously defined. Specifically, the resulting development act is taken to correlate to increasing empowerment, opportunities and security for the poor.

The conceptual framework as presented provides the framework and point of reference for research conducted in the field.

4.3 Methodological considerations

As indicated, there is a lack of both disaggregated and contextualised data concerning the contributions of ICT4D based development interventions towards poverty reduction. The majority of studies conducted have been status, or shorter-term, studies. There have been few extended studies of ICT4D projects and none in Indonesia. As the above chapters have indicated, from both a development studies and ICT4D perspective, there is a need to place ICT4D initiatives in context. This view is strengthened through a perspective that sees both poverty and development as multidimensional and complex; as described within the previous chapters. There is also the theoretical concern, as discussed in chapter three, that ICT4D interventions reflect particular values and developed world representations of progress. Equally, there is the theoretical viewpoint that sees ICT4D interventions as being universally applicable and relevant. Both views, again, urge the need for further contextualisation in order to better ascertain what works and what does not in particular contexts. The need for contextualisation and engaging with local understandings drives the following.[53]

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[53] Methodology, herein, refers to the 'theories of how the world can be interpreted' (Murray & Overton, 2003).

Methodologically, the need for contextualisation and the acknowledgement of complexity and context-specificity lends itself towards a qualitative research approach (Kumar, 2005). Within a study concerning poverty this is considered all the more important (Clarke & Sison, 2003). Within a qualitative approach there is the implicit understanding that phenomena, such as a telecentre for example, cannot be understood in isolation (Flick, 2002). The decision to adopt a qualitative approach was also informed by a lack of available data prior to conducting the research; this included the inability to access detailed information regarding the research location and the lack of comparable examples to draw from in Indonesia. As such, rather than seeing the research activity as a linear pre-determined process the research was approached in terms of discovery with frequent re-readings of data and reference back to the project's conceptual framework (*Ibid*; Chambers, 1997). Within Indonesia it is noted that the availability of secondary data may vary within administrative districts and that this can compound the dilemma that research design requires a degree of prior knowledge (Magrath, 1999). The information that was available prior to starting research was general project information on e-Pabelan provided by the implementing agencies. As such, proceeding with a largely pre-determined quantitative survey without adequate background information was deemed overly prescriptive and high-risk. Such a pre-emptive survey that would have defined the specific issues to be explored with only the project's official documentation for guidance was considered to close the door on emic understandings and the incorporation of such understandings within the research (Turner, 2003). A qualitative approach, in contrast, was decided to provide the methodological room for evolution of the research in relation to observed needs and, as such, better reflect and incorporate the complexity of lived realties in the field in line with the human development approach outlined in chapter two.

Norman Denzin and Yvonna Lincoln (2005) note that qualitative research cuts across varied disciplines and subject matters and argue that precise definition is difficult. The authors describe qualitative research as follows:

> Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings and memos to the self. At this level, qualitative research involves an interpretative, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them.

Denzin & Lincoln, 2005:3

While providing support to the need to contextualise understandings, Denzin and Lincoln's definition also indicates the subjective nature of research and the need for ongoing reflection and (self-) evaluation during the research process. The description is cautious and reflects the crisis of representation within the social sciences in the mid 1980s and critiques the notion of universally applicable truths. The result has been a questioning and review of the once stable meanings of

validity, reliability, and objectivity in research. (*Ibid*: 2005). This view is presented in contrast to positivism that 'seeks to discover the immutable universal laws that govern the universe by using observation, experimentation and calculation.' (Macey, 2000:303). Qualitative research, in contrast, suggests the limitations of positivism, as typified by quantitative approaches to research, within the social sciences in the face of multiple realities and doubts the possibility of being truly objective. Such arguments are mirrored in post-colonial and post-development critiques of development, as seen in chapter three, that suggest the quantitative measurement of progress within the normative nature of development obscures diversity, alternative understandings and lived realities.[54]

However, the need to engage with, and to respond to, different realities and localised conditions within development related research has been an issue of importance for some time.[55] Robert Chambers' (1997) work on participatory rural appraisal (PRA) distinguishes between the conflicting worlds that researchers work in. These are described as the worlds of 'physical realties'; 'the "real world" of physical things'; and 'personal realities', the constructed world 'we perceive, know and believe.' (Chambers, 1997:56) Chambers stresses self-awareness and the need to overcome biases and preconceptions and engage with local realities. Such an approach also helps expose and overcome differences between what Chambers terms 'uppers' (researchers; development practitioners; the privileged) and 'lowers' (the researched, beneficiaries, the vulnerable). Differences between uppers and lowers may be a result of and manifest themselves through conditioning, dominance/authority, distance, denial and blame. (*Ibid*: 76-84). Chambers calls for active engagement and transferral of ownership of the research, and development, process from uppers to lowers through participatory methods and approaches. For Chambers participation is, therefore, political and empowering.

Participation is clearly an important methodological consideration within development research. As noted within ICT4D, there have been strong calls for greater participation in the establishment of ICT4D projects and this may be extended to the evaluation of such projects. However, the concept of participation is not without problems. There is the concern that participatory development, of which participatory research is integral, merely serves to co-opt the poor into a pre-decided development process (Cooke & Kothari, 2001; Leurs, 2003).[56] As indicated in chapter three, it is within this sense (the selling of an idea) that the frequent call for greater participation in ICT4D projects seems framed. An alternative view, presented in response to the critiques, notes that while participation is contested and flawed it still has, if used in a self-reflective manner, emancipatory potential through including those who would otherwise be excluded (Parfitt, 2004). However, there appears a conflating at times of the issues of inclusion and participation within the literature. It seems reasonable to adhere to the

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[54] With regard to representations of and within development, ethnographic studies of development that research the culture of development itself are of interest. See Crewe & Harrison (1998), Mosse (2005).
[55] The gap between academic research and research by those concerned with policy and practice within development seems to be closing (Booth, 2003).
[56] With regard to ICT4D, Heeks (1999) draws on the same experiences as Bill Cooke & Uma Kothari (2002) from a symposium on participation held by the Institute for Development Policy and Management at the University of Manchester in November 1998 and notes participation comes in many forms and warns against seeing participation as a universally applicable method. Heeks also reminds that individuals may choose, or find it in their best interests, not to participate.

inclusive philosophy (including the importance of listening and self-reflection) of PRA within research, without the, at times, mechanistic application of PRA tools.

While methodologically the scales tip sharply towards the adoption of a qualitative approach there is, as noted, a need for disaggregated data regarding who participates in, and benefits from, ICT based interventions. This focus on figures tends more towards a quantitative study. In contrast to a qualitative approach, quantitative research is predetermined and considered more structured and more suited to statistical analysis; for example, in answering important questions such as how many women access a telecentre in comparison to men? The argument regarding which is better is no longer as heated as it once was, with both approaches seen as having their roles to play and similarities in terms of concerns over rigour (Joye, 2005). The inclusion of quantitative data collection instruments within a qualitative approach is not uncommon (Warwick 1983; de Jong, 2008). It is also considered necessary in respect of the stated research aims and objectives. A mixed method approach is also well suited to a multidisciplinary, of which development studies may be characterised (see chapter two), approach and presents opportunities for greater insights than either qualitative or quantitative approaches alone (Creswell, 2009).

Further considerations relevant to conducting research in developing countries include the following. Firstly, there is the issue of whether or not a foreigner researching the poor amounts to little more than academic tourism or other such indulgences (Scheyvens & Storey, 2003). Potentially, within a developing country context there may be issues with individuals being unfamiliar with research, researcher and the research process making potential for misunderstandings wide (Bulmer, 1983). However, it should be noted that village level censuses are common in Indonesia. Respondent error may also be unintentional or intentional (Stycos, 1983). Alongside errors, biases may arise due to cultural differences and differences in accepted social-norms or unfamiliarity with the research process.[57] Emily Jones (1983) discusses what is perceived as a courtesy bias in Southeast Asia whereby respondents are inclined to give the researcher the information she wants; out of politeness rather than expedience. Jones notes the stereotype within this representation and the discussion thus reminds cultural differences and expectations run both ways. Overall the incorporation of repeat visit, follow-ups and participation in a range of daily activities coupled with self-reflection within a qualitative approach can help offset such concerns (Rutten, 2003).

The above methodological considerations inform the choice of research method and choice, and adaptation of, research instruments as described in the following section.

4.4 **Field research and method**

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[57] Chambers (1983) famous development research biases are; tarmac (urban, roadside), project (i.e. where something is being done), person (elite, male, adopter, active/present), dry-season and professional (tending towards the progressive or better educated who can satisfy professional curiosity).

In order to mitigate the risks and biases outlined above and in keeping with the research objectives a case study method is utilised. In order to meet the need for contextualisation the case study is extended in nature, therefore, allowing a richer picture and textured understanding to be achieved. This is important where there are multiple influencing factors at play. In Ranjit Kumar's words a case study 'provides an opportunity for the intensive analysis of many specific details overlooked by other methods' (Kumar, 2005:113). This in turn, opens the possibility of 'significant discoveries that were unanticipated' (Whyte, 1981:27). As Robert Yin (2003) notes case studies are particularly suited 'to cover contextual or complex multivariate conditions' and to studies that 'rely on multiple and not singular sources of evidence (Yin, 2003:ix). Further, an extended study allows for more effective contextualisation in comparison to cross-sectional (or short-term) one-off studies. As such, a case study seeks to avoid a 'quick and dirty' approach that is an oft-critiqued characteristic of much development related research and evaluations (Chambers, 1997; Rowlands, 2003). The approach also allows an analysis of emerging themes and impacts over time. The combination of a study of local contexts, a toolbox of research instruments and the extended nature of the study over time further facilitates triangulation in order to overcome weaknesses in particular research instruments and methods (Gray, 2009). Effective triangulation also seeks to mitigate risks associated with the researcher (western male upper working in a second-language) and the research hosts and participants. This is considered all the more important where the research deals with conditions of poverty that may accentuate cultural and social differences.

Following the finalisation of research visa, permits and appropriate authorisations in-country at the national, provincial and local levels in September 2004, research began at e-Pabelan in October 2004. While in Jakarta in September 2004 an initial orientation meeting was held with the implementing agency partner representatives from BAPPENAS and UNDP. This also allowed the first substantive access to secondary data and information relating directly to the e-Pabelan project. Documentation available included background documents on e-Pabelan and PePP including official project documentation, and a draft of the ethnographic action research (EAR) report and baseline survey data and report. These are discussed in detail in chapter six. The meeting in Jakarta also allowed the opportunity for initial enquiries and discussions. Correspondence was maintained during the research project with key implementing agency figures by e-mail and telephone and also during monitoring visits to e-Pabelan itself. Field research was conducted at the village of Pabelan from October 2004 to September 2005. A Gantt chart illustrating the field research timeframe in relation to key events at e-Pabelan and research activities conducted is attached as Appendix A.

Prior to arriving at e-Pabelan the initial research plan sought to first establish the local context into which the e-Pabelan telecentre was established through mapping of the village, observations, compilation of secondary data, and interviews with key figures in the community. This was to be followed by a focus on the telecentre itself utilising direct observation and informal interviews to establish usage patterns and to provide an indication of early impacts for fuller exploration. The plan then envisaged working outwards from the telecentre and using snowball sampling to explore socio-economic networks and changes within these networks over time. This was to be supported by direct

observation and participation in village life and activities in order to provide a deeper understanding of context. However, upon arrival at Pabelan it became apparent that the idea to work outwards from the telecentre would require revision.

The reasons for the need to adjust the initial research plan are described in detail in the following chapters. However, in summary the reasons related to low community participation within the telecentre project, including no participation by the intended target group, and a range of project management difficulties evident upon arrival at the research site. This resulted in dividing data collection into two phases more distinct than initially anticipated. The first phase of research remained broadly consistent with the initial research plan and focused on establishing the background context to the village alongside a focus on the telecentre itself in terms of the establishing of access to technology and information. This stage of the research is discussed in chapter six. The second stage of the research focused on identifying and better understanding socio-economic relations relating to poor farmers in relation to actors, goods and transactions after Plattner. The second stage of the research is discussed in chapter seven. These two research stages overlapped and data would often inform both phases. The manner in which data collection overlapped and enabled triangulation is illustrated in Appendix B. Also, it was far from the case that the telecentre was ignored in later stages of the research. Rather, the need to distinguish between data collection phases was due to the fact that the telecentre and farmers could not be approached as being part of a single and coherent development process.

The following sections describe the data collection and research instruments used in relation to the research project's conceptual framework as presented earlier in this chapter. For the purposes of clarity the two following sections relate to the two phases of the field research as outlined above.

4.5 **Data collection phase 1: Background, access and the telecentre**

4.5.1 Establishing background and research parameters

Initial activities at e-Pabelan focused on identifying and listing key individuals and institutions within the village and on establishing the overall socio-economic and geographical context. Concurrently, it was essential that the researcher became known and visible to the wider community. The initial point of departure was, in keeping with formalities, to begin with the village head. This led to introductions and informal discussions with key individuals within the village administration and enabled access to sub-village officials and, physically, to the village in general. These initial introductions also enabled access to village level secondary data and statistics. District and sub-district data was also collected from the relevant statistical offices (*Badan Pusat Statistik*- BPS) during this inception period. The collection of official data required repeat visits during the research as some updated sub-district and village level data was only published during later stages of the research.

While some information had been provided by the implementing authorities prior to the research, essentially e-Pabelan project documentation, limited information was available regarding the village itself. The information relating to the village provided by the implementing agencies was largely anecdotal information regarding farming and poverty and also included background information relating to the local partner and the *pesantren*. Some additional information had been sourced through the researcher's personal contacts; however, this was limited. On a practical note due to the rigours and bureaucracy of obtaining a research visa for Indonesia there is little, or no, possibility of changing research locations once they have been agreed in advance with the Indonesian Institute of Sciences. There are also limited opportunities for conducting authorised short-term preliminary research. To do so without proper authorisation would raise a number of ethical considerations.[58] With Indonesia seeming a highly fruitful and suitable choice for fieldwork a total of two possible research sites had been previously identified with relevant ICT4D interventions; one in Kalimantan and the other being the e-Pabelan project. The e-Pabelan project was more suited to the research aims. However, with limited information available it was essential that there was a degree of flexibility in the overall research plan and that time would be required in the field to better establish context and to finalising the research plan in relation to that context. In respect to finalisation of the research plan the research project's conceptual framework was the guiding point of reference.

Upon arrival at Pabelan it was evident that the geography of the village required further consideration. The village covers a large area with a number of distinct and separate sub-units and while largely rural portrays some peri-urban attributes in parts of the north (see chapter six). Mapping of the village, therefore, took on added significance.[59] Each village sub-unit was walked in turn and individual maps were drawn and then created digitally using the MapInfo Professional software (produced by Pitney Bowes, Connecticut. v 7.0). This identified residential clusters, businesses, stores and food-stalls as well as rice-fields and agricultural areas. This also allowed identification of village institutions and also indicated some access to ICTs in the form of telephone kiosks and other services. An added advantage was that the process of physically mapping the village made the researcher visible to the community and facilitated initial informal discussions about the research, the village in general and also about the telecentre. This process also suggested overall awareness levels regarding the telecentre project and preliminary views on the relationships between the wider community and key village institutions. These topics were later addressed in key research instruments described below. The maps provided a point of reference for further research in the village. An overall map of the village is provided in chapter six.

An important decision stemming from the mapping exercise was to focus the research on five village sub-units rather than all ten. This was due to the distances between sub-units, the relatively high population of Pabelan and the location of the telecentre in the sub-unit Pabelan 4 and the large

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[58] The author is well aware that many researchers conduct research in Indonesia outside of the official framework and the constraints it presents. To not conduct preliminary research without proper authorisation was ultimately a personal decision guided by respect for national sovereignty and to whatever that might apply for outsiders.
[59] The only map of the village available at the time of the research was a hand painted map nailed to the wall of the village head's office.

distances to the telecentre from some outlying areas of the village. Furthermore, it was considered that focusing on all ten sub-units would result in data collection being too thin and, as such, it was decided to focus on what were considered to be the five 'poorest' sub-units. Conversations during early direct observation at the telecentre also indicated that the majority of the few early users came from sub-units close to the telecentre. The identifying of the 'poorest' sub-units was somewhat problematic as there were no sub-units of Pabelan that scored consistently high in all data sets available. While this also implied poverty was fairly evenly distributed through the village, there was considerable inconsistency in the data available. As such, it was decided to identify available poverty rankings at the village level that included data per village sub-unit. These poverty categories were then arranged by sub-unit and each sub-unit was then ranked by score according to inclusion in each category. All poverty categories and data per sub-unit alongside final counts and selected sub-units are included in Appendix C.

The most comprehensive, and recent, data for inclusion in this selection process was from the baseline survey (PT Risadata, 2004 unpublished). Further information on the baseline survey is included in chapter six. The baseline survey identified five different socio-economic categories based on sampled survey responses that related to percentage of employed individuals within households, income per capita, savings and welfare, housing facilities and durable goods. These factors were combined to present the following categories; very poor, poor, almost sufficient, sufficient and more than sufficient. The baseline survey also included an income-based category and a further composite poor category. Five categories from the baseline survey were included in the selection process with the omission of the sufficient category. A further three categories were identified from official village poverty statistics. The local poverty statistics used included the following: The 2004 village poverty statistics (*Data Khusus Keluarga Miskin*) a composite poverty index of households including living conditions and household expenditure; the 2003/4 data for recipients of subsidised rice (*Beras Raskin*); and individual recipients of health cards (*Kartu Sehat*) for subsidised medical treatment data for 2005. The discrepancies in data between the three village level poverty data sets may be considered surprising if one considers they are compiled by the same officials at the sub-village, and down to neighbourhood (RT), levels.[60] The issues that the differences in these figures gave rise to in terms of who received certain social services are discussed in chapter six.

As a number of sub-units had the same count an additional sum of category was then added. This process was repeated a further time. These additional tiebreaker categories were based on the sum of very poor and poor categories and then, for the second, the sum of very poor, poor and almost sufficient categories from the baseline survey data. Considering the discrepancies between village level data sets the baseline survey categories were considered to be more impartial. By using the sum of the very poor and poor categories the final selection of sub-units was skewed towards the

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[60] The following rings true for Pabelan: 'Unfortunately, statistics- especially official statistics- may appear to be more accurate than they are. In many countries the absence of a survey capability results in data being recorded by officials whose responsibilities lie elsewhere; and whose objectivity may be affected when it comes to reporting situations for which they themselves are partly responsible.' (Casely & Lury, 1987:20).

poorer end of the spectrum, which was deemed justifiable in light of the research aim. From the final count the issue arose that the sub-units Pabelan IV, Pabelan I and Blangkunan Selatan had the same score. Pabelan IV was chosen as it was home to the telecentre and on this basis it was considered erroneous to exclude this subunit.[61] The subunits finally selected were Selak, Batikan, Jagalan, Pabelan III and Pabelan IV. Before proceeding, these selections were discussed with village officials. The omission of Blangkunan Selatan was disputed by one official; however, it was considered justified on the basis that Pabelan IV should be included. Overall, this selection was considered consistent with local understandings and presented a point of departure for the research.

During this initial period and in order to provide a better understanding of the village context semi-structured interviews were conducted with all ten village sub-unit (*dusun*) heads (all male). The topics covered were as follows:

- Demographics: Number of inhabitants; number of households; gender balance; potentially vulnerable groups (female-headed households, people with disabilities, elderly, young, poor); educational attainment.

- Economics and work: Primary occupation types; unemployment; enterprise (types, sector and size); agriculture (type of employment, land ownership, storage/processing facilities, crops and actors); workers outside of Pabelan.

- Institutions: Credit facilities; educational facilities; health facilities; community groups.

- ICTs: Awareness and involvement in establishment of telecentre; availability of ICTs in sub-unit.

These interviews were informal in nature and would last in general from one and a half to two and a half hours. Alongside establishing general background information the interviews also provided preliminary information regarding access to capital resources and clarification of points observed during the mapping exercises. In the majority of cases follow up visits were needed to collect data relating to population and number of households. Although, in theory, this data should be available at the sub-district level it was rarely to hand.

4.5.2 Research activities at the telecentre

As indicated, prior to arriving in Pabelan it was intended to conduct research initially at the telecentre and then to assess the impact of new access on pre-existing socio-economic networks working out from this point. Initial research activities planned to be conducted at the telecentre were to utilise direct observation with supplementary informal interviews. The aim of this approach was to establish

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[61] It could also be suggested that the telecentre was not in the poorest sub-unit. This was indeed the case in that Pabelan IV was the political heart of the village.

usage habits and patterns and to identify key users that would form the initial point of entry for subsequent snowball sampling of farmers. Upon initial inspection of the telecentre it was evident that this approach would not be possible due to very low participation in, and usage of, the telecentre in general (see chapter six). An emerging research priority, therefore, was establishing how and why this situation may have come about.

Initial research at the telecentre, therefore, centred on establishing how the e-Pabelan project had been implemented and in establishing an associated timeline and identifying the activities completed. This proved surprisingly difficult and time-consuming. There appeared to be two reasons for this. One was clearly a lack of effective documentation during the initial stages of the telecentre project. The second was that preliminary research, such as the baseline survey, was organised by the implementing partner and was conducted largely independently of the local partner in Pabelan. The outcome being that the local partner representatives had little understanding of what activities had been completed and when and by whom. Initial information obtained through discussions with volunteers at the telecentre, village officials and local partner representatives showed considerable variation. In order to overcome this issue PRA instruments were used. Respondents were asked to brainstorm activities completed on a large piece of paper. These activities were then visually linked to actors that conducted the activities. Then respondents established a visual timeline that could be commented on and compared. Once the activities had been recorded, put in order, dated and agreed upon by respondents the paper was rewritten for clarity and used as the basis of discussion with the next respondents. This process was repeated back and forth between the respondents until consensus was reached.[62] This process was completed with four telecentre volunteers (*guru praktek*) in groups of two and with two local partner representatives (1 female, 5 male). As one of the latter was also the village head it was considered prudent to conduct activities separately to ensure no self-censorship occurred on the part of the junior official.

As noted, originally it was planned to conduct direct observation at the telecentre in order to better describe and assess the manner in which it functioned in terms or providing access to information. This was to be approached by randomly sampling pre-designated time slots per day (morning, afternoon and evening) over monthly periods. Following periodic reviews this was to be repeated or adjusted accordingly. The aim being to avoid bias and ensure that all periods that the telecentre was open would be covered. However, taking into account low participation in the telecentre project such an approach was considered neither efficient nor effective. Direct observation was conducted at the telecentre; however, the line between direct and participant observation at the telecentre became blurred with the researcher taking on occasional tasks at the telecentre in response to the difficulties faced. This is discussed further below in terms of ethical considerations. Convenience sampling was used for direct observations at the telecentre and was simply driven by the availability of potential respondents at the telecentre at a particular time. The researcher would return frequently to the

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[62] The timeframe of activities created was later checked with implementing agency officials, who also had an incomplete overview of initial activities conducted at the telecentre.

telecentre on a daily basis to see if there were any users present. Due to initial low frequency of users and little variation in the primary demographic using the telecentre and similarly in terms of actual Internet usage (see chapter six), direct observation at the telecentre was not considered especially productive or as adding significant value in comparison to other techniques and other contexts with the village. A total of 445 hours were logged conducting direct observation at the telecentre.

Nevertheless, direct observation was continued at the telecentre throughout the research in order to assess if change introduced during the research project were to have a significant impact. Notes were taken and recorded by time and were supplemented by direct questions to users regarding users' occupations, residence, number of visits, and alternative access to ICTs. In order to minimise possible risks that may have stemmed from undercoverage from convenience sampling, participation at the telecentre was regularly cross-checked with the telecentre volunteers and later with the management team. Further cross-checks were made against the telecentre log-book, which in turn was cross-checked during discussions, interviews and survey instruments (described below) targeting the telecentre's intended beneficiaries.

Two further research techniques were used to assess and cross-check access at the telecentre. A questionnaire survey was administered with assistance from telecentre staff during July and August 2005 in order to cross-check if there had been any significant changes in observed usage and access patterns. This was carried out by convenience sampling with attendees filling in a questionnaire (or not) upon arrival at the telecentre with the assistance of staff working at the telecentre. The questionnaire is included in Appendix D. The questionnaire was designed with the assistance of the telecentre management team in order that it may be of secondary benefit to them. This resulted in the inclusion of some questions, such as on marital status, that were not directly related to the research but were considered important by the local partner. The questionnaire was tested with five individuals and then revised before using. There were a total of 74 respondents. In order to triangulate data from the questionnaire and better understand usage habits among the primary user group (students) PRA tools were used. Students ranked activities conducted at the telecentre by how often they conducted them. Networks were also explored by groups of students brainstorming and writing names of geographical places they had contacted on cards. These cards were then laid out on the floor in a large visual map and linked by using further coloured cards to means of communication used from the telecentre (e-mail and/or chatting). These PRA activities were completed with 27 young (18 female, 9 male) telecentre users (see Appendix E).

4.5.3 Initial assessments of community perceptions of the telecentre

70 individuals were listed in local telecentre documentation as having been invited to attend community group (*kelompok*) trainings at the telecentre in July 2004. A series of semi-structured interview questions were prepared for these individuals based on initial observations at the telecentre and informal discussions with volunteers at the telecentre and wider community. As these individual

were expected to act as infomediaries, this also provided an opportunity to discuss local perceptions of poverty. These question prompts are provided in Appendix F. However, it should be reiterated that this list of 70 individuals were those invited to the trainings and did not reflect those that actually attended trainings. 12 individuals were identified that did not attend trainings. Seven further individuals were identified, but were not available for interview following a minimum of two further repeat visits to their homes. A further individual had moved from the village to East Java. Five listed as attending the trainings were identified as living outside of Pabelan at the time of the trainings. In total 22 attendees (9 female, 13 male) from the early community group trainings, who were resident in Pabelan, were interviewed.[63]

With low participation at the telecentre project at the early stage of the research period it was also necessary to better gauge perceptions of the telecentre from the wider community. From informal discussions with community members, telecentre management team, participation figures and through clarifying initial project activities conducted at the telecentre there were concerns relating to awareness of the telecentre, ownership, purpose of the telecentre and community involvement. This was considered particularly pertinent to the target group of poor farmers. As such, exploratory semi-structured interviews were conducted with farmers in order to better assess awareness of the telecentre project. These were conducted by convenience sampling in the rice fields. The sub-village maps were used to seek an even spread of geographical coverage and interviews were conducted in the morning when individuals were likely to be at work in the rice fields. Rice fields nearer the telecentre were prioritised (Pabelan IV, Pabelan III, and Jagalan). A total of 30 farmers (2 female, 28 male) were interviewed on the following three topics and respective sub-topics.

- Awareness of the e-Pabelan project: Knowledge of existence of project and how and from whom; perceptions of ownership of the project; knowledge of project partners; who is the project for; what is the aim of the project; ICT ownership and access.

- Participation in e-Pabelan project: Attendance at meetings; consultation by official or other representatives; inclusion in survey or assessment (baseline survey, EAR activities); attendance at trainings; information form community groups (*kelompok*).

- General opinions relating to partners (initial foray): Knowledge of partners; perceptions of local partner in relation to community; perceptions of implementing partner in relation to community.

These interviews were deliberately informal in nature. Discussions invariably began with discussing the activity in progress in the rice fields. This had the added benefit of allowing the researcher to gain an initial understanding of crops and agricultural practices in the village. The discussion would then be turned to the telecentre and the topics above.

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[63] The remaining 23 listed were not identified. Identification became very time-consuming, as it was not clear who had originally drafted the invites. There was also confusion over the names provided to the researcher and the researcher was largely dependent on those interviewed passing on information about others that had attended the trainings.

The above topics also guided early informal discussions regarding the telecentre with community members. These were conducted opportunistically while mapping the village and also as the researcher spent time in the various village sub-units in order to gain familiarity with the village. These semi-structured interviews and discussions with community members, alongside the other preliminary activities described, helped establish initial understandings of the telecentre and the establishment of access in Pabelan. These research activities also guided the development of the two main research tools used within the research. These tools and their applications are described in the following section.

4.6 **Data collection phase 2: Primary research tools**

The initial research phase as described above focused on establishing the background context and, in line with the research project's conceptual framework, the telecentre and issues of access. With low participation at the telecentre it was not possible to establish a direct link between the project's primary target group and the telecentre. Following initial discussions and semi-structured interviews as described above it was considered that more information was required in order to establish a basis for examining the socio-economic relations that poor farmers operated within for later in the research phase. It was also considered prudent to have broader information relating to the capital resources that poor households could command. Further issues highlighted related to possible biases in the convenience sampling outlined above and the need for more disaggregated data concerning awareness of the telecentre. For these reasons a randomly sampled household survey was conducted of poor households. The design of this survey was informed by the findings from the initial research outlined above and the survey was the first of two substantive survey instruments conducted within the research. The second major survey exercise was of poor farmers.

The household survey was conducted within what had been identified as the five poorest village sub-units as described above. The survey was approached using a formal questionnaire, which was designed with both closed and open questions and sought to identify variations within the household rather than only focusing on the head of households. The questionnaire is presented in Appendix G. The questionnaire was implemented with the assistance of four Javanese speaking assistants (two female, two male). The questionnaire was prepared in Indonesian. The research assistants were given initial training in Yogyakarta. Four questionnaires per assistant were tested in village sub-units not chosen for the actual research. The questionnaires were then reviewed and revised and tested with a further four households in total. The researcher rotated between each assistant during each survey session and the research conducted was reviewed as a group directly following each session. The timing of the household survey was varied in each sub-unit in an attempt to vary the gender of the respondent who was at home. Early mornings and early afternoons were more likely to result in women being surveyed and late afternoons were more likely to result in men being at home. Overall an even balance of gender was achieved. Differences in the gender of respondents were not considered to have resulted in any notable variations in the responses given.

Random sampling of households for the questionnaire survey was based on official village lists of poor households from these sub-units. All available lists were checked; however, the only list that allowed a sufficient sample to be drawn was the list of individuals that received a health card. It was also suggested by village officials that this list was more representative and incorporated households from the other village poverty lists. The list was also the most up to date. However, as health card distribution was based on individuals, households with more than one recipient of a health card had to be identified with the assistance of village officials. As such the list was initially edited to avoid any possible double counting. As with other data sets in Pabelan the use of the health card data was not ideal; however, it presented a standard approach that could be used in each sub-unit. 216 households were surveyed. While this gave a 95% confidence level at the overall sample size, samples were taken at the sub-unit level as a stratified sample so this overall confidence level was not achieved per sub-unit. Households were selected by using a random number table with a 10 per cent contingency included in case of non-respondents. Interviews took on average 45 minutes to complete and were conducted at the respondent's home. The sampling selection and number of respondents realised are presented in Table 4.1.

Table 4.1 Household survey sampling summary

Village sub-unit (*dusun*)	No. of health card recipients	Actual sample size required per *dusun* at 95% confidence level and confidence interval of +/- 5	Target sample size	Actual number of respondents surveyed	% distribution of total respondents by *dusun*
Pabelan IV	134	100	60	54	25
Jagalan	108	84	49	50	23
Selak	67	57	30	39	18
Pabelan III	96	77	43	40	19
Batikan	75	63	34	35	16
	480	**214**		**216**	

Source: Author. Compiled from village health card (*kartu sehat*) recipient data, Pabelan village government statistics, 2005.

The target sample was not met in all village sub-units as indicated above. This was for a number of reasons including individuals not being available, a number of residents had moved (either within the village or to outside) and three individuals preferred not to participate. This was particularly the case for Pabelan IV where the target sample was not met despite repeat visits. The shortfall of respondents in Pabelan IV was supplemented by respondents from Selak, which was the last sub-unit to be surveyed. This was considered to skew the results further towards farming households. This was considered an acceptable compromise considering the prioritising of farmers within the research.

Findings from the household survey described above are presented in chapters six and seven. The household survey provided disaggregated data regarding the telecentre and general overview of poor households in Pabelan. The household survey also proved useful in identifying different functions and roles within agriculture and provided a good overview of access to ICTs and information, alongside involvement in institutions and access to capital resources. However, in terms of establishing an understanding of how livelihoods were secured through socio-economic relations the utility of the household survey was limited. The inclusion of issues relating to trust in the household survey was considered problematic and this was confirmed by early testing of the survey instrument. However, with reformatting these questions were included and although they presented issues within a social context that is reluctant to approach issues directly they did provide some insights that were followed up informally. Issues of interest largely related to the distancing of the local partner (*pesantren*) from the wider community over time as discussed in chapter six. It was also observed that a number of respondents appeared ill at ease with a formal survey approach and this influenced the design of later research instruments.

The second substantive research instrument employed was a survey of poor farmers. This sought to better explore the socio-economic relations that farmers secured their livelihoods within in relation to actors, goods and transactions. There were two main inputs that guided this part of the research. Firstly, the selection of farmers was guided by the household survey as detailed below. Secondly, the topics of the research and question formation were guided by further semi-structured interviews conducted with farmers. These interviews were conducted in the rice fields by convenience sampling. Respondents were sought from outside of the five sub-units that were a focus of the research in order to avoid any later overlap. These semi-structured interviews were completed with 17 farmers (all male). The topics covered were as follows:

- Commodities produced: Primary and secondary crops and advantages and disadvantages of each.

- Method of selling: Direct to market; large (*pedagang*) or small (*bakul*) trader; other; number of available traders.

- Place of transaction: From rice fields; home; market; other; checking by trader occurs when and where.

- Time of transactions: Before harvest; after harvest; other.

- Knowledge of price: Market price (which market); price fluctuations or stability; possibility of negotiating price.

Findings from the above semi-structured interviews guided the development of the survey tool. This was initially designed as a questionnaire and the questions were tested as such with 6 farmers. This preliminary questionnaire is presented in Appendix H.

As noted, during the household survey respondents felt uneasy in a too formalised interviewing environment and when faced with an interviewer with a sheaf of papers. To ameliorate this situation a single sheet of paper was designed in a matrix format that included the topics to be covered from the questionnaire (Appendix H) and space for minimal notes. This allowed the conversation to take varied routes with the researcher able to quickly see which topics had been covered without leafing through sheets of paper and to steer the conversation back to key topics if needed. The matrix used is attached as Appendix I. A Javanese speaking research assistant was also present who took further notes. Research assistant and researcher compared and wrote up notes together upon completion. While the entire process of research and documentation was time consuming this format was considered to create a more relaxed and open environment that was not overly led by the researcher. As such respondents were considered to feel more at ease and were also able to take the conversation to other topics of interest that had not been anticipated. Interviews varied in length from one to two and a half hours and were conducted at the respondent's home.

As the aim of this research activity was to seek further information on actors, goods and transactions with regard to better understanding markets only farmers that had been identified as operating within markets within the household survey were chosen. A total of 74 households were identified with primary livelihood activities within agriculture and that sold agricultural produce or combined the selling of agricultural produce with own consumption within the household (Appendix J). Interviews were not able to be completed with all 74 respondents despite repeat visits. A total of 70 interviews were completed (Table 4.2).

Table 4.2 Semi-structured interviews completed with farmers who sold produce

Sub-unit	Number of farming households operating in markets	Number of respondents from semi-structured interviews
Pabelan IV	10	11
Pabelan III	13	13
Jagalan	16	13
Batikan	16	14
Selak	19	19
	74	**70**

Source: Author. From household and farmers' surveys, Pabelan 2005.

The matrix survey tool proved effective in creating a more informal setting for the interviews and in guiding the interviewer. This was considered particularly appropriate for the target group and in creating what may be perceived as a less immediately hierarchical approach. While these interviews gave rise to some quantitative data the research tool proved very effective in exploring qualitative issues in a more informal setting while at the same time maintaining structure to the overall exercise. However, it was a prerequisite that the interviewer was familiar with the questions and topics to be covered. It was also necessary to have a research assistant that could take further notes and assist in providing complete documentation of the research proceedings. The results from these interviews inform chapter seven and are supported by participant observation.

4.7 **The use of qualitative data collection within the research**

As has been described the research adopted a mixed methods approach. This approach was guided by a concern of a lack of situated case studies within much ICT4D literature. As such, it was considered necessary to gain both a deeper and broader understanding of the situation and environment that this particular ICT4D intervention was placed into. Central to this approach were the two substantive research instruments described above; the household and farmers' surveys. These tools were built sequentially with the household survey informing and guiding the development of questions for the farmers' survey. The farmers' survey went through a development from questionnaire, allowing testing of specific questions, to the matrix survey tool and its use in facilitating semi-structured interviews. Both of these survey tools resulted in qualitative and quantitative data with a greater emphasis on the latter within the farmers' survey reflecting the topics under discussion. Both tools were designed to explore key issues within the conceptual framework. These topics are summarised by survey instrument in Table 4.3 below.

Table 4.3 Survey topics in relation to conceptual framework by key survey instrument

	Household survey	Farmers' survey
Background	Demographics	Demographics
Access	ICTs	ICTs (limited)
	Information	Information
	Institutions	Institutions
	Trust	-
	-	Price information
Capital resources	Income	Income
	Land (limited)	Land & assets
	Social services	Social services (limited)
	Credit & borrowing	Credit from traders
	Remittances	-
	-	Storage
	-	Transport
Socio-economic relations	Traders (limited)	Traders
	Goods (limited)	Goods
	Transactions (limited)	Transactions

Source: Author.

Moving from the household survey to the farmers' survey there was a shift of emphasis from access, as emphasised in the former, towards socio-economic relations in the latter. As indicated in Table 4.3 both tools covered some topics in a limited manner. The farmers' survey offered greater opportunities for discussing qualitative issues such as relations with traders and the role of local institutions and community groups. However, there was also the chance to triangulate data with the earlier household survey. Also a key difference was that while the household survey sought to find identify differences within the households the farmers' survey targeted individuals from those households. However, due to the nature of the survey tool there was greater variation between respondents in the farmers' survey than the more quantitative leaning household survey. With regard to the conceptual framework the topic of poverty requires clarification. All those surveyed using both research tools originated from the initial sample list as summarised in Table 4.1 and as based on village data of health card recipients. In terms of poverty in relation to the conceptual framework the research tools described sought to better understand poverty in terms of access to, and the ability to command, capital and exclusion in terms of access to information and local institutions. The issue of poverty is discussed further below. While the household survey resulted in a fairly even match of primary respondents by gender the farmers' survey resulted in over 80% of respondents being male. This reflected the fact that within the agricultural sector the majority of those involved in market based production activities were male.

The above survey instruments were central to the overall research process. Nevertheless they were not stand-alone activities. As noted, the two research instruments were linked and represented a progressive move along the research project's conceptual framework in terms of data collection with an increasing emphasis on qualitative data collection. However, these survey tools were still considered insufficient in itself in terms of providing deeper situated understandings. As such, the two survey tools described were themselves situated within, and beside, other qualitative research approaches. These were direct and participant observation and PRA techniques. Direct participation was largely conducted at the telecentre as described above. As noted, direct observation at the telecentre often resembled participant observation and it was participant observation in general that contributed to the research project's extended design. The participant observation conducted at Pabelan is outlined below.

4.7.1 Participant observation

For the first two months of the research period the researcher lived in Pabelan village. This enabled the researcher to gain a good understanding of the village and its geography. Likewise, this period also presented opportunities for villagers to become familiar with the researcher, which was considered to greatly assist in establishing access to a range of stakeholders within the village. Following the initial two months the decision was taken to not sleep in the village for the full research duration. The reasons for this decision are discussed later in this chapter. Instead the researcher was present in the village for research purposes while sleeping outside of the village in the main. Periodically the researcher would sleep in the village as either the need, or invitation, arose. A total of 217 full days were logged in the village with 29 partial days spent in the village. 72 nights were logged sleeping in the village. Time spent in the village included actively seeking involvement in as varied a range of activities as possible. These varied from participating in common daily activities, whether it be eating or hoeing a field, to attending meetings with officials within the village and at the sub-district level and participating in ceremonies and festivities. The researcher also socialised at small village stores and food stalls and accompanied villager members on excursions and visits to friends and relatives. According to Kathleen Dewalt and Billie Dewalt (2002) participating in such activities presents a number of advantages to the researcher:

> Irrespective of the topic or principal methods used in doing social scientific studies, we believe that the practice of participant observation provides several advantages to research. First, it enhances the quality of the data obtained during fieldwork. Second, it enhances the quality of the interpretation of the data, whether those data are collected through participant observation or other by methods. Participant observation is thus both a data collection and an analytical tool.
>
> Dewalt & Dewalt, 2002:8

Participant observation was incorporated into the research in this vein and, as such, informed the use of the instruments outlined above and in the interpretation of the data from their use. In this sense, the use of participant observation allowed the researcher to learn from people rather than approaching people as the object of study (Spradley, 1980).

The inclusion of participant observation was considered to add both broader and deeper understandings. It also contributed to the developing of relationships with five individuals who became important points of reference and key informants within the research project. These key informants would provide initial clarifications on a number of issues during the research that would then be followed up and checked further with other community members. These individuals were all considered poor according to village statistics and included three farmers (one female, one male), one craftsman (male) and one labourer (male). It was also observed that over time people's responses developed, became more open and, at times, differed considerably from initial cursory comments and asides from earlier in the research period. It was certainly the case, that in some cases, information was provided when it was considered safe to do so. In one instance, one particular event (the mobile phone mast story in chapter six) was only recounted in full when the respondent was sure there could be little chance of any repercussions, that is, at the end of the research. While considered to offer a range of benefits, participant observation, was the one research instrument that presented the most ethical issues and personal concerns (see below). Participant observation also presented a number of methodological concerns.

Participant observation as a methodological approach, and by design, lacks the more delineated structure of the survey instruments outlined above. Participant observation is opportunistic and seeks to engage with events that unfold within particular settings. As such, participant observation raises questions regarding how representative it may be in statistical terms, which in turn raises issues regarding the transferability and accuracy of the findings. However, this may be offset by the depth of understanding that participant observation may reveal through exposing the researcher to unanticipated information, events and occurrences. Nevertheless efforts were taken to mitigate risks arising from the use of participant observation. Firstly, the locations where participant observation was conducted were varied. This was facilitated by using a copy of the village map produced earlier in the research and by allocating areas on a weekly basis. The areas in which participant observation were actually conducted were then reviewed periodically and over time a balanced distribution was sought. This review process was important as beginning participant observation in one location would often end in another through accompanying a respondent on a task or a visit.

In terms of recording data collected via participant observation field notes were kept. Whenever possible, field notes were recorded by hand immediately. However, this was not always appropriate and in such instances notes were written up at the earliest opportunity. Field notes were re-written at the end of each day. Field notes sought to include provide general information about respondents, such as age (often approximate), domicile and occupation in addition to the subject of the observation. Topics of conversation were approached informally and were guided by the research project's conceptual framework as appropriate. Extracts from field notes are provided in chapter

seven. During the early stages of the research, where the focus was on examining the telecentre and issues of access, participant observation was mainly conducted within the village as opposed to the outlying rice fields. Towards the latter half of the research particularly during the preparation and delivery of the farmers' survey participant observation was, in the main, conducted in the rice fields. Through constantly reviewing and revisiting field notes it was also possible to use participant observation to offset observed and potential weaknesses in other research instruments. For example, as noted above the farmers survey was conducted primarily with male respondents. In response to this during later stages of the research more women involved within the agricultural sector were targeted by participant observation. This facilitated access to alternative information regarding the relationship between women farmers, who were largely growing food for their own consumption, and trade with small stores in the village. This also facilitated exploration of the relationship between farmers and casual workers in the agricultural section. These findings are discussed in chapter seven.

4.7.2 Participatory rural appraisal and informal discussions

The initial research plan envisaged using PRA techniques as a key supplement to participant observation. This was to include a number of PRA instruments including ranking exercises, Venn diagrams, and seasonal calendars (Mikkelson, 2005). The aim of using PRA was to explore emerging issues in more detail and to seek consensus or majority opinions on key concerns flagged during participant observation. PRA was to be employed to explore access to information and relationships between different market actors. However a number of issues became apparent during early PRA activities. With the research PRA was originally used to explore farmer's information sources. The output of this initial exercise is included in Appendix K and was provided by 15 male farmers. Although the information gained from this activity was, in itself, considered useful it was found that the activity would invariably revert to discussion and verbal descriptions with the visual prompts that characterise PRA becoming largely redundant. In this respect PRA activities often ended resembling focus group discussions (Booth, 2003). Reverting back to a diagram or similar was considered unnecessary by many respondents and risked being patronising. Considering the verbal tradition of community meetings and discussions in the village, the question raised was who actually benefitted from PRA? The majority of the benefits seemed to accrue to the researcher working in a second language rather than the respondents; this is, of course, contrary to the philosophy of PRA.

The final decision to move away from PRA as a major research instrument was taken when during the preparation of a seasonal calendar with a further group of farmers. One farmer disappeared only to return a few minutes later with one he had completed previously with agricultural extension workers.[64] Nevertheless PRA was still utilised during the research on a selective basis. PRA instruments were

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[64] It was considered in this sense that PRA techniques could be predominantly extractive when used in academic research and that this was against the grain of PRA's underlying principles. The use of PRA in development project design and implementation was, in contrast, considered to offer respondents a tangible focus and reason for participation in PRA. This distinction, should perhaps, be made clearer.

found to work well with younger users in small groups such as in exploring telecentre usage in Pabelan (see Appendix E). Within the wider community PRA instruments were found to be effective when used occasionally and informally with small groups as supplementary instruments. Large PRA groups were, just as in any sizable group work exercise, likely to be dominated by the more vocal. Within the research PRA was not utilised as an approach as originally intended. Rather PRA offered a tool kit that could be used selectively within the broader approach of participatory observation. As such PRA was incorporated with the research as a supplementary tool that could be used to clarify points that were raised in discussions within the village.

The visual component common to much PRA assisted in discussions that related to networks and affiliations and connections with local institutions (see Appendix L). The researcher carried different paper, cards and plastic discs while conducting early participant observation within the village rather than the rice fields with the express intent of using these to explore networks as required. However, more often than not it was found that respondents were comfortable to discuss issues relating to perceptions of closeness to local institutions and sources of information. As such, these PRA tools were used minimally. During the research identifying and ranking of information sources was conducted with 15 farmers (all male). Seasonal calendars were completed with a further 12 (all male) farmers. Telecentre usage and networks were explored by ranking and Venn diagrams with 27 young (18 female, 9 male) telecentre users. Ranking and sorting of occupation types by gender were completed with 24 (all female) respondents. Impromptu use of PRA tools as described were documented within field notes with any visual prompts used photographed and later reproduced as diagrams. Issues relating to PRA are further discussed later in this chapter.

While PRA became a tool that was used occasionally within participant observation, informal discussion and informal conversational interviews were a staple of participant observation within the research (Patton, 2002). Informal discussion enabled issues to be explored directly within the context that a phenomenon occurs such as, for example, while sorting and drying crops in preparation for sale. This provided added contextualisation within the research and created opportunities for exploring topics that a pre-emptive survey may have missed. This approach also allowed the ongoing development of questions that could be followed up and explored in greater detail. A further key issue related to access to respondents. As has been noted some respondents appeared uneasy with more formal surveys. Considering the issue of poverty from a perspective that emphasises exclusion it was all the more important that the research made use of instruments that did not create what may be perceived as barriers to participation in the research itself. Informal discussions were utilised to minimise intrusion into others lives and exclusivity within the research.

While it is stating an obvious truth it should be mentioned that informal discussions are a portable research tool that can be applied in a vast range of situations. This element of portability was also very much linked to appropriateness. Outside of a formal survey setting it was frequently the case that unobtrusive research instruments were required. This applied equally to a conversation about the types of rice that a farmer may be planting while in the rice fields to a conversation over a family meal with the village head. In situations such as these a researcher with his head in a notebook or survey

form could appear detached at best or arrogant (*sombong*) at worst.[65] As such the use of informal discussions sought to avoid Chambers' criticisms of uppers studying lowers as previously described. While not without issues, informal conversations were utilised in order to reduce distance between the researcher and respondent and to respect cultural norms. Informal discussions also allowed discussion of more sensitive topics. In this respect it should be noted that criticism of others is far from the norm in Javanese culture. While criticism is often approached through circuitous routes, it is rarely approached head on. This was a key issue within the research. It is worth reiterating that the telecentre project was facing difficulties at the time of the research. Further the local partner was a highly respected Islamic boarding school with links to the village head. This presented a range of local political issues with both supporters and detractors. As such, approaching topics relating to the difficulties the telecentre project faced in what could have been construed as a formalised manner would have been problematic.

The line between informal interviews and semi-structured interviews is not always clearly defined. After spending time in a research location with research topics that are defined, as through the conceptual framework presented, informal discussion can take on their own structure simply through repetition. As such, reflection is also needed to ensure that the advantages of keeping an open mind within informal approaches are not precluded by habit. Informal, therefore, should not be equated with a lack of rigour. Semi-structured and informal interviews were often combined and were used with a range of respondents outside of the primary target group of what may be described as the poor. The approach taken was centred on viewing repeat visits as a positive research instrument rather than as a correctional device. Repeat visits, in short, enabled reflection. Initially a semi-structured approach where key topics and questions drafted in advance would be used. The findings recorded by way of field notes would then be reflected upon. Repeat visits would then be utilised to facilitate informal conversational discussions to elaborate on themes and issues that had been highlighted. This approach was possible due to the extended nature of the research and was considered more fitting in terms of cultural context. These repeat visit informal interviews are summarised by respondent and topic in Appendix M. The main issues that the use of informal discussions gave rise to issues of subjectivity, accuracy and transferability. These are discussed later in the chapter.

4.8 **Poverty and the poor within the research**

The primary target groups within the research, in line with the intended beneficiaries of the telecentre project, were the rural poor and specifically poor rural farmers operating within markets. The first point of departure, taking into account the geographical scale of Pabelan, was to identify the focus sub-units of the research. As described, the selection of these village sub-units incorporated a composite approach where sub-units were selected on the basis of their inclusion in differing available poverty

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[65] Being *sombong* or *arogan* (arrogant) through distancing oneself from others in a myriad of ways is particularly frowned upon in Javanese culture.

data sets. Although this was not without issues, as described, this selection directed the research towards poorer sectors of the village. However, it should be reiterated that such distinctions were a matter of degree rather than a clear distinction. The household survey targeted poor households within the selected poor sub-units only. The basis for identifying these poor households was the distribution of health cards. The reasons for the use of this data set are also described above. There was a concern that using health card data may skew the balance of respondents towards the older end of the spectrum. As such, the household survey sought information regarding all household members. It was not found during analysis, however, that any bias towards older primary respondents occurred. During the implementation of the household questions within the survey instrument served to double check that respondents were poor in terms of income poverty and limited access to assets. Questions also related to information poverty; however, the survey did not examine causality with regard to what may be termed information poverty within ICT4D.

The household survey also formed the basis for identification of poor farmers that operated within markets. While poor, and as described within chapter seven, these farmers were not the poorest of those actors within the agricultural sector by way of their ability to accumulate some degree of surplus for sale. As described the majority of poor respondents within the farmers' survey were male. While there were a number of issues related to the process of identification of these poor households and individuals there was clarity in that all met predetermined criteria for measuring poverty. It was also possible to note living conditions and visible assets during the surveys as they were conducted at people's homes. Assets and goods, however, appear an increasingly anachronistic indicator of poverty with, as illustrated in chapter six, a significant number of poor households owning televisions, motorbikes and increasingly mobile phones. Living conditions were a more visible indicator as flooring and wall types were immediately visible. In this regard the differences between more substantial houses in the village and dirt floored wooden walled houses could be stark. As was noted, earlier in the chapter, there were concerns about the collection of official village data sets used within this research. While guidelines exist for the collection of this data it is often a subjective process at the sub-village level (see chapter six). The observations described sought to validate this data to a degree. While it was not possible to claim that the research was exhaustive, in that some villagers claimed some poor villagers were excluded from these lists, there was confidence that those surveyed were poor in terms of income poverty and limited access to resources and opportunities.

The major issue was in identifying who may be classified as poor during participant observation and informal discussions. In many cases this could be resolved by simply asking if the respondent was a recipient of subsidised rice or a health card. As such, the research largely adopted local poverty criteria. This was considered justifiable as the aim of the telecentre project was to reduce these figures. However, a significant number of poor individuals did not receive these social services. In such instances the respondent would be asked about the following general indicators:

- Primary occupation

- Number of individuals in the household and occupations

- Income per household (monthly)

- Land ownership and size of land

- Community group membership

These indicators were chosen as they could readily be included within informal conversations and although not definitive provided a ready indication of access to capital. Community group membership was included as it appeared during the research that this was a rough indicator of access to formal village institutions and related information. However, this was largely the case for men only as the women's groups in the village remained active and were attended by women from a broader socio-economic background. Income was often the hardest for individuals to answer and was not considered reliable although invariably the range of the amounts described were small. For poorer farmers who may receive income periodically income was particularly difficult to quantify. Importantly, whether a person was poor or not would be checked with other individuals and often with the key informants described above. Via this process a small number of individuals originally identified as poor by the researcher were disputed on account of reported access to other incomes or resources.

With respect to triangulating whether individuals in the village were considered poor, or not, according to emic perspectives the topic of wealth ranking requires mention in the context of PRA. Wealth ranking was not conducted within the research. This was simply due to the population density of the village and village sub-units making such an approach unfeasible. The benefits that may have been be derived from large-scale wealth ranking exercises were not considered to outweigh the allocation of time and resources to such efforts. Village officials presented a further concern. Village officials at the sub-village level could often be described as poor. For example, some officials at the smallest administrative levels were very small-scale farmers; bordering on subsistence levels at times. However, during participant observation it was noted that any village officials receiving any social services, such as subsidised rice, were open to criticism. This raised a further issue as this was one of the few cases that, indirectly, villagers linked access to information with access to capital resources.[66] Within the context of ICT4D it could be argued that, relatively and despite their income poverty, these individuals had privileged access to information and subsequently resources. They were as such relatively better off. Within the research, these officials were categorised on the same basis as any other individual. This did not apply to salaried village officials, who were not classified as poor.

4.9 **Analysis of data**

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[66] Although the research addressed the topic of information and poverty through an examination of market relations, in earlier stages of the research the topic was addressed more directly such as through examining sources of information via PRA instruments (see Appendix K for example). The relationship between poverty and information was almost without exception viewed as abstract and of limited relevance to the lives of respondents. The issue of government officials having privileged access, to what was essentially information, and to allegations of corruption, however, were not uncommon.

As indicated in the previous sections, field notes were recorded on a daily basis. With regard to participant observation and informal discussions notes were recorded immediately wherever possible. Where this was not possible, field notes were written up at the earliest opportunity. At the end of each day field notes were organised, cleaned and rewritten. Reviewing the notes also allowed for initial additions and amendments. These field notes were then entered into the Atlas.ti software (produced by Scientific Software Development. v 4.2). Field notes were then coded. The process of qualitative analysis, therefore, was influenced by grounded theory as described by Barney Glaser and Anselm Strauss (1967) in that field notes were treated as texts that could be revisited and sequentially coded. The guiding principle of grounded theory being that theory, or hypotheses, can be derived from data by inductive and deductive analysis (Glaser & Strauss, 1967; Strauss & Corbin, 1990). This process of discovery may begin from an initial conceptual idea or general framework.[67] The analysis, therefore, sought to make sense of a range of patterns and behaviour directly observed, or reported, from a perspective grounded in respondents' realties. As such, the analysis was influenced by seeking to understand emic viewpoints. The process of analysis, therefore, fitted with the overall research concern of establishing context and the choice of survey instruments described above.

Within a grounded theory approach the analysis of data (qualitative or quantitative) from a range of sources may be used. The approach, therefore, allowed data gained from all research instruments to be collectively analysed. This included field notes, secondary data including official data and project documentation, PRA diagrams, interview responses and occasionally photographs. However, within the process of analysis the quantitative data obtained from the household, farmer and telecentre user surveys and telecentre log-book were first analysed separately using the SPSS software (produced by SPSS Incorporated, Chicago, Illinois. v.11). Selected quantitative data would then be added to the qualitative analysis. This distinction was considered to assist in triangulation and, as such, quantitative data was introduced during the second stage of axial coding in relation to identified categories. Qualitative data was first open coded; the aim being to identify patterns and connections within the data without the application of a predetermined coding framework. All data inputted into Atlas.ti was open coded in this manner. At the same time memos were used to highlight possible areas of importance and interest and emerging patterns and ideas. As the process of analysis progressed memos would be grouped and sorted in order to build up contextualised summaries of the analysis. Throughout the entire process of coding, notes, responses and memos were revisited and reread over time. This revisiting of data also applied to the final process of writing and, therefore, provided additional opportunities for analysis (Lewis, 2007).

The second stage of analysis employed axial coding. This process is more selective than open coding and involves the linking and grouping of codes previously assigned during open coding to categories.

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[67] This, however, does raise the question of the extent that one can pre-determine variables or categories within a grounded theory approach as preformed hypotheses are generally said to be excluded (Glaser & Strauss, 1967). However, a point of departure is needed. Within the research described the use of the conceptual framework and its incorporation in the coding and analysis of data may be disputed by purists. However, this was deemed necessary in order to provide structure and direction to the research. As such, reflection in the analysis of data was required in order to try to offset any preconceived influences. It is also noted that there is criticism of grounded theory in that often what is produced is not necessarily theory (Thomas & James, 2006).

In this regard the categories and stages presented within the conceptual framework were used as the initial point of reference. However a number of additional categories were also identified. These categories and resulting sub-categories are summarised as follows:

- Access: Technology (digital, traditional, literate, organic, institutional); information; function; source; application; ownership; participation; utility.

- Socio-economic relations: Actors; goods; transactions; location; time; market; spot-market; trust; indebtedness; reciprocity; risk; perceptions; source-proximity; assessments; relevance.

- Capital resources: Human; social; economic; natural; physical; institutional; adaptation; application.

- Poverty: Empowerment; security; opportunities; informational poverty; definitions (emic); definitions (etic); perceptions of exclusion.

The above categories established the basis for the final stage of analysis through selective coding. In selective coding the researcher seeks to establish linkages between categories and core components. In reality, however, the process of coding overlapped and while the distinction was greater between the open and axial coding stages, the distinction between axial and selective coding was often blurred as the establishment of categories already implied linkages and stronger relationships. While time-consuming, laborious in the case of open coding, the process of coding and analysis appeared well suited to the research methodology and context. However, there is also the question of subjectivity and although reflection and a systematic approach to coding seeks to minimise these concerns, it is not clear that they can be done away with altogether (Thomas & James, 2006). The key categories and linkages are discussed in relation to the situation at Pabelan in chapters six and seven. The revised framework stemming from these considerations is presented in chapter eight.

4.10 **Research issues and ethical considerations**

The extent to which an observer interacts and engages with a community presents a number of ethical considerations (Kornblum, 2006; Angrosini 2005). Perhaps the single most important issue related to the early difficulties faced by the e-Pabelan project that are described in chapter six. Simply, the arrival of the researcher exposed problems that the implementing agencies had not been aware of. The result being that a chain of events were set in course. It was suggested by the implementing agencies that the researcher should consider changing the research plan to fill the missing ethnographic (EAR) research role and take a more active role in the e-Pabelan project. This request was declined. However, assisting local volunteers at the telecentre became an inevitable part of being present at the facility prior to the establishment of the new management team. The key issue was the extent that the researcher should voice opinions, such as when asked during telecentre management meetings, regarding the telecentre. In this respect, the researcher reminded those present that he

was present in the primary role of the observer and judge each request on a case-by-case basis. This also contributed to a further ethical concern.

Upon arrival at the village the researcher was kindly provided accommodation at the village head's house in the grounds of the boarding school. This initially helped with access and greatly contributed to gaining an initial understanding of the village. However, as described earlier, the decision was taken to sleep outside of the village. The reasons for this included the difficulties the telecentre faced and the way in which the e-Pabelan project had been implemented as described below. It was decided that for some members of the community it could be construed that all activities (including the research) regarding the telecentre were focused on the nexus of power and authority in the centre of the village as represented by the village head and boarding school. A number of respondents commented in the early stages that they had thought the researcher was working for the implementing agencies (i.e. Indonesian government) or even the village administration. The decision was largely a personal, but informed, decision and the researcher did continue to sleep in the village at the village head's house and occasionally at other community members' homes following this decision.[68] However, it was felt that creating a degree of distance would be beneficial overall.

In light of the above decision it should be clarified that participant observation was viewed as a research instrument rather than as a method as in a strict ethnographical approach concerned with deep explorations of culture (Malinowski, 1950; Geertz, 1963). The decision was considered to neither contradict nor detract from the research aims. It was also considered that a deep ethnographic study in Pabelan would, if taken to its logical conclusion, require immersion in one distinct area within the village. After spending a day in the rice fields of Selak, it was not considered any more problematic if the researcher slept in Pabelan IV or outside of the village. The researcher is also in awe of researchers who are able to write up and code their field notes and reflect on their research in the complete lack of solitude that Javanese village life presents.

Names of respondents have not been provided. It was considered unfair to expect many individuals in Pabelan to fully appreciate what agreeing for the use of their name may potentially mean (i.e. being available to a range of third parties over extended time within the academy), making the question of release less than fully transparent. The purpose of the research and the researcher was made clear to all respondents.

4.11 **Research location**

The case study was conducted in the Republic of Indonesia. Indonesia was considered particularly appropriate considering the potential of ICTs to improve communication and access to information over a geographically diverse area. The second National Human Development Report (NHDR) (2004)

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[68] Sleeping in poor families' homes was deliberately done only occasionally, despite frequent and gracious invitations, as it was considered an unnecessary added burden to such families.

ranks Indonesia as a 'second tier newly industrialising Southeast Asian country' and despite 'impressive' progress in human development the report notes Indonesia lags behind Malaysia, Thailand, the Philippines and Vietnam (BPS *et al*, 2004:8). The 2004 NHDR ranks Indonesia at 112 on the human development index (HDI) (*Ibid*: 11). It should also be noted that national variations between provinces on the HDI are large. Java ranks higher as a rule than the outlying provinces of eastern Indonesia. Indonesia, therefore, is a country with both a reasonably established infrastructure and with persistent poverty. As such, Indonesia proves a suitable country for the examining the potential of ICT for poverty reduction (ICT4PR) initiatives.

The location of the case study was the village of Pabelan in Central Java, Indonesia. The subject of the research was the e-Pabelan ICT4PR project located in Pabelan. e-Pabelan was the initial pilot of the Partnerships for e-Prosperity for the Poor (PePP) programme. The project was implemented by *Badan Perencanaan Pembangunan Nasional* (BAPPENAS, the Indonesian National Development Planning Agency) and the United Nations Development Programme (UNDP), Jakarta. The research project was conducted under permission from *Lembaga Ilmu Pengetahuan Indonesia* (LIPI, the Indonesian Institute of Sciences).

Note on language: Indonesia is home to a vast array of languages and dialects. The *lingua franca* and official language is *Bahasa Indonesia* (Indonesian). However, in rural Java people speak Javanese in the main. While of the same Austronesian family Javanese differs greatly from Indonesian. Day to day in the villages of Java 'low' Javanese (*Ngoko*) is most frequently heard. Some individuals, particularly the elderly, do not speak Indonesian. Many younger individuals commented that their understanding of 'higher' Javanese, in particular, was poor. Also, not everyone living in Pabelan speaks Javanese. The researcher has a working knowledge of Indonesian, but not of Javanese. Research was conducted primarily in Indonesian. Members of the community in Pabelan were generous in this regard and would often switch to Indonesian when the researcher was present. The researcher is grateful to assistance provided by Ms Wahyu Riawanti, a researcher at Gadjah Mada University (UGM), Yogyakarta (currently with the Department of Agriculture, Yogyakarta) for her assistance in language matters, knowledge of agriculture, and for when simply nothing else but Javanese would do. Naturally, it is this researcher that must take full responsibility for any language related errors herein and laments his ongoing failure to better get to grips with the intricacies of Javanese.

4.12 **Chapter summary**

In summary, the objective of the research was to explore the contribution of an ICT based development intervention to poverty reduction among poor farmers in rural Java. The site chosen for this research was the e-Pabelan ICT4PR pilot project located within the village of Pabelan in central Java. The research was guided by the development of a conceptual framework that drew on the work of Plattner on markets and the way in which individuals may choose personalised modes of exchange

to mitigate risk when faced by uneven access to information. The conceptual framework was also guided by how information functions within a process of development after Heeks.

In light of the subject matter an extended case study was chosen as the vehicle for the research. This was combined with a mixed methods approach in order to provide both context and also disaggregated data. The research itself was divided into two overlapping phases. The first centred primarily on issues of access and the second primarily on socio-economic relations. Two key surveys were conducted against a backdrop of participatory observation. These research instruments were supported by informal discussions, semi-structured interviews, direct observation and limited PRA tools. Analysis of the data was via textual coding and was guided by grounded theory. This research approach sought to emphasise context and provide depth within the study. Substantial additional information relating to this chapter and of interest in terms of transparency and transferability of research and research instruments are included in the appendices. The findings of the research are presented in chapters six and seven.

Chapter 5

The background to e-Pabelan

5.1 Background: Indonesia

5.1.1 Indonesia: geography and politics

It is common practice to begin discussions of Indonesia with reference to its diversity. This is not without good reason.[69] Sustaining the integrity of a nation of roughly 17,500 islands that stretch from off southern Thailand to a stone's throw from northern Australia has been at the top of the political agenda since independence on 17 August 1945 (Schwarz, 1994).[70] The largest islands are Sumatra, Sulawesi and Java; Kalimantan and West Papua make up the remaining major territories. Indonesia is the fourth most populous nation and the largest Muslim nation (approximately 90%). Indonesia has two seasons with the dry season between June and September and the rainy season between December and March; the other months being transitional. Indonesia is situated on the 'ring of fire' and is seismically highly active with the exception of Kalimantan. Earthquakes and volcanic eruptions as well as flooding, landslides and localised windstorms are not uncommon.

Usual population estimates are at around 230 million; however, figures as high as 240 million may be found (CIA, 2009). 2002 national data (the most recent available at the time of fieldwork) placed the population at 205,843,000 (BPS, 2002). This figure was based on the 2000 national census. However, the 2000 census could not be completed in all areas due to political unrest and rioting at the time. Population growth was at 1.49% from 1990 to 2000 with an average household size of 3.9 people in 2002 (*Ibid*). This is largely attributed to the rising educational attainment, changing social perceptions and the success of family planning programmes during the 1970s (Hull, 2005).

Population distribution within Indonesia is highly uneven. According to the 2000 census Java, covering 7% of the total land area, was home to 59% of the population while Maluku and West Papua account for 24% of land area and only 2% of the population. Population density in Java was estimated at 975 per kilometre square in 2002. (*Ibid*). Java is the political and economic heartland of Indonesia and has attracted migrants from all over the archipelago making Java one of the most densely populated islands in the world. Attempts to alleviate population pressure and poverty on Java stem

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[69] It is also not without good reason that the national slogan is 'unity in diversity' (*Bhinneka tunngal ika*). This is also reflected in the national philosophy (*Pancasila*): Belief in one God (official religions are Islam, Protestant, Catholic, Hindu, Buddhist and, since the fall of Suharto, Confucianism); humanity; unity of the nation; democracy and social justice. Sukarno also reduced the 5 precepts to one- *gotong royong*)- the sharing of burdens or mutual cooperation. The constructed cultural basis for village (and national) political-economy and identity. (see Bowen, 1996). '*Pancasila* democracy' was used by Suharto as a concept to keep extremists from western intellectuals to Islamic radicals in check. (see Schwarz, 2004).
[70] 17,500 is a conservative figure the Indonesian government claims 18,110 with 6,000 inhabited in 2005 (Department of Communications and Information Technology, 2005).

from the Dutch colonial period and the Indonesian government's relocation and incentive programme (*transmigrasi*) to outlying islands was bolstered by the oil boom during the 1970s (Arndt, 1984). Indonesia is home to between 150 and 200 languages and dialects. Bahasa Indonesia has been the official language since independence with standardisation in spelling with Malaysian by formal agreement in 1973. Indonesia has around 500 ethnic groups. (Department of Communications and Information Technology, 2005). Indonesia's diversity has also over time applied to its politics:

> One of the first things that everyone knows but no one can quite think how to demonstrate is that a country's politics reflect the design of its culture. At one level, the proposition is indubitable- where else could French politics exist but France? Yet, merely to state it is to raise doubts. Since 1945, Indonesia has seen revolution, parliamentary democracy, civil war, presidential autocracy, mass murder, and military rule. Where is the design on that?

Geertz, 1972:319

Since the economic crisis (*krisis moneter* or *krismon*) of 1997, Indonesia has added the further, and perhaps most significant, political change with the move towards democracy.[71] On 21 May 2008, President Suharto stepped down following 32 years of authoritarian rule in the face of increasing social and political unrest, ethnic violence and student protests amidst a devastated economy. Suharto took hold of the reins of power from Indonesia's 'founding father' President Sukarno in October 1965. This brought to an end the 'years of living dangerously' and increasingly anti-western sentiment that characterised the latter years of Sukarno's presidency.

Suharto's rise to power followed a mysterious coup attempt on the night of 30 September 1965 in which six generals and one lieutenant were murdered. The story, with little supporting evidence, is that the seven had been plotting a coup and were killed in a pre-emptive strike by pro-Sukarno supporters named the Thirtieth of September Movement. Sukarno denied all knowledge of any coup. With the death of the generals Suharto assumed control of the army (followed by the police and the air force) on 1 October 1965. (Schwarz, 2004). The ensuing spate of 'anti-communist' violence that erupted across Indonesia left hundreds of thousands and possibly up to two million dead (Cribb, 1990). The violence was particularly severe in Java and Bali (Robinson, 1995).[72] Since 1998 Indonesia has seen 4 further presidents with the first direct presidential elections held in 2004.[73] It also requires noting that on 1 January 2001 a programme of regional autonomy (*Otonomi Daerah* or *Otoda*) was introduced. Under *Otoda* responsibility for providing and administering a range of decisions was handed over to the *kabupaten* or district level in Indonesia.

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[71] The democracy Geertz refers to is the brief period of liberal democracy during the 1950s and following independence. This gave way to Sukarno's preferred concept of 'guided democracy' by the end of that decade. (See Schwarz, 2004).

[72] The 1965 killings constitute the darkest period of Indonesian history. That the killings focused in the cultural heartland of Java (and Bali) in contrast to military associated deaths in distant Timor or Aceh is highly unsettling for many. Information is scarce and they have been buried in the collective sub-conscious. What started as a move to eradicate the communist party resulted in indiscriminate killings in villages with individuals singled out to face kangaroo courts (or none) and execution. The researcher's experience, in the few occasions it has felt safe to broach the topic, is that yes it happened, but not in this village. It always happened elsewhere and that is perhaps the only way there was to move on.

[73] Presidents following Suharto: Bacharuddin Jusuf Habibie (1998); Abdurrahman Wahid (1999); Megawati Sukarnoputri (Sukarno's daughter) (2001); Susilo Bambang Yudoyono (2004 and running for re-election at time of writing).

With a period of recent stability and with the second direct presidential elections underway (2009) Indonesia now seems firmly established amongst democratic nations. Following 1997, this outcome was not always certain as Indonesia struggled to establish and maintain a fragile democracy and calls (and actual in the case of Timor Leste) for secession in the regions. Indonesia has also been faced with a number of blows including bombings against perceived western interests in Jakarta (2003, 2004) and Bali (2002, 2005) and the subsequent collapse of tourism. The Indian Ocean tsunami of 2004, which left approximately 150,000 dead in North Sumatra, dealt a cruel blow as did the 2006 Yogyakarta and Central Java earthquake. These were contemporary events in relation to the research. With respect to the bombings, and the events of 11 September 2001, the researcher could only meet apology with apology when individuals in Pabelan went out of their way to explain that these had nothing to do with Islam. With regard to the spread of information it seemed there were very few in Pabelan who were not aware of George W Bush's retracted statement mentioning the word 'crusade' following 11 September by the time the research began. If nothing else, this reminds that false, or foolish, representations are not merely an academic concern, but have real repercussions in people's lives.

5.1.2 Poverty and development in Indonesia

Suharto is perhaps best remembered for the infamous levels of corruption and cronyism that occurred under his rule. However, Suharto also placed great emphasis on the development (*pembangunan*) of the nation. Adam Schwarz (1999) notes that under Suharto's New Order regime per capita income increased 10-fold and the number of people living in poverty fell from around 70% in the late 1960s to around 11% in the mid-1990s. However, by mid-1998 Schwarz notes the number of people living below the poverty line had risen from around 20 million to 80 million and was still rising (Schwarz ,1999). Official figures similarly suggest that in 1996 the number of people below the poverty line was 22.5 million or 11.3% of the population. The figures for rural areas were slightly higher at 12.3% compared to 9.7% of the urban population. However, by the end of 1998 official figures were placed at 49.5 million people or 24.2% of the population. However, according to the national statistical office (*Badan Pusat Statistik* or BPS) the increase in poverty was not all attributable to *krismon.*

The measurement of poverty used by BPS is based on household consumption (or expenditure) and shifts with overall changes in consumption patterns. In 1998, BPS widened the basket of goods that were measured.[74] This, therefore, increased the number of recorded poor in 1998, but as BPS pointed out this was to better reflect the incidence of poverty. Alternatively, there is the charge that Indonesia needed to massage and increase the figures to secure World Bank and IMF loans following *krismon* (Breman & Wirandi, 2002).[75] The November 2002 official poverty line in urban areas had

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[74] The poverty line reflects the daily amount of money required to buy 2,100 kilocalories (kcal) per capita plus non-food basic needs for transportation, schooling, clothing and other basic items. (BPS, 2002).
[75] The authors also suggest that poverty levels were underestimated prior to *krismon*.

increased over 40% since 1999 to IDR 130,499 (US$15.30) and for rural areas had increased almost 30% since 1999 to IDR 96,512 (US$11.32).[76] By 2002, official figures placed the number of people living in poverty at 38.4 million with 65.36% living in rural areas. More than half of the people living in poverty in Indonesia were concentrated in Java and Bali. (BPS, 2002). During *krismon* initial optimistic suggestions that the rural economy would absorb (in agricultural and petty-commodity production) displaced workers were unfounded and the gap widened between the rural rich and poor (Breman & Wirandi, 2002). An unusually long El Niño influenced dry season and the removal of government subsidies on fertiliser and pesticide in 1998 also impacted upon farmers (Baiquni, 2008). Agus Sutanto (2008) notes in Yogyakarta province, nearby to Pabelan, some better off (and land owning) farmers benefitted from increased prices for agricultural produce, but for poorer farmers and labourers the rise in prices of consumptive goods resulted in an overall negative impact. Poverty in rural Java was, therefore, a significant concern at the time of the research.

Official figures stated a potential labour force (over 15 years old) of 148.7 million with over 60.46% in Java. Labour force participation rates were at 67.76 in 2002. The lowest participating group was the 15 to 19 year old category. Youth unemployment was frequently cited as a major concern in Pabelan. 44.34% of the Indonesian working population worked in the agricultural sector. Trade accounted for 19.42%, manufacturing for 13.21% and the service sector for 11.30%. In Java, the figures for agriculture are lower and for manufacturing and trade are higher. Agriculture (including forestry and fisheries) contributed 17.47% to gross domestic product in 2002. In 2002, 11.5 million hectares of paddy were harvested alongside, maize, cassava, sweet potatoes, peanuts and soybeans. 48.6% of the area of rice fields harvested in Indonesia was in Java. Vegetables were also important produce including cabbages, spring onions, carrots, shallots and mustard greens. Java was also a major fruit growing area including mango, banana, guava, rambutan, snake-fruit and oranges. Tobacco, sugar cane and coffee were major cash crops on Java. Palm oil production was increasing. (BPS, 2002).

Manufacturing was the largest contributor to GDP at over 25%. Manufacturing enterprises were formally classified as large, medium, small and cottage or household enterprises. (BPS, 2002) Classification was dependent on number of employees with small enterprises having less than 20 employees (BPS 2001). Household industries were estimated to constitute around 90% of the sector in 2000 (BPS 2002). A further BPS (2001) survey suggests there were an estimated 14.66 million informal (*usaha tidak berbadan hukum*) enterprises involved in the provision of goods and services outside of the agricultural sector in 2001. These were estimated to employ 27.2 million people. However, about half of these enterprises were sole-traders with no additional employees. 81.9% were estimated to have annual incomes of less than IDR 5 million (US$ 587). (BPS, 2001).

In 2003, Indonesia ranked 112 on the HDI. Life expectancy was 66.2 years in 2001. The adult (over 15 years) literacy rate in 2001 was 87.3% and combined primary, secondary and tertiary educational enrolment in 2002 was 64%. Combined figures 1990 to 2001 placed 7.2% of the population living in

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[76] Based on exchange rate of US$1 = IDR 8,522 on 15.11.2003. Note that the Rupiah has seen severe fluctuations in recent years, but seems to have settled at just over IDR 9,000 to the dollar. A figure of IDR 9,000 is used in the following.

extreme poverty on less than $1 a day and 55.4% below a poverty line of less than $2 a day. This is a drop of 10 places from 102 on the HDI in 2001. GDP was US$ 2,950 per capita in 2001. (UNDP 2003a).

5.1.3 <u>ICTs and usage in Indonesia</u>

At the time of the field research BPS had no official statistics on Internet usage. The World Bank (2006) indicated there were 0.9 Internet users per 100 people in 2000. This rose to 7.3 users per 100 people by 2006. Personal computer ownership rose from 1 to 1.5 per 100 people during the same period. Households with television sets rose from 54% to 65%. Mainline telephones rose from 3.2 to 6.6 per 100 people. However, the major leap was in mobile telephone subscribers leaping from 1.8 to 28.6 per 100 people between 2000 and 2006. Mobile telephony coverage was estimated at 90% of the population in 2006; however, the uneven distribution of population as indicated above should be considered. (World Bank, 2006).

Access to the Internet in Indonesia can be traced to the networking of interested colleagues in Jakarta, Bandung and Bogor in western Java via what was to be called the Pagubayan Network between 1992 to 1994 (Purbo, 2002). By the late 1990s over 25 higher educational establishments were networked. The first commercial ISP was established in 1994. (*Ibid*). Developments since then are summarised by the following statistics from the Indonesian Internet Service Provider Association (*Asosiasi Penyelenggara Jasa Internet Indonesia*, APJII) (2007):

Table 5.1 Internet subscribers and users in Indonesia from 1998 to 2007

Year	Internet Subscribers	Internet Users	Total Domains
1998	134,000	512,000	1,479
2000	400,000	1,900,000	7,714
2002	667,002	4,500,000	14,293
2004	1,087,428	11,226,143	21,762
2006	1,700,000	20,000,000	—
2007	2,000,000	25,000,000	—

Source: After APJII, 2007.

According to an International Telecommunications Union (ITU) (2002) the cost of 30 hours dial-up Internet usage in Indonesia was estimated at US$ 26.18 per month in 2001. This was in comparison

to US$ 10.73 for Singapore and US$ 11.84 for Malaysia. (ITU, 2002). The majority of Indonesian Internet users in 2002 were male and high school educated, or above, and between 25-35 years old (Purbo, 2002). The major point of access was via public access points or Internet cafés known as *Warnet* (*warung internet*). Over half of all Internet users in 2000 accessed the Internet via *warnet* with a total number of around 2,500 *warnet* by May 2001 (ITU, 2002). The cost of Internet access for an hour at a *warnet* varied between IDR 2,500 (US$ 0.28) to IDR 5,000 (US$ 0.56) in 2000 (Purbo, 2002; Bjørn *et al*, 2005). The 2003 Digital Access Index (DAI) rated Indonesia as a medium level country with a DAI of 0.34.[77] Within the medium category this placed Indonesia above Vietnam at 0.31 and behind the Philippines at 0.43 and Thailand at 0.48. (ITU, 2003). The networked readiness index for 2003-2004 ranked Indonesia at 73 out of 102 countries and behind all listed Southeast Asian countries, including Vietnam, at 68 (WEF, 2004).

5.2 PePP and e-Pabelan: background

Fieldwork was conducted in the village of Pabelan, Central Java, Indonesia between October 2004 and September 2005. A follow up visit was conducted in January 2006. The 2006 visit was not in an official research capacity. The village of Pabelan was the chosen location for the e-Pabelan national information communication technology for poverty reduction (ICT4PR) pilot project. e-Pabelan was the initial pilot of the Partnerships for e-Prosperity for the Poor (PePP) programme of the National Development Planning Agency (*Badan Perencanaan Pembangunan Nasional,* BAPPENAS) and the United Nations Development Programme (UNDP).[78] BAPPENAS is UNDP's official government partner and counterpart in Indonesia and is the executing agency for PePP. The project became operational in May 2004. Following discussions with the implementing agencies fieldwork was coordinated to be conducted after the initial inception phase of the project cycle in order to better assess impacts. e-Pabelan was initially planned to run for a project cycle of one year with funding secured for that period.

The PePP programme (2004-2007) fell under the UNDP (and United Nations Population Fund, UNPF) second multi-year funding framework 2004-2007 (MYFF). The MYFF reflected the targets of the MDGs and also sought to continue sharpening the strategic focus of UNDP in close coordination with national governments. The MYFF also reflected the UN reform programme as initiated in 1997 and included a continuation of attempts to improve accountability, streamline management processes, improve merit-based human resource management and clarify and simplify reporting mechanisms. Based on country demand the MYFF identified two main priority outcomes; poverty reduction and democratic governance-related outcomes. Other priorities, in descending order, included energy and the environment, crisis prevention and recovery and HIV/AIDs. The priority core goal was: 'Achieving

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[77] The DAI was established in 2003 and is an index measuring the ability of individuals to access and use ICTs. The index is a composite of infrastructure, affordability, knowledge, quality, and usage. There are four categories; high, upper, medium and low. Sweden topped the 2003 index at 0.85 and Niger brought up the rear at 0.04. (ITU, 2003).
[78] The respective websites http://e-pabelan.myserver.org/portal and http://www.ict4pr.org could not be accessed in June 2009.

the MDGs and reducing human poverty' (UNDP, 2003b:10). With reference to ICTs the following was stated:[79]

> Feedback from programme countries over the past few years has shown that national counterparts are increasingly requesting UNDP support in helping them to harness the power of information and communication technology for development (ICTD). This is not surprising, given the enormous potential for such technologies to enhance transparency and efficiency in the public and private sectors, connect people, transfer knowledge and skills, and enable countries to benefit from a globalized world. As a technological resource that can benefit the whole gamut of development programmes, ICTD services will be mainstreamed throughout the five MYFF goals.

Ibid

The MYFF expected 47 out of 95 UNDP country offices to implement ICT4D activities under the 2004 to 2007 MYFF. The MYFF viewed the linkage between the MDGs and ICTs as an emerging area with potential to improve service delivery, improve networking of stakeholders and deliver new development solutions. The MYFF noted the importance of a holistic, multi-stakeholder approach and the establishment of new partnership models. The UNDP's role was seen as assisting national governments integrate ICTS into national development plans and poverty reduction strategies including the PRSPs.

With regard to national initiatives, PePP also reflected, the Indonesian government's *5-Year Action Plan for the Development and Implementation of Information Communication Technologies (ICT) in Indonesia* (2001). The action plan states the need for 'extending transparency and equal access to information, improving access to services and opportunities, and implementing measures to foster the realization of individual potential across society.' (TKTI, 2001:1). The action plan ranged from policy level initiatives, including improving legal and regulatory frameworks, to increasing individual human capacity. The latter included education programmes, content creation and small and medium size enterprise (SME) initiatives. The plan was to be implemented by public-private partnerships. The plan did not specify poverty reduction *per se*, but referred to widening access to information in general and improving civil-society and community participation. However, the action plan stated the intention to '[d]evelop telecommunication/internet kiosks to implement Community Telecentre concept [*sic*]' (*Ibid*: 8).

It is against this background that e-Pabelan was established. PePP projects were also initially planned for east Java (1), Sulawesi (3) and Papua (1).[80] These projects were not addressed within the research. The initial budget for PePP requested from MYFF was US$ 1,479,795. However, some

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[79] With reference to knowledge management, and perhaps not to be outdone by the Knowledge Bank, the MYFF noted: 'Appropriate technology is an essential ingredient in positioning UNDP as a *truly* knowledge-driven organization. To this end, the ICT strategy will focus on establishing an adequate platform to facilitate the use of on-line collaborative tools, content and document management, and the sharing of experiences and best practices.' (UNDP 2003b:17 emphasis added)
[80] Two projects were finally established in Java (Muneng and Semeru).

project components at Pabelan were funded from alternative external sources. PePP programme managers were active in seeking additional funding and technical contributions and in establishing partnerships during the research period. The stated aim of e-Pabelan, and PePP, was to reduce rural poverty with a particular reference to the agricultural sector. Project documentation stated that this aim was to be realised through a pro-poor process with the specific outcome that '[p]oor communities are empowered to improve their economic activities and access to basic services through increased access to information and communications.' (UNDP, 2004:23). A precise definition of poverty was not provided; however, reference was made to a human development approach. To be eligible for PePP at least 30% of the beneficiary community had to fall below national poverty lines as established by BPS (see above).

PePP project documentation referred to the impact of *krismon* and the associated increase in poverty. The predominance of rural poverty was noted. The disparity between rural and urban areas was referred to as the 'rural penalty' and was said to derive from distance from urban areas (*Ibid*: 1). The assumed impact of distance was not substantiated within the documentation and did not readily correlate with the fact that the majority of Indonesia's rural poor are in Java and Bali (see above). Information asymmetries and middlemen were noted as were the high-costs (financially and in terms of time) of obtaining information for the poor; the 'unprecedented opportunities' that ICTs present were also noted (*Ibid*). Further project documentation for e-Pabelan noted:

> Pabelan is a farming community that currently is in a vicious circle of middlemen domination. The farmers are not in a position to directly access their market and do not have the power to determine the price of their crops. They are now seeking for [sic] information of alternative crops which have better yields, more stable price and more profitable, and does not controlled [*sic*] by the middlemen.

> BAPPENAS/UNDP, 2004 unpublished.

PePP documentation noted the lack of initiatives directly targeting the poor and that a pilot approach would contribute to greater understanding in this area, generate examples of best practice and lessons learned and contribute to policy formulation. It was further noted that the provision of information alone would not be enough. ICTs were viewed as a tool and it was noted that individuals should be empowered and encouraged to pro-actively seek information. The need for an information intermediary to assist in outreach and communicating information was noted. The point was made that ongoing financial sustainability may imply ongoing external support if it was justified by sufficient demand for the services provided under the programme. The establishment of a business model for the telecentre was also envisaged. Overall, PePP had four key strategies; establishing demonstration pilots, establishing partnerships, community empowerment, and knowledge sharing and networking. Alongside the establishment of telecentres, PePP envisaged info-mobilisation (via ethnographic action research, EAR) based on the identification of a community's information needs; trainings for

telecentre staff, intermediaries and community members; and income generation for the poor and social service provision. (UNDP, 2004). It was also noted by the implementing agencies that the pilot project would be 'tightly focused', 'localised' and include 'capacity building' activities (BAPPENAS/UNDP, 2004 unpublished).

On paper, therefore, e-Pabelan reflected widely accepted approaches to ICT4PR and community oriented rural development as outlined in chapters two and three. The project was underpinned by the concept of the information age and the possibilities for new opportunities, potential and the inclusion that the concept may be read as suggesting. PePP also reflected the need to overcome distance and the digital divide. PePP documentation presented a considered approach and, while emphasizing new possibilities, limitations and the need for focused interventions were acknowledged. It is the extent to which this approach was realized that is addressed in the following chapter.

5.3 e-Pabelan telecentre: a brief introduction

Alongside the afore-mentioned poverty line data, the criteria for establishing a telecentre under PePP included the following: strong local government commitment; existing development potentials for the poor; developmental potential of host organisation and existing development activities (seen as critical); strong local formal and informal leadership; and the availability of basic infrastructure (UNDP, 2004). Based on these criteria the first pilot was established in Pabelan in partnership with the Islamic boarding school *Pondok Pesantren Pabelan*. The *pesantren* is a secondary (equivalent) school, which alongside the emphasis on Islamic teachings and proper conduct follows the Indonesian national curriculum. Additional emphasis is placed on the teaching of English and Arabic as well as science classes and a range of extra-curricula activities including scouts and guides and a marching band. The *pesantren* is well regarded nationally and has attracted students from across the archipelago and from abroad. The telecentre was established through the community development wing of the *pesantren*; *Balai Pengkajian dan Pengembangun Masyarakat* (BPPM). The *pesantren* was thus viewed as an appropriate partner for the initial PePP pilot.

In its capacity as local partner the *pesantren* provided use of the BPPM building and payment for electricity. Staff, acting on a volunteer basis at the telecentre, were appointed from within the BPPM as well as some senior students from the pesantren (all male). The telecentre itself was established with five computers providing dial-up access to the Internet plus ancillary equipment including a scanner, printer and digital projector.[2] More established ICTs such as a telephone or facsimile machine were not provided. The equipment was provided by BAPPENAS/UNDP as was payment for the Internet connection for the first year alongside some educational materials. The telecentre was established on the edge of the *pesantren* complex and on the main thorough fare running through the village. The following chapter proceeds with the case study and the challenges of implementing e-Pabelan. It also addresses the extent to which the early assumptions outlined above were valid.

5.4 **Chapter summary**

As outlined in the preceding sections Indonesia, and particularly Java, provides a suitable location for the study of ICT based poverty reduction interventions for a number of reasons. Firstly, Java possesses the necessary levels of infrastructural development to make ICT based interventions potentially viable in the first instance. The geographical diversity of Indonesia coupled with the issue of large distances between islands and the current concentration of political and economic power in Java further suggest potential for ICT based interventions. Indonesia also benefits from an emerging and supportive policy environment. Secondly, incidences of rural poverty in Java are high. Following *krismon* incidences of rural poverty have also increased. It is also the case that there have been no such studies conducted within Indonesia.

Considering recent events in Indonesia, the e-Pabelan pilot project appeared timely. The project was also visible and driven by key development actors in Indonesia. The design of e-Pabelan also adopted a measured approach to ICT4D and avoided some of the more fervent strains of optimism. Importantly, the e-Pabelan project sought to overcome information asymmetries with regard to what were perceived as uneven relations between traders and farmers. The e-Pabelan project, therefore, provided an appropriate study site in relation to the research project's aims.

Chapter 6

Access: Technology, ICTs and information

6.1 **Chapter introduction**

The following chapter discusses and analyses the establishment of the e-Pabelan telecentre in relationship to the research project's conceptual framework (Figure 4.3). Specifically, the chapter is concerned with issues of access. As illustrated in the conceptual framework there is a need to distinguish between access to technology and different forms of ICTs and access to information. The establishment of, and response to, e-Pabelan are discussed in these terms. As such it is also necessary to identify and the technological and informational environment into which the telecentre was introduced.

The chapter proceeds with providing a general overview of the village of Pabelan including its geographical position in terms of communicative links. The chapter also addresses the village's political structure and the local partner and the local partner's status in relation to community based development. The pre-existing availability of ICTs is then outlined. The chapter then discusses the issues faced in seeking to establish access to digital ICTs and information through the telecentre. Importantly, who accessed the telecentre and information from the telecentre is then discussed. The issues of access described and highlighted by the establishment of e-Pabelan directly relate to the informational environment outlined and into which the telecentre was placed.

6.2 **Pabelan background**

6.2.1 Location

The village of Pabelan is located in Central Java at the end of the slopes of the active volcano Mount Merapi. Pabelan owes its soils and irrigation systems to the volcano; and also to the Dutch in the case of the latter. The village is low-lying with a maximum altitude of approximately 225 metres above sea level. Pabelan straddles central Java's main transport artery that runs from the provincial capital of Semarang on the north coast through Java's volcanic centre to Magelang just to the north of Pabelan. The road then runs on to the city and special administrative region of Yogyakarta roughly 30 km to the south. Yogyakarta is an important educational centre with numerous universities and educational establishments attracting students from across the archipelago. Pabelan borders the market town of Muntilan. Muntilan is a notable stone handicraft centre with shops lining the main road selling carvings from white stone originating from Gunung Kidul district in southern Yogyakarta and black stone from

the neighbouring active volcano of Mount Merapi (*Gunung Merapi*). Handicraft producers stretch along the main road into the administrative boundary of Pabelan.

Approximately 7 km to the west of Pabelan and over the Progo river lies the eighth century Buddhist stupah and UNESCO World Heritage Site of Borobudor. The road to Borobudor runs east to west along the edge of Pabelan's rice fields. A small number of large silver handicraft stores line the road. These are owned by Chinese-Indonesian and Javanese entrepreneurs from outside of Pabelan and with links to the silver-producing centre of Kota Gede, Yogyakarta. The silver stores serve passing trade and organised tours to Borobubor. Borobodur stupah was abandoned at around the tenth century and subsequently covered by volcanic ash.[81] Borobudor is an important tourism site. The site also houses a government hotel and a market that a number of individuals from Pabelan frequent to sell souvenirs to tourists. The small town of Borobudor has a range of small restaurants and guesthouses. Borobudor also serves as a valuable educational resource for schoolchildren. Children are bussed in from across central Java to interview and practice their English on unwitting foreign tourists. A number of enterprising individuals from Pabelan learnt some basic English, and Japanese, in this way in order to gain occasional income from guiding. In summary, Pabelan cannot in terms of its location be described as isolated.

Figure 6.1 Map of Indonesia indicating study site
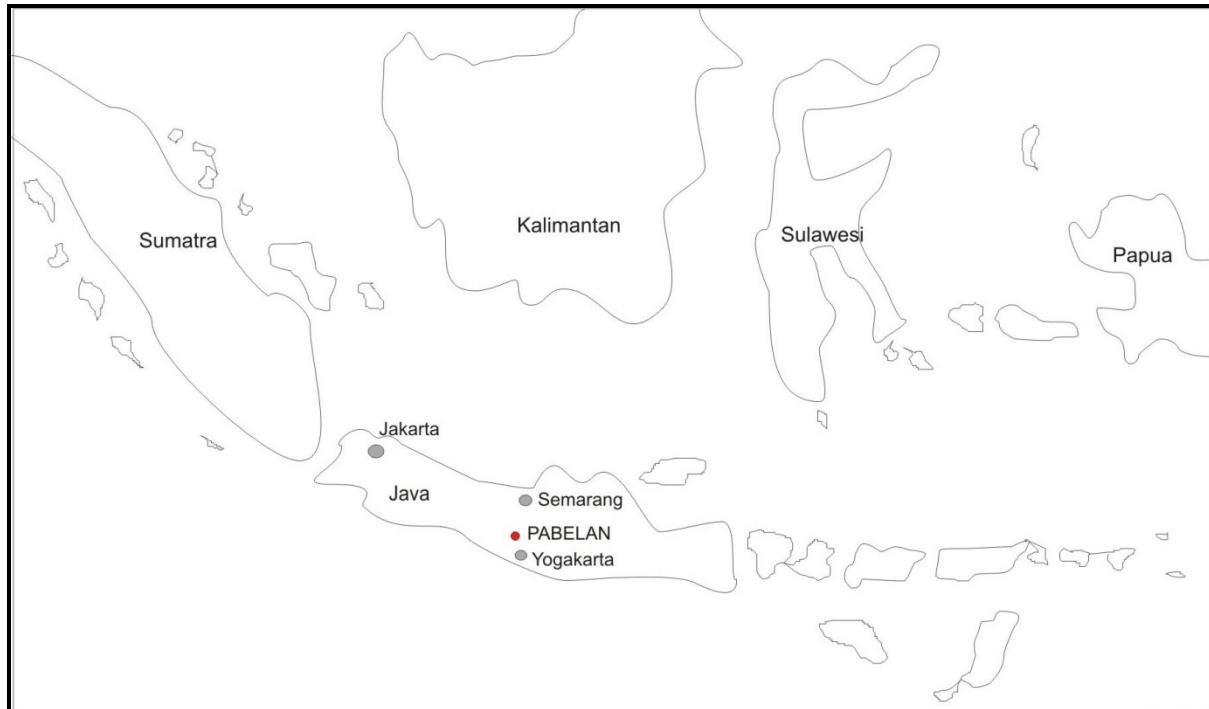
Source: Author. Not to scale.

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[81] Although Thomas Stamford Raffles is credited with the 'discovery' of Borobudor it was actually (H C Cornelius) an engineer sent by Raffles that located the site and oversaw the actual excavation.

6.2.2 <u>The village of Pabelan</u>

Official statistics placed the population of Pabelan at 6,955 within 1,839 households (BPS, 2005). The village (*desa*) consisted of 10 sub-units (*dusun*). These were, from south to north, Selak, Pabelan 1, Pabelan 2, Pabelan 3, Pabelan 4, Jagalan, Tangkilan, Batikan, Blangkunan Selatan and Blangkunan Utara. The village has an elected village head who has a degree of autonomy with regard to local traditions and customs. Village heads report to sub-district (*kecamatan*) heads, who in turn report to district heads (*kabupaten*). Since *Otoda* in 2001 this long-established line of authority was no longer so clear-cut. Provincial officials were heard to complain that district heads (*bupati*) no longer always deemed it necessary to report to the province. Within the village each *dusun* was broken into further units called RW (*rukun warga*), which in turn were divided into RT (*rukan tangga*). RT usually consisted of less than 30 households. *Dusun*, RW and RT each had their own representative. The structure within the village reflects the ideal of community self-help and 'RT' is, at times, translated as a (non-voluntary, presumably) neighbourhood association in government literature. However, a more critical interpretation would note the important role this political structure played under authoritarianism for communicating information, implementing national plans and monitoring and maintaining national unity over a vast archipelago.

Figure 6.2 Map of Pabelan village
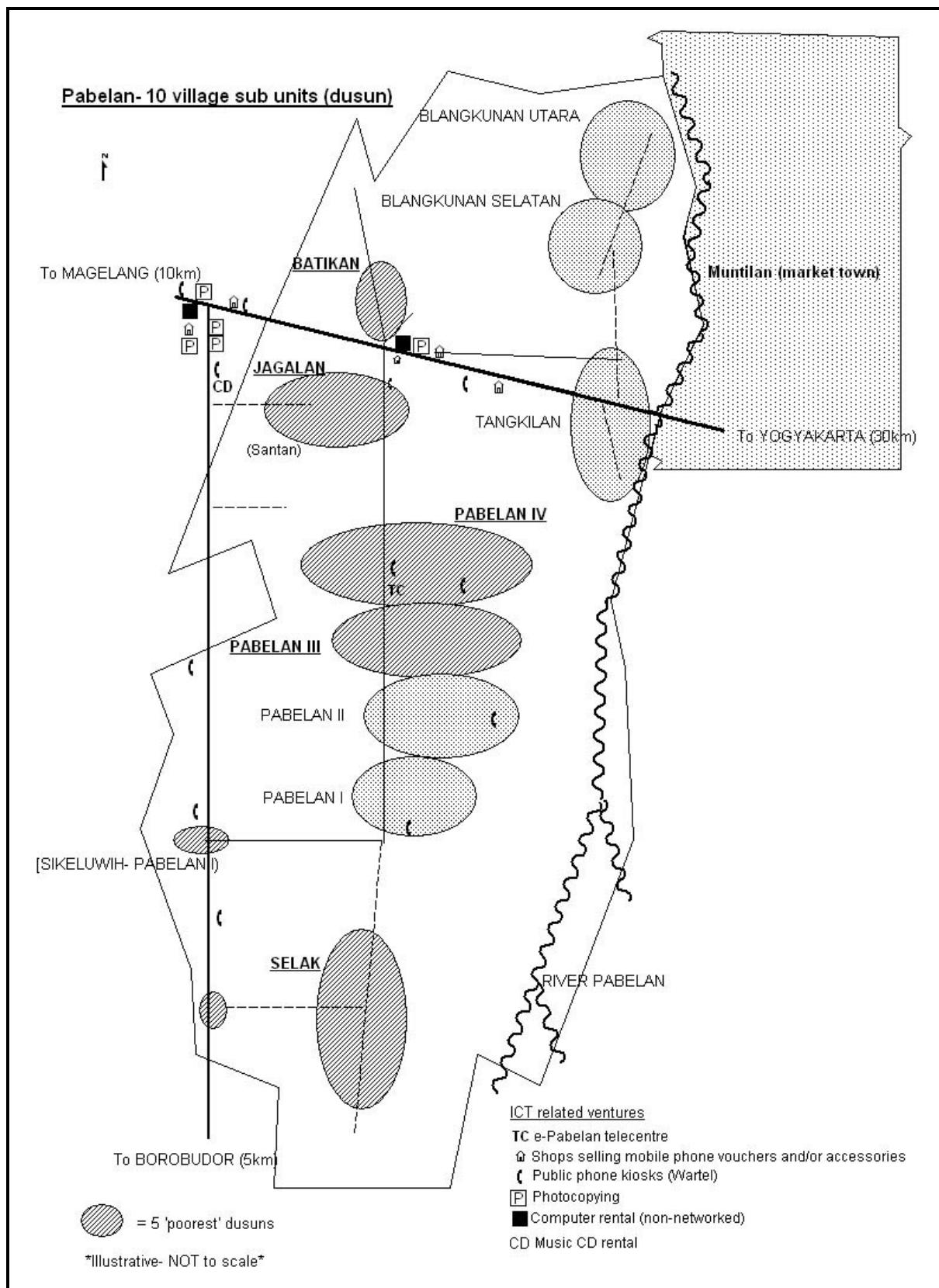
Source: Author. Based on author's individual maps of 10 sub-units, 2005. Not to scale.

6.2.3 <u>Pesantren Pabelan and the BPPM</u>

The major determining factor for establishing the initial PePP pilot at Pabelan was the reputation of the co-educational Islamic boarding school *Pondok Pesantren Pabelan*. In the academic year 2005 to 2006 the *pesantren* had a total of 576 pupils and 55 teachers. At the junior high school level there were 176 male pupils and 149 female. At senior high school level there were 118 male and 103 female. After graduation pupils could stay on for an extra year (previously compulsory) as assistant teachers (*guru praktek,* GP). There were 19 male and 11 female *guru praktek*. A small number of g*uru praktek* (all male) assisted in running the telecentre. The number of male teachers was 30 with 25 female teachers.

Although, current *pesantren* representatives suggested the *pesantren* could be traced back to the 1800s, the *pesantren* (official name *Balai Pendidikan Pondok Pabelan*) was formally established 28 August 1965 by Kyai Haji Haman Dja'far (1938-1993). At the time of the research the site covered 5.5 hectares in the centre of Pabelan 4. The complex included classrooms, a computer laboratory, canteen, shop and dormitories and library.[82] In 1980 the *pesantren* was awarded the Aga Khan Award for Architecture for combining education with local resource use in construction. The *pesantren* claimed no affiliation to either of Indonesia's main Muslim groups; the traditionalist *Nahdlatul Ulama* (NU) and the reformist *Muhammadiyah*. In 1978 the BPPM was established. While the *pesantren* was said to have always had a community development ethos, prior to the BPPM it did not have a formal structure. The BPPM became the site for the grass roots based activities of the Institute of Community Development (*Institut Pengembangun Masyarakat*, IDP) that had previously been hosted within the *pesantren*. The initial BPPM activity was a one year (6 months theory followed by 6 months practice) training programme for community development workers (*Latihan Tenaga Pengembangun Masyarakat*, LTPM). The BPPM was run until 1990 by Muchtar Abbas who originated from Aceh in North Sumatra and went on to become Pabelan's village head from 1980 to 1989.

Abbas studied mathematics at the well-regarded Bandung Institute of Technology (ITB). He became associated with the intellectual and activist Dr Mansour Fakih, who passed away in 2009. The IDP/BPPM idea was influenced by Fakih and Abbas' interest in education, progressive Islam and community action. A further notable among these community development actors who converged on Pabelan was Indonesia's fourth president to be, Abdurrahman Wahid, or Gus Dur as he is popularly known. With input from the BPPM, the *pesantren* under Kyai Haman Dja'far became nationally and internationally known. It was regarded as an important progressive intellectual test bed of ideas that have influenced many in the Indonesian NGO movement.[83] It should not be forgotten that the radicalism of the 'Pabelan group', as it became known, was all the more significant in that it occurred under the authoritarian New Order regime. A number of villagers recalled, much to their amusement, how 'President Gus Dur' would get off the local bus at the main road from Yogyakarta and walk down

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[82] The computer laboratory was non-networked. An early attempt to wirelessly link to the telecentre's connection was unsuccessful.
[83] See: Crossette, New York Times, 15.3.88.

through the village to the *pesantren* bare foot. In 1990 Muchtar Abbas left Pabelan. The BPPM was then run by the current director Imam Munjahat with Nunun Nuki Aminten as vice-director. Aminten is originally from East Java and is a graduate of the *pesantren*.[84] She was elected village head in 1989 and at the time of the research was serving her second term. Aminten is also the wife of the current leader (*Kyai*) of the *pesantren*. Alongside training programmes the BPPM initiatives included establishing the health clinic, a farmers' credit scheme (KUT), phone kiosk, and a sanitation and health awareness programme.

It should be noted that there is a further and unrelated *pesantren* in Pabelan 1. *Pesantren Ihsanul Fikri* is a junior high boarding school and is housed in a modern building. The *pesantren* did not have noticeable links with the community and the researcher was not aware of any local children attending this *pesantren* in contrast to the better-known *pesantren* Pabelan. There was an element of snobbery towards this *pesantren* from some in the village who viewed it as capitalising on the Pabelan name. In contrast, but subject to perhaps more severe prejudice by some villagers, was a very basic and austere *pesantren* housed in a huddle of simple wooden buildings to the north of Blangkunan Utara. This simple *pesantren* followed far stricter interpretations of Islamic teachings. Again, this *pesantren* was viewed as separate from the wider Pabelan community. Use of the term *pesantren* herein refers to *Balai Pendidikan Pondok Pabelan*.

From north of the main Magelang-Yogyakarta road the village stretches roughly north to south between the river Pabelan and the Borobudor road. The village neither constituted a compact nor contained unit. To the north of the main road the *dusun*, including Tangkilan, were effectively a continuation of the town of Muntilan with peri-urban characteristics broken by rice fields, which became more prominent with distance from the town. Jagalan was separated from the main concentration of Pabelan 1, 2, 3 and 4 by more rice fields. South of Pabelan 1 the surfaced village road gave way to an un-surfaced track through more rice fields towards Selak. South of the main road and away from the centre of Pabelan the village was perhaps best thought of as a series of islands amongst the surrounding rice fields. Selak had, perhaps the most rural feel and still had a high proportion of traditional wooden Javanese homes. Tangkilan in contrast felt more closely linked to Muntilan than to the centre of Pabelan. The issue of distance in Pabelan did not just refer to physical proximity, but also provided an indication of how some villagers related to the political core of Pabelan and the activities that took place there.

6.3 **Pre-existing ICTs and the accessing of information in Pabelan**

6.3.1 <u>Access to digital and traditional ICTs</u>

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[84] Iman Munjahat had already moved to Semarang at the time of the research.

Pabelan was not without an ICT infrastructure. Within the village and immediate vicinity there were 12 public telephone kiosks (*warung telepon*, *wartel*). These were run as private micro-enterprises with customers charged for length and distance of calls. In Pabelan *wartel* were often attached to a store with the telephone service providing supplementary income. There were five enterprises offering photocopying services around the main road with four clustered at the turning to Borobodur. While these latter four were outside the boundaries of the village they were readily accessible to individuals, businesses and village officials. Along the main road were two computer rental businesses with one inside the boundaries of Pabelan. These enterprises provided access to non-networked personal computers; generally for word processing purposes. The rental business within Pabelan was started in January 2005 by five young friends (three male, two female) who met while studying in Solo and pooled their resources to start the business. The business had two second-hand desktop computers; one was previously owned and one was bought for IDR 1.5 million (US$ 166.70) and one colour printer. Consumables, such as ink and paper, could be bought in Muntilan. Computers were rented by the hour for IDR 1,000 (US$ 0.10) with extra charges for printing. They also sold floppy disks and offered a typing service. The business received between five and 10 customers a day (estimated 50% female). The customers were students, pupils and local businesses. (Semi-structured interview. Female. 23.7.05).

An emerging ICT related area was the growth of small booths selling mobile telephones, pre-paid vouchers and accessories. Again, kiosk owners could buy stock from a small number of traders in Muntilan. One young (24 years) kiosk owner estimated his daily profit at around IDR 20,000 (US$ 2.20). However, if he managed to sell a mobile phone he could make around IDR 50,000 (US$ 5.50) if he sold the phone for IDR 200,000 (US$ 22.20). (Semi-structured interview. Male. 19.4.05). Similar small kiosks continued to sprout along the main road to Yogyakarta during the research period and were perhaps the most visible ICT related changes on the Javanese landscape. These enterprises also reflected the growing availability of mobile phones and the falling costs of ownership. Usage costs were also kept down with low-cost short-message-service (SMS) applications. For those that had run out of pre-paid credit (*pulsa*) there was also the common option of making a 'missed call' and waiting for the recipient to call back. Within a linguistic culture that is particularly fond of acronyms and abbreviations, such as Indonesian, SMS presented an array of imaginative communication possibilities. The mobile phone was also compatible with the most overlooked communication technology; the motorcycle.[85] There were 375 recorded motorcycles in Pabelan in 2004 (BPS, 2005). Mobile telephony was not the focus of this research; however, it was clearly an emerging and demand driven area worthy of future attention in Indonesia both in terms of applications and emerging ancillary micro-enterprise opportunities.

In February 2005 no respondents surveyed from poor households reported owning a fixed line phone. In comparison 13% of poor households surveyed owned at least one mobile phone. It seemed

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[85] Although frequently observed, the compatibility of mobile phones and mopeds was confirmed by a store attendant in Yogyakarta who explained touch screen models that used a stylus were not very popular. The matter-of-fact reason being, that it was very hard to SMS using a stylus while riding a motorbike.

reasonable to expect the number of mobile phone owners to continue to rise rapidly. Poor households also reported owning televisions (64%) and radios (76%). A lack of ownership of ICTs, however, did not equate to a lack of access with non-owners accessing ICTs owned by friends and family. Since the fall of Suharto media in Indonesia have flourished. Villagers reported accessing information from newspapers, magazines, and of course television and radio. All of these media had services specifically aimed at farmers. Within the village additional information 'technologies' included notice boards and community meetings as noted above. Religious and other community events provided further opportunities for exchanging and disseminating information. Therefore the e-Pabelan telecentre was not placed into an information and communication vacuum. Rather it was established within a changing ICT landscape where new technologies were readily adapted. The waiver being that for adoption to take place ICTs had to be considered affordable and relevant. The result being that the telecentre had to compete with both existing and emerging ICTs. This was a fact that was overlooked in the project's design through an overemphasis on the Internet.

6.3.2 The function of community groups as organic ICTs

In discussing of the information chain Heeks (1999a) notes the importance of organic 'technologies' in a process of development. That is, the communication of information that stems from a person's body, sound and brain waves. Within Pabelan access to information via such organic technologies were institutionalised within the village's community groups. These groups served as both depositories and conveyors of information. An important aspect of village life in rural Java has been the various community groups or *kelompok*. These institutions fulfilled a range of social and economic functions. *Kelompok* also allowed, and still allow as the example of the farmers group below indicates, the transfer of information to specific groups within villages and have been a specific target of development interventions. *Kelompok* also provided administrative structure to the notions of community self-reliance and self-help. There were a number of formal and informal *kelompok* in Pabelan. From the perspective of village officials (Semi-structured interview. Male. 26.8.05) the key *kelompok* in Pabelan were the village social activities group (*Lembaga Ketahanan Masyarakat Desa*, LKMD). The LKMD included various sections relating to religion, education, the environment, health and the economy with the *pancasila* section now defunct. The LKMD reached from the village level to representatives at the RT level. Other examples of *kelompok* included a craft group (*pengrajinan*), the irrigation group (*perkumpulan petani pemakai air*, P3A), an orchid growers (*anggrek*) group, and youth group (*pemuda*). However, the wider perspective of villagers in Pabelan was that the various *kelompok* were not as active as they were previously under the New Order regime of Suharto. Meetings were irregular, if they occurred at all, and formal participation was waning. However, there were exceptions.

The most notable exception was the women's, or literally family, welfare and education group (*Pendidikan Kesejahteraan Keluarga*, PKK). Under the New Order the PKK was incorporated within the LKMD. At the time of the research the PKK was separate and remained largely active in all ten

dusun in Pabelan. The exception reported was in Pabelan 1. However the health post (*posyandu*) providing information on mother and child health met monthly in Pabelan 1 as it did in other *dusun*. *Dusun* level PKK meetings had a distinctly social feel to them in comparison to other community meetings. PKK meetings combined the opportunity to share information, and gossip, and were on occasion used by village officials to pass on information to women and, therefore, the household. Ongoing high attendance at the PKK meetings could also be accounted for by the incorporation of a rotary savings scheme (*arisan*). The *arisan* was both a social occasion and a source of independent capital for many women. The 'winner' of the draw was expected to host the next meeting at her house adding a social compact that further contributed to continuity.

Of particular relevance to the e-Pabelan project was the farmer's group (*kelompok tani*). This *kelompok* had always stood alone from other *kelompok* such as the LKMD reflecting the traditional importance of the agricultural sector. In contrast to the PKK the farmers' group was significant largely at the village level in Pabelan. Meetings were not conducted regularly (although some low-ranking village officials would maintain they were still held monthly), but rather as the need arose. Meetings were held in the village government office (*Balai Desa*), which added a degree of formality and, possibly, exclusion. Irregular farmers' *kelompok* meetings in some *dusun* were also reported. In Jagalan (Santan) meetings were irregular and seemed to be driven by a small group that included salaried government officials and an active farmer who worked the village head's land. Farmers in Selak reported meeting every 35 days. Interestingly, this group had maintained links with an extension worker from the sub-district agricultural department (PRA, 27.7.05). This relationship was reported as direct and not through the formal village level *kelompok*.[86] At the village level an observed issue was that there was no mechanism for transferring information from formal *kelompok* meetings to other farmers and that the village level farmers group was somewhat of a closed group. This is a key point with regard to e-Pabelan and is worth reviewing through two examples.

During the research period Pabelan provided a test site for the planting of a new variety of sweet potato (*ubi jalar*). The new variety was provided by an export-oriented agri-business from Semarang (the provincial capital) that was seeking a regular supply in the area. The variety was promoted as being robust (could be planted all year round) and quick growing (four and a half months) and as having a stable price and ready market in the shape of the agri-business. The connection had been provided by a district level farmers' group and the village head of Pabelan provided the first test site on her land. Potentially, it was generally agreed at a formal meeting (Pabelan, 30.8.05) coinciding with the first harvest that benefits for farmers involved could be significant. However, the farmers in attendance that knew of the initiative were those with links to the village head or the formal village level farmers' group. Information, whether intentionally or not, about the initiative was simply for those in the know. Furthermore, there was no link, or any attempt to establish a link via the telecentre or otherwise, between this initiative and the wider community.

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[86] In January 2006 it was reported that the Selak kelompok had not been active since Ramadan (October 2005).

The way in which information in Pabelan remained the preserve of the few was also illustrated by the sub-district farmers' group meetings. These meetings were attended by representatives of 16 villages. Pabelan, that is the village level farmers' group, had three representatives. One was a teacher (male) at the *pesantren* and member of the BPPM (non-farmer, Pabelan 4), one was a former factory worker (female, educated to degree level, non-farmer, Pabelan 4) who attended monthly out of interest, and the third was a farmer and village official from Blangkunan Utara who rarely attended. The meetings were also attended by agricultural department officials and extension workers. Topics included; government initiatives and policies, new varieties, produce and trends. Guest speakers were occasionally invited. As the female representative from Pabelan explained within Pabelan there was no system for distributing this information (Informal discussion, 16.5.05). This was compounded by the issue of not having regular village level farmers' group meetings. She noted that the only way farmers in Pabelan could access information from these meetings was if they came directly to her. This, she reflected, was not something that farmers did.

In general, formal *kelompok* membership from poor households was low in Pabelan. The exception to this was the PKK, as noted, with 19.4% of poor households reporting a household member attending. The second most popular were religious (Islam) groups in the village with 10.2% reporting a household member attending. Addressing e-Pabelan's specific target group of farmers, 52% of poor households surveyed had employment in agriculture. However, only 2.8% of poor faming households reported having a household member that was a member of a farmer's group at either the *dusun* or village level. (Household survey, Feb 2005). Poorer farmers, in particular, often complained these meetings were merely formalities for the better off and politically connected. The village head's perspective (Informal discussion, 23.8.05) on low *kelompok* membership was directly related to the availability of information. While under the New Order *kelompok* formed an important source of top-down information, this was no longer the case. According to the village head it was precisely because individuals had better access to information through alternative channels, television and radio in particular, that interest in the *kelompok* had waned. On balance, the decision to implement e-Pabelan through these structures appeared flawed.

There were a number of other village level institutions that require mention. One was the *posyandu* (*pos pelayanan terpadu*) as mentioned above. *Posyandu* provide basic health services with a focus on women including mother and child health, family planning, nutrition, malaria, diarrheal control and immunisation. In Pabelan the *posyandu* did not have a fixed location, but instead were usually held monthly by the wife of the *dusun* head in her home. *Posyandu* were reported to be regular sources of information, although the quality of information was said to vary, particularly for younger women (PRA, 21.6.05; 1.7.05). The *posyandu* service was provided by the mid-wife (*bidan*), who ran the village clinic. The clinic was situated in a building adjacent to the telecentre and was established by the BPPM in 1995. The current *bidan* moved to Pabelan in 2000 and while aware that the building was owned by the *pesantren*, was not aware of any links with the BPPM as it had been running independently for some time. There was a further clinic in Pabelan near the main road that was

privately run and served the better off from the neighbouring town of Muntilan. Muntilan also had a small hospital.

6.4 **Seeking to widen access to digital ICTs: The telecentre**

6.4.1 <u>The establishment, and the justifying, of the telecentre as a point of access</u>

A memorandum of understanding (MoU) between the *pesantren* and BAPPENAS was signed 23 April 2004 and the e-Pabelan telecentre project came into being. The telecentre became operational with dial-up Internet access established 21 May 2004. Between 12 and 16 May 2004 a baseline survey was conducted on behalf of the implementing agencies by a private company from Jakarta. This quantitative survey was conducted in all ten *dusun* and covered both poor and non-poor households (target 50% poor). 404 household heads were interviewed by the survey team. (PT Risadata, 2004 unpublished). The report provided a range of general information of varying utility ranging from floor size of homes (mostly small), wall materials (mostly brick), roof materials (mostly tile) to occupation types (mostly farmers, although the inclusion of several miners appeared confusing) and religion (mostly Islam).

Moving towards the issues of ICTs the survey addressed education, information and communication. Questions relating to education were somewhat assumptive with most respondents 'agreeing' that education was important for the future. The majority of respondents also claimed and that they had time to study; presumably at the telecentre although this was not specified. Over 80% of respondents in all *dusun* reported they needed more information. Few reported requiring education related information. Information concerning agriculture, trading and job opportunities was considered to be needed by most. The vast majority communicated with friends and relatives by visiting and this included friends outside of the village. 30.5% reported owning a mobile phone (*c.f.* poor households only above). Most did not read newspapers daily. Most reported using the radio for entertainment (42.5%) and for news (38.9%). Most felt well informed. The *pesantren* did not rate high as a source of information (under 4% [Jagalan] to 0% in most *dusun* [including Pabelan 4]). Over 80% of respondents had not heard of email, but almost all thought the telecentre was a good idea nonetheless. The report was positive regarding the establishment of the telecentre.

The baseline survey provided a general, and generic, overview of Pabelan of mixed interest and utility. However, it was the activity of the survey itself that was of interest rather than the information it revealed. In contrast to an initial needs assessment, information from the survey was not used in deciding potential project sites or the potential of e-Pabelan. These decisions had already been decided previously based on alternative information. That is, the site had already been decided and funding had been secured. This latter point reflects the issue that without allocated resources such surveys cannot be completed when they are needed; prior to establishment. Regardless, the

'problem' facing Pabelan had already been decided and the solution, the telecentre, set in motion. The stated purpose of the survey (to assess current conditions and awareness) was, therefore, unclear. A further issue was that the survey did not appear to have been commissioned to establish an actual baseline that could be referred back to in order to assess the impact of the project over time. The baseline survey was, therefore, merely an exercise in satisfying donor administrative requirements. In essence, a box was ticked and another project output was delivered. The researcher was not aware of any use of any information revealed from the survey in either the design or implementation of e-Pabelan.

Following the completion of the baseline survey further research was undertaken 17 May to 20 June 2004 to coincide with the opening of the telecentre. At the request of the implementing agencies, and following Tacchi *et al* (2003), the research was to be conducted using ethnographic action research methods (EAR) and was to involve initial info-mobilisation and awareness raising activities. The research was undertaken by a consultant and anthropologist from the University of Indonesia (UI) and assistants from UNV. The EAR study proved somewhat controversial and provided insights into the initial establishment of the telecentre over the first three months.[87] The findings of the EAR researchers were that a telecentre was not needed in Pabelan and was not a suitable vehicle for poverty reduction. The precise reason for this was not provided. However, the researchers suggested the telecentre was a top-down intervention that did not fit with community needs. This conclusion could be seen as a catchall critique delivered from an anthropological viewpoint that may not always be sympathetic to the murky dealings of the development community. However, although the charge was not elaborated upon in any way the researchers seemed to have had a point. Nevertheless, the promotion of the telecentre through the distributing of leaflets, select meetings in Pabelan and externally at sub-district meetings by the EAR team did little to counter-balance the top-down approach the researchers found so unsatisfactory. The top-down approach was also reinforced through the official launch 12 June 2004. Attendees at the launch included district and sub-district dignitaries, village officials and selected, some villagers claimed, community members.

Unsurprisingly, the EAR team's conclusions did not sit well with the paymasters. As an implementing agency representative later confided, the report was rejected on the understanding that a more favourable conclusion would be forthcoming. Again, this researcher was unable to identify any changes to the e-Pabelan project that were derived from this report. It should be further noted that the concept of EAR presented by Tacchi and colleagues (2003) is clear in that the action research component stresses findings from research are fed back to inform planning and project activities over time. This is recommended as an ongoing process, as indicated by the ethnographic component, throughout the project cycle. It was not, on balance, clear that the EAR team were familiar with the EAR approach. Instead, the use of EAR was pushed primarily by the implementing agencies. It also

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[87] It requires pointing out that this information is based on the EAR researchers' draft report. This draft was rejected by the implementing partner. This was the only version made available to this researcher by implementing agency representatives. It was also made available after this researcher had arrived in Pabelan and reached much of the same findings.

seemed unrealistic to expect EAR to be effectively completed within the designated three-month timeframe.[88]

6.4.2 <u>The local partner</u>

Initial community participation at the e-Pabelan telecentre was low. A major contributory factor was differing understandings between the implementing agencies and the local partner. Establishing a partnership with the *pesantren* was based on two principal notions. Firstly, that the BPPM had active community development activities and, secondly, that the *pesantren* was a regular source of information for the community. Both of these assumptions were, to varying degrees, misplaced. The heyday of the BPPM, as noted, had passed and since the departure of Abbas the BPPM had fallen into decline. At the time Pabelan was selected to host the initial PePP pilot project the BPPM had no active community development projects. It had not had for some time. With regard to the second assumption, it was the case that that the *pesantren* was a source of religious information (mostly) for some members of the community. However, for others the *pesantren's* relationship to the wider community was seen as increasingly distant. This was an opinion that was widely voiced. It was also noted by many that the current village head was not as active as the former. This was no doubt the case. However, it should be borne in mind that the former *Kyai* and former village head, and the recognition the *pesantren* gained under their initiatives, were far from run of the mill.

The key issue, however, in the establishment of the partnership was that the status of the BPPM was not checked by the implementing agencies. One member of the BPPM was later to speculate, with no obvious irony, that 'perhaps they [the implementing agencies] got that information from the Web?' (Informal discussion. Male. 15.3.05). In fact, the establishment of e-Pabelan simply fell foul of Chambers' (1983) development biases. Information was obtained only from the conveniently accessible *pesantren* and from a politically connected elite. From a local partner perspective it was not difficult to imagine the attraction of a telecentre and the trappings of modernity it implied. The attraction of the telecentre for local partners could also be explained by the fact that the local elite were well aware that the *pesantren* was perceived as not having the same links to the community as it once had; this was a situation they claimed to want to change. The telecentre was seen as having the potential to reconnect the activities of the *pesantren* to the wider community and to rejuvenate (*menghidupkan*) the activities of the BPPM. However, lacking the BPPM's previous expertise, community links, and a lack of external support the local partners were not well placed to achieve such an aim. Neither were the local partners equipped to envisage what such a project may entail in practice. As the only member of the BPPM who was active in the day-to-day running of the telecentre lamented the telecentre was 'placed in a vacuum' (Informal discussion. Male. 19.5.04).

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[88] In this instance EAR was seen to be done. However, the implementing agencies were keen to return to an EAR approach throughout the project cycle. This was not achieved during the research period and implementing officials also admitted unfamiliarity with the approach. Tacchi briefly visited Pabelan at the end of 2005.

6.4.3 Seeking to transform access to technology to access to information at e-Pabelan

The initial activities conducted at the telecentre were trainings conducted by the EAR team at the end of May 2004. The first trainings focused on teachers from the *pesantren*. Individuals chosen for this initial training had some previous experience of using computers, but not the Internet. Five trainings were planned lasting two hours each over a two-week period. Trainings included an introduction to the Internet, obtaining an email address, emailing, browsing and downloading. 20 people attended the trainings. Half of the initial participants went on to assist in the second round of trainings. The second round of trainings coincided with the arrival of a group of university students from Yogyakarta who were starting their rural social service (*Kuliah Kerja Nyata*, KKN). The KKN is an obligatory component within undergraduate degree programmes and involved voluntary service activities in a rural community. The KKN assisted in the second round of trainings and also distributed leaflets to advertise the telecentre. The trainings ran from 8.7.04 to 31.7.04 and followed a similar structure as the first round, but for smaller groups of five people. The trainings focused on *kelompok* and 70 representatives were invited. These individuals represented *kelompok* from all 10 *dusun* including the LKMD, P3A, farmers' group, craft group and PKK. A further aim of the second trainings was to choose 2 to 3 individuals from each *kelompok* to act as info-mobilisers, who would then act as intermediaries and access and share information from the telecentre with the *kelompok*. The need for specific training in this regard was neither anticipated nor provided.

The trainings were not successful. Not all those invited attended and community trainings were not always completed. The critical point being, as one of the telecentre staff reflected; 'they did not come back' (Informal discussion. Male. 30.11.04). Organisational issues were reported from the early trainees with some not receiving invites. Others chose not to attend or not to return to trainings as they did not see the relevance. One reported attending, but not actively participating. A further issue, as noted above, was that the *kelompok* that trainees represented were not necessarily active and those that were active met infrequently. For those that did persevere, major complaints related to the trainings being inadequate in terms of content and length and that the information accessed was already readily available. However, one farmer noted that he had been able to access information regarding soft shell crabs from Malaysia.

The farmer in question was a senior member of the farmer's group in Selak and had a tendency to experiment. He had been breeding mealworms (*ulat Hong Kong*), which are used for bird food, for some time after receiving information from a sub-district agriculture extension worker. The farmer assessed the information he received from the telecentre during the training as being very useful (*sangat berguna*). However, he attended trainings at the telecentre only two times. In a follow-up meeting (Informal discussion. Male, poor. 15.6.05) the farmer said that had yet to return to the telecentre as he had, he claimed, been too busy working ('*ada terlalu banyak perkerjaan*') and that anyway he had only finished primary school. The latter comment indicated a commonly voiced and persisting view that the telecentre was only for the educated and/or the young. That this farmer

managed, at least, to access some information that he considered useful made him the exception to the rule. The more general view of the trainings was captured by the head of the PKK in Pabelan 3:

> I attended the basic training [...]. No, I didn't go back. I don't see the benefit [*manfaat*] of the telecentre, also I have a young child and don't have the time. Also, the PKK has new leaders and is not as active as it was before. [...] The PKK did find lots of information about KIA [mother and child health] and recipes, for example [...] but this was the usual information [...] that we can already find everywhere, [...] also the health clinic [*bidan*] is next door to the telecentre. [....] They would have been happier if they had found new information [for example] if it was possible to find information that could raise the income of a family. [....] After the training, the women were still ill at ease [*masih canggung*] and scared [of the Internet] [...] they need continuous training.

<div align="right">Semi-structured interview. Female, poor. 29.4.05</div>

What early impetus that had been generated by the early trainings was quickly lost. By September 2004 recorded visitors to the telecentre had dropped from 273 (including KKN students) in August to 16. This fall was also attributable to an array of technical problems that the local partners were ill equipped to deal with. A general lack of capacity was also reflected in the way and manner in which early trainings were conducted. While the BPPM and *pesantren* pondered what to do with the telecentre, the day-to-day running of the centre was left to a small group of *guru praktek* from the pesantren. The GP reported receiving training one evening in July 2004 in the use of a newly provided digital projector. In the meantime, they had taught themselves to use the Internet. In late September the GP received their first formal training from Bandung Institute of Technology. Over a two-week period the GP studied Windows XP, Corel Draw, Photoshop, FrontPage and Swish. Early PePP documentation notes the Indonesian Open University (Universitas Terbuka, UT) as a PePP partner. UT's contribution did not appear to be more than closing the telecentre to the public for three days in October and November to conduct trainings for UT students from neighbouring Muntilan.[89]

Upon the researcher's arrival, and formal introduction, in Pabelan in October 2004 a number of issues were apparent. Firstly, there was no evidence of any monitoring and evaluation systems in place from the implementing agency level. Having established e-Pabelan, the onus appeared to be on moving forward to establish the new PePP projects. The pilot function of e-Pabelan in terms of providing transferable lessons was, therefore, far from optimal and largely ignored in the early days. The absence of the EAR team, who may have contributed to ongoing monitoring and evaluation, was unexpected. Secondly, confusion among the local partner was clear. This primarily related to two concerns. One was how to incorporate the telecentre into the *pesantren*'s, and BPPM's, administrative structure and where responsibility should lie. The inactivity of the BPPM for over a decade made this problematic to the local partner. The other issue the BPPM faced was how actually

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[89] Later following queries by the BPPM it was clarified by the implementing agencies that the BPPM could charge external users such as UT for using the telecentre (partner meeting, 6.5.06).

to apply the telecentre to poverty reduction ends, which naturally was further complicated by the lack of active BPPM programmes, expertise and/or support. An idea that was suggested and had earlier been voiced by the implementing agencies was to link the telecentre to a tourism project. That tourism in Indonesia was still reeling from the 2002 Bali bombings was not considered.[90]

The tourism idea was not pursued. Instead, faced with no evident demand from the poor in Pabelan, the BPPM were left with the burden of finding a function for the telecentre. This, however, should not be read as implying the *telecentre* was necessarily the most pressing priority for the local partner. The local partner team, understandably, were not clear what they had signed up to and notions of the Internet, information and how these related to the poor appeared decidedly abstract or even fictitious. There was no clear understanding of how to tie the telecentre to more 'concrete', as the local partner would complain, or tangible poverty reduction ends. Further issues related to the telecentre itself. The telecentre was often locked; however, some students in-the-know still accessed the telecentre from the rear from within the *pesantren* grounds. The closed front door and barred windows did not create an impression of openness and reflected concerns over security and responsibility for equipment rather than any overarching aim or purpose that e-Pabelan may have had.[91] By the time the researcher arrived at Pabelan only two computers were functioning properly and all were infected with viruses. Participation increased slightly over October as the GP and one member of the BPPM sought to improve the functioning of the telecentre. Participation was to tail off again in November 2004 due to the fasting month of Ramadan with daily usage ranging from very low to zero. In December 2004 and January 2005 the partners sought a number of interventions, which boosted participation are outlined in the following section.

Participation at the telecentre from the *kelompok* trainings to January 2005 is indicated in Figures 6.2 to 6.5 below. The data was obtained from the telecentre log-book and includes repeat users; the overall numbers of individual users are, therefore, significantly lower. The figures are also skewed as young users from the *pesantren* were observed to be the majority of repeat users. However, while the exact figures may be questioned there was no doubt about the overall trend. It was also considered that over time, from October onwards, record keeping at the telecentre improved.[92] The typical user profile at e-Pabelan during this period was male, educated and young. He was likely to access the Internet for the purposes of e-mail, chat and general browsing. This was to change little.

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[90] The idea being to link to international tourism; presumably linked to the Internet's distance shortening potential. It is the researcher's experience that discussions of tourism in Central Java at the time tended towards the erratic international (non-Asian, which is a further mistake) market and entirely overlook the ever-increasing potential of domestic tourism.

[91] One farmer later joked that maybe the best thing to do would be to sell the computers and give the money to the farmers.

[92] No doubt influenced by the arrival of the researcher.

Figure 6.3 Overall participation at e-Pabelan from July 2004 to January 2005
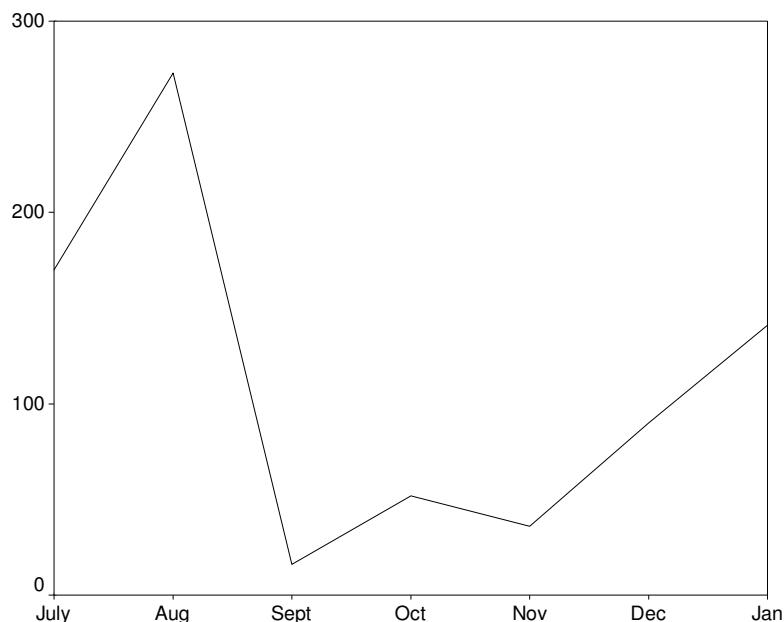
Source: Author. Compiled from telecentre log-book data, Pabelan, 2005

Figure 6.4 Overall participation at e-Pabelan by gender from July 2004 to January 2005

Source: Author. Compiled from telecentre log-book data, Pabelan, 2005.

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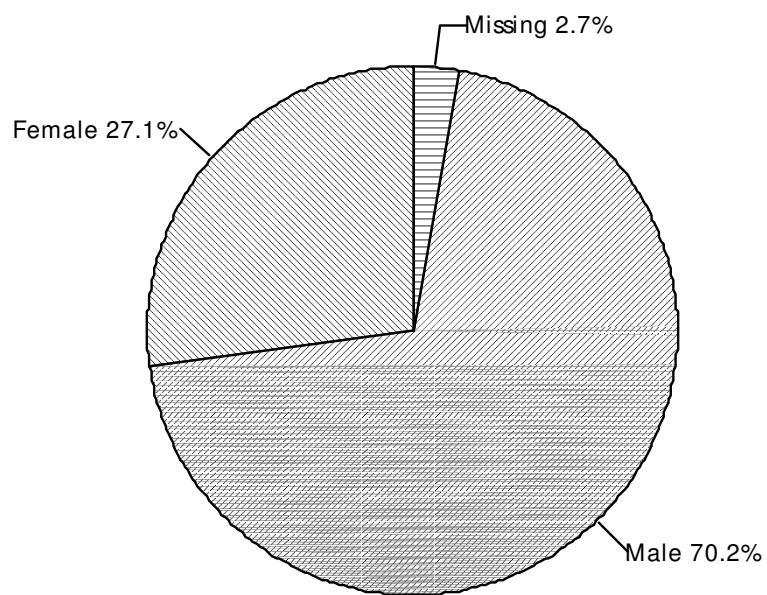
Figure 6.5 Overall participation at e-Pabelan by age from July 2004 to January 2005
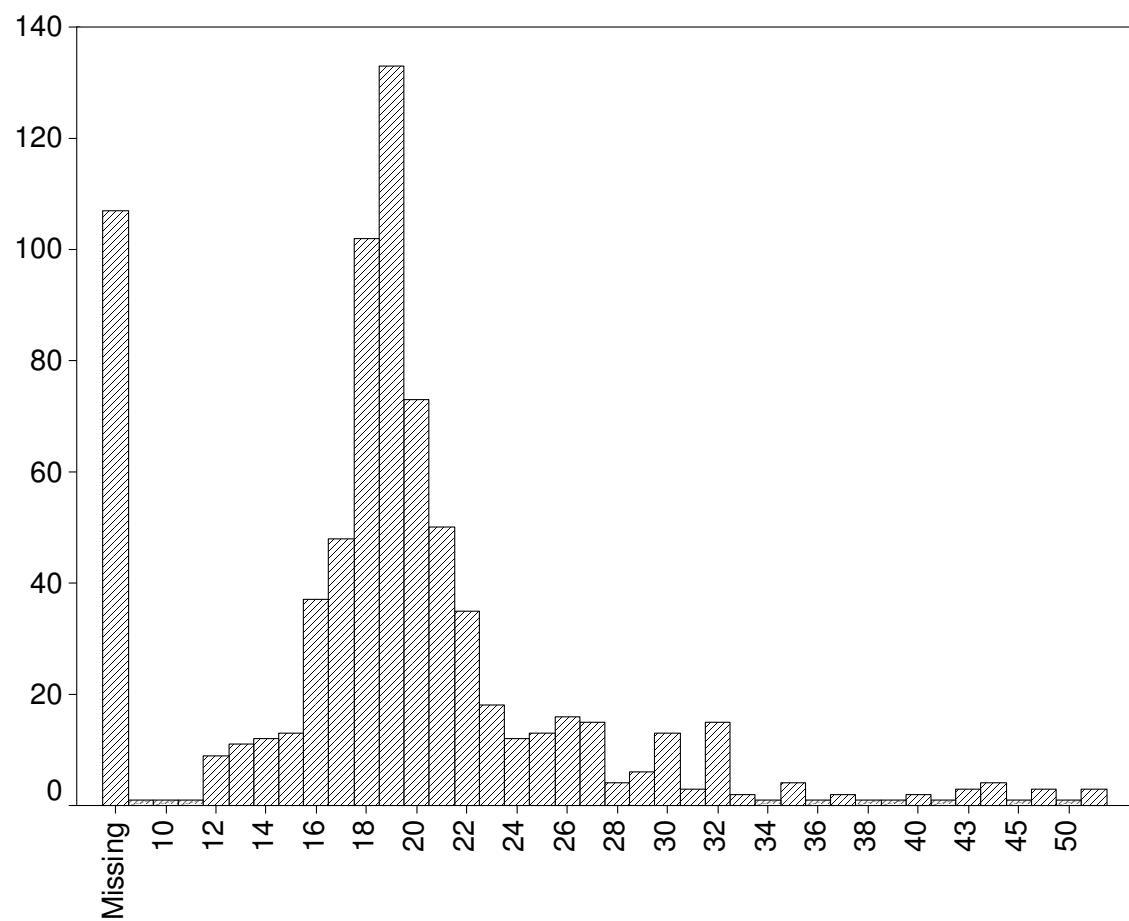
Source: Author. Compiled from telecentre log-book data, Pabelan, 2005

Figure 6.6 Overall participation at e-Pabelan by employment, July 2004 to January 2005
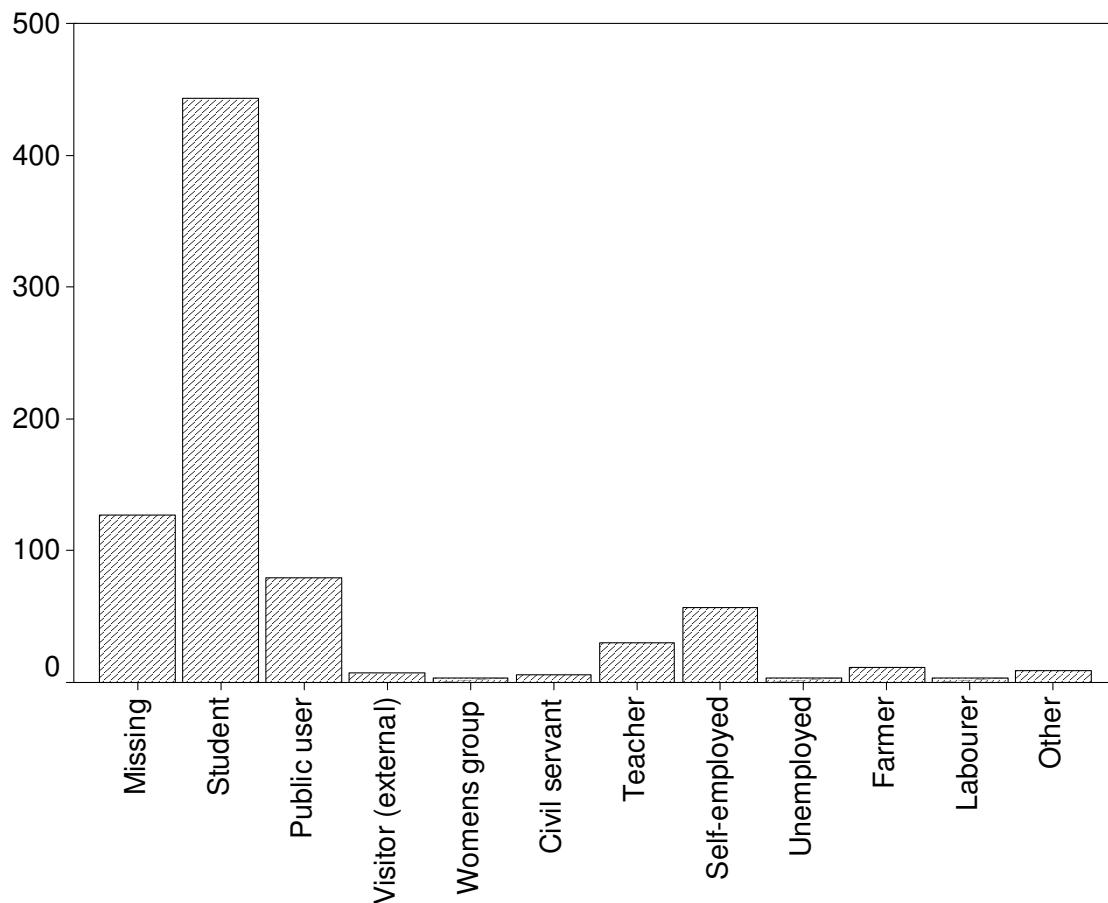
Source: Author. Compiled from telecentre log-book data, Pabelan, 2005.

With respect to Figure 6.5 it was observed that students who were not studying at the *pesantren* would record themselves as public users (*umum*). The term self-employed (*wiraswasta*) is an ambiguous, but frequently used administrative term that as well as covering business people could cover a range of non-agricultural occupations within the village. The log-book figures included attendees at the early trainings.

There was a certain irony to the early days of e-Pabelan. On paper, the telecentre promised access to new opportunities through establishing a new node within the global information network. It was to be, as a poster inside the telecentre suggested, Pabelan's 'window on the world'. However, the node that was the telecentre was bypassed, to borrow from Castells, and undone by the poor functioning of two other networks that had not been adequately anticipated or addressed. One was the lack of mechanisms to communicate information through the traditional structures and institutions within Pabelan and through which the project was implemented. The other was the poor channels of

communications, monitoring and support between the partners themselves. Responses to these issues are addressed in the following section.[93]

6.4.4 <u>Understanding and responding to access at the partner level</u>

In December 2004 the BPPM held a meeting to discuss the telecentre. This was followed by two further meetings with the implementing partners. By January 2005, a number of changes had been initiated. The local partner's response to the difficulties faced was to reorganise the management structure of the telecentre with the aim of better incorporating the telecentre into the BPPM and its (future) potential activities. For the BPPM it became increasingly clear that the telecentre was of limited use unless it was tied to more 'concrete' development goals. With no such goals immediately evident, and coupled to low levels of community interest, the initial focus of the BPPM was to be on education not poverty reduction *per se.* Considering the expertise of the *pesantren*, the user base of the telecentre, and the value placed on children's education by many poor households this seemed a wholly reasonable response. However, this did not fit within the agreed remit of the project as funded and although pupils from the *pesantren* continued to be the majority users at the telecentre, no clear integration within an education programme was observed during the research period. This was with the exception of the English language component as described below.

In response to local partner concerns that aims, activities and responsibilities within the project were unclear a revised MoU was drafted and then signed by the partners 4 January 2005. The MoU reinforced the commitment to poverty reduction and the provision of basic information. The emphasis of the MoU was on the local partner increasing its efforts to achieving the project goals. The obligations of the local partner towards utilising the telecentre towards poverty reduction and economic development were stressed. The new MoU was, therefore, used as a risk management tool within the overall PePP programme that served to situate the burden of risk with the local partner. However, it was further clarified that the implementing partner was to provide assistance including providing trainings, consultancies, a business model and research. Importantly, the revision of the MoU resulted in an increase in resources allocated to the telecentre and improvements in communication between the telecentre and the implementing agencies. In March 2005 a local technical administrator (from Selak) was funded and appointed for a period of one year by the implementing agencies. Additional support was provided, primarily online, by a BAPPENAS technician in Jakarta. Although the telecentre continued to face technical problems, particularly regarding the erratic *Telkomnet Instan* dial up service, this initiative was a significant improvement

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[93] It should be noted that representatives of the local partner never used the telecentre themselves during the research period. The exception was the one junior member of the BPPM, who was also a teacher at the *pesantren* who worked with the GP. This individual was the main contributor form the local partner side and struggled to keep the telecentre afloat during this period with very limited resources and support.

In January 2005 the implementing agencies also agreed to fund a dedicated manager for one year. By way of compromise with the local partner a new management team was finally appointed on a job share basis in May 2005. The management team (two female, one male) were proposed by, and had previous connections to, the *pesantren* and the BPPM having attended community development courses during the BPPM's heyday. This decision ensured continuity, to a degree, with the *pesantren's* earlier plans to reinvigorate the BPPM's activities. However, the appointments also had the effect of tying the telecentre more closely to the *pesantren*. While understandable from the local partners' perspective this did not have the effect of presenting a visible shift in focus away from the *pesantren* and towards the wider community. The concern remained that the telecentre was commonly viewed as a *pesantren* initiative rather than a 'pro-poor' initiative owned by the beneficiaries themselves.

A further development was the starting of a 10-month English language and computer skills course for 'non-elite' youths 17 January 2005. The English course was established in association with a Jakarta based non-governmental organisation and funded by the Regional English Language Office (RELO) of the United States embassy, Jakarta. The course included English language classes and computer skill classes for 60 high school age pupils. Classes consisted of 15 pupils and were held four times a week. Project documentation (BAPPENAS/UNDP, 2004 unpublished) also refers to the introduction of a 'business generator' and the development of entrepreneurial skills in association with the English course. This did not occur.[94] It was considered that children from the English course could act as infomediaries and relay information from the telecentre to their families. This idea reflected the persisting view that individuals in Pabelan required access to basic information. Such a view stands in contrast to a view that acknowledges individuals may require specialised information; and that information needs to be engaged with and assessed. It seemed wholly unrealistic for pupils accessing information from the Internet to fulfil this role; the hierarchical nature of Javanese society also brought this into question.[95] Regardless, the choice of students for the English course largely thwarted this idea before it had started.

The English course was advertised within Pabelan and the surrounding area in December. Shortlisted applicants were then interviewed and selected. With the secondary objective being to relay information from the Internet to the wider community, candidates with better English were selected. This resulted in the majority of pupils attending the English course being from the *pesantren* (approximately two-thirds) and from outside of the community. As such, a critical opportunity was missed and the telecentre became more firmly embedded within the *pesantren*. A further issue and a source of disquiet was the employment of teachers for the English course. A teacher was employed from outside of Pabelan and was assisted by two teachers from the *pesantren*. Complaints were later

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[94] This refers to a proposal that was to be submitted for further funding. Nothing came of this and it was not to the researcher's knowledge pursued. In this regard official documentation also again referred to the need to end supply chain dominance by middlemen.

[95] Child led educational programmes are currently in vogue in development; largely led by those agencies and NGOs that have children as their primary target group. While such approaches have an important role to play, purely child-led programmes have a key sustainability issue- children grow up.

to emerge from the *pesantren* that the salaries the English course teachers were being paid were considerably more than the usual IDR 800,000 (US$ 88.88) per month that other teachers at the *pesantren* received. There was regret that this potential source of conflict could have been avoided through better consultation (participation) with the local partner.

From January 2005 onwards basic improvements were implemented at the telecentre including more regular opening hours, functioning computers and improved administration. These improvements led to an increase of 141 recorded users in January 2005. The English course significantly boosted attendance at the telecentre to a peak of 726 recorded visits in May 2005. While the English course was enthusiastically received by the pupils, it did little to change the overall profile of users or usage at the telecentre (see Appendix N). With English course participants from outside of the village the news of free Internet access spread attracting further young people from neighbouring areas. Again, for older members of the community the idea was reinforced that the telecentre was not for them. That the English course should inadvertently cement such perceptions is unfortunate. However, the point of concern is that the situation persisted.

The allocation of further resources to the telecentre was a significant development and gave the telecentre a new lease of life following its near-death experience in September 2004. However, it should be borne in mind that these initiatives took affect over eight months into what was originally planned as a 12-month project. By the end of the first year the telecentre had initially, and optimistically, been expected to be financially sustainable. The employment of new individuals extended the original commitment of the implementing partners to the telecentre for a further year. However, as per the new MoU the implementing partners were keen that a financing initiative came from the BPPM. The new telecentre management team drafted a business plan, but were of the opinion that it would take three years to become self-sustaining.[96] The management team estimated that the telecentre required IDR 5 million (US$ 555.55) per month to run (Informal discussion, 30.6.05).[97] This figure included continuing employment of the technician, electricity and maintenance. The figure also was calculated on the assumption the telecentre would still receive a 50% discount from PT Telkom on the Internet connection. With regard to ongoing payments for the Internet connection a stalemate was reached creating uncertainty for those working in the telecentre. In July 2005 the telecentre started selling a number of items including pre-paid mobile phone vouchers, drinks and stickers.[98] A photocopier was provided by the implementing agencies to generate further income. Further activities included charging for printing. In August 2005 the implementing agencies finally agreed to extend payment for the Internet connection for a further six months. It was later

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[96] In May 2005 a consultant was also commissioned to draft a generic business plan for all PePP projects. The management team used templates created from this consultancy.

[97] During this discussion one member of the management team was flicking idly through a magazine in the small reception area of the telecentre. She came across a picture of a mother holding a malnourished child in her thin arms. 'Look' she said 'they're poor, maybe they need the Internet!' Intended as a joke (the taste of which one may question), but telling nonetheless and indicative of an underlying sense of frustration.

[98] Stickers are particularly popular in Indonesia with young motorbike owners, guitarists and prospective motorbike owners that already own a helmet. For those, usually men, who are lucky enough to progress to owning a car later in life the popularity appears to persist. Many shops selling stickers appeared early adopters of computers for the obvious design benefits they bring.

reported that this was again extended until June 2006 (Informal discussion, 12.1.06). Charges (IDR 3,000 [US$ 0.33] per hour) for using the telecentre were introduced 1 August 2005.

A final point of importance is that the implementing agencies funded a further position. This was for a full time 'infomobiliser'. In July 2005 the infomobiliser started establishing informal learning groups (*kelompok belajar*) at the *dusun* level. Initial PRA activities (divided by gender) were conducted including the mapping of *dusun* and identifying resources and possible sources of potential in the *dusun*. Later these learning groups were to be introduced to the telecentre. This was a significant, if long delayed, development. At the end of the official research period it was too early to comment on the impacts of this initiative. During a visit in January 2006 learning groups had been introduced to the telecentre. It was reported that the number of users had increased since the learning groups had been introduced to the telecentre. No examples of contributions to either development or poverty reduction could be provided at that time. The view of the management team was that for there to be an impact on poverty there would be need to be a concerted three-year programme.

6.4.5 <u>Access in terms of users and usage</u>

As noted above usage of the telecentre was dominated by the young; primarily students from the *pesantren*. However, the majority of young individuals from within the village itself did not visit the telecentre. The majority of telecentre users had previous computer and Internet experience. Pupils at the *pesantren* also benefitted from the *pesantren* having its own non-networked computer laboratory. A survey of 74 telecentre users in July 2005 indicated 81.1% had previous computer experience and 80% of these previous computer users had previous Internet experience prior to accessing the Internet at e-Pabelan. The *pesantren* attracted pupils from across Indonesia from Sumatra to Papua and also from urban areas including Jakarta, Cirebon and Semarang. The implication of this geographical reach was that pupils at the *pesantren* had greater opportunities for prior exposure to both computers and the Internet; and for those who had not there were subsequent opportunities to learn from their peers.

Usage of the Internet revolved around the three pillars of email, chat and browsing. Reading general news and searching for information on sport and popular culture were popular. Downloading music and playing games were also common. Students and pupils reported using the Internet to research topics, word processing and printing. For some older pupils seeking information on potential scholarships was noted. The hike in attendance at the telecentre in May 2004 in the run up to the national exams lead to the *pesantren* taking steps to limit the amount of time pupils spent at the telecentre. While supportive of the idea of the telecentre, there was a concern that children were being distracted from their revision. Overall, usage of the e-Pabelan telecentre did not vary greatly from wider usage patterns in Indonesia and at private *warnet* (Purbo, 2002; Wahid & Furuholt, 2004). However, access to the Internet did widen the geographical reach and experience of young users. Prior to the establishment of e-Pabelan personal networks centred around the village itself and also Yogyakarta, Surabaya, Bandung and Jakarta. Usage of the telecentre expanded contacts within Java

and Indonesia. Contacts were also expanded to Malaysia, Singapore and the Philippines and further afield to India, Japan, Taiwan, Pakistan, Australia, the US and the UK. Contacts were established through online chatting and were occasionally followed by email correspondence (PRA, 9.8.09; 16.8.09).

For young users the main reported advantage of the telecentre was its close proximity (to the *pesantren*). Some young users from outside of the *pesantren* complained of domination by *pesantren* pupils. The fact that the telecentre was free was a significant draw and with the introduction of charges it was noted that the telecentre remained cheaper than *warnet* in Muntilan and Magelang. Young users complained that the centre was small and that there were not enough computers. The instability of the *Telkomnet Instan* connection was also noted. Overall, for young users the telecentre was viewed as a useful resource. For the young who used the telecentre, the telecentre also became a place to hang out (*gaul*), chat and catch up with friends. The critical issue was that it was hard to identify exactly how e-Pabelan differed significantly, apart from the fact it was subsidised and of correspondingly high-cost, from a private *warnet*.[99]

There were some other users of the telecentre; however, they were few and far between. There was the former local NGO worker from Muntilan who would come to look for job opportunities online. Another woman from Muntilan would come to teach herself how to use Microsoft Office from a self-teach book. Notably, one of the *guru praktek* (19 years, Pabelan resident) who volunteered at the telecentre became proficient in website design and went on to create a PowerPoint based aid for learning Arabic. With this he won a national ICT award in 2005. The prize included attending a training course in South Korea funded by Microsoft. This was clearly an impressive achievement and was seized upon as a success story; as such it was. However, as with all success stories, contextualisation is required. The individual did not have previous computer experience prior to the establishment of e-Pabelan. However, aside from the basic training he received at the telecentre, he was self-taught. He had clear aptitude and was highly motivated, curious and committed. Like the two individuals mentioned previously he had a desire to learn and explore. Access to the telecentre and new information was enough of a catalyst. This was not the norm and should not be allowed to distract from the concern that opportunities, empowerment and security did not increase for the vast majority of the poor. Success stories promote opaqueness and deny the lived realities of the vast majority. They are a tool for promotion and should not be confused with an analysis of project impacts.

6.4.6 <u>Community participation and issues of access to information</u>

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[99] Precisely this question was asked by one of the management team at an official event at the *pesantren* (26.8.05). The question was asked to students at the *pesantren*. The answer expected was along the lines of a telecentre has a developmental aim, is beneficial to the poor or similar. The answer received was: 'A telecentre is free and a *warnet* is expensive!'

During the research period, usage of the telecentre by the wider community was, as noted, low. Despite the changes implemented the overall profile of users changed little. Over the 12-month period from July 2004 to June 2005 the number of farmers recorded as visiting the telecentre was 12. There had been little change since the initial *kelompok* trainings and the overall profile of users remained consistent. Initial difficulties appeared to relate to low awareness among the intended beneficiaries. During the survey of 216 poor households and 10 months after the signing of the MoU less than 50% of poor households surveyed reported having a family member who knew of the existence of the telecentre. Those that did know had, in the main, found out from friends or family or from simply passing the BPPM building. As noted above, information concerning the telecentre was introduced through the traditional political mechanisms and village institutions. As one villager (Male, poor, carpenter) commented the political structure both within, and beyond, the village serves to maintain the status quo; 'the political trick is that there is already an arrangement into levels, from the national level down, in Indonesia […and…] Pabelan is like a mini Indonesia' (Informal discussion, 31.1.05). However, the structures that once proved so effective in disseminating information and fostering paternalism and patronage had started to weaken following the end of the New Order as evidenced by falling *kelompok* membership.

Political and social changes within Indonesia since 1998 opened new opportunities for both agency and resistance (Bebbington *et al*, 2004). Individuals became far more able, and increasingly willing, to question the motives behind, and value of, externally driven interventions. In 2004 the formal *kelompok* system did not provide the structure and mechanism required to raise awareness of the telecentre in Pabelan. As one villager reflected: 'Maybe, the telecentre is only for rich people [*orang mampu*]. […] Information [in Pabelan] does not flow evenly [*tidak merata*] - it is only for certain people. So poor people, like me, often do not in fact receive information.' (Informal discussion. Female, poor 29.2.05). Again, from a farmer: 'I've never been told about the project… maybe, that's because it's not for me.' (Informal discussion. Male, poor. 28.2.05). Project implementation through existing structures and institutions is not unusual in Indonesia. However, its effectiveness seems to have waned without the stick of authoritarianism to back it up. In Pabelan the attempt to implement and raise awareness of the telecentre through formal political channels and *kelompok* was ineffective and did little to promote a sense of ownership among the intended beneficiaries. It was not, in short and contrary to intentions, participatory.

Attempts to increase usage at the telecentre also contributed to maintaining perceptions of exclusivity and exclusion. As the number of young users increased, who it must be remembered offered the BPPM the most promising chance of financial sustainability, the sense of exclusivity increased. The image reinforced was that the telecentre was for the young, and/or the educated, and/or the *pesantren*. Perceptions of what the telecentre stood for were a barrier for some:

> I want to look for information about [business] capital, training for hairdressing, but I'm scared [to go to the telecentre] because it is owned by the *pondok* [i.e. *pesantren*] and is only for the *pondok*. [.…] We don't know what the aims [of the project] are and people don't know about it. [.…] Pabelan [i.e. Pabelan IV] receives lots of help, but it never reaches Batikan or Jagalan.

> […] The information does not reach here. […] The village head has projects, such as the orchid growing [an earlier World Bank funded project] and telecentre project, and there are socialisation programmes for the community, but the issue is that they have yet to ever reach here. […] The poor community are afraid to speak out against this.

<div align="right">Informal discussion. Female, poor 1.3.05</div>

For a small minority, the telecentre provided a point of resistance and opportunity to voice discontent against the local powers that be. This situation was compounded by, as noted above, the village head being the wife of the *Kyai*. As such, any dissatisfaction that was felt with either the village administration, the lack of activity of the BPPM or even the perceived distancing of the *pesantren* from the community could be directed at the telecentre. It should be noted that the village head insisted that in her dealings with the implementing agencies she was acting purely in her role as vice-president of the BPPM. Nevertheless, a perception that saw the village elite composed of the village administration, BPPM and *pesantren* jointly embodied within the telecentre was understandable. As such, the telecentre (reinforced by the way it was implemented) could be dismissed as another example of bypassing the poor and of the concentrating of resources in the hands of a few.

Such discontent created, at times, some issues during the research. One such example was a 'rumour' that in the very early days of the telecentre some individuals from outside of the *pesantren* were asked to pay to use the telecentre. This was heard a number of times among a particular group of individuals who were regarded as somewhat politically radical by their more conservative neighbours. Charging community members for using the telecentre was in contravention of the first MoU. The issue was quietly broached on separate occasions with two representatives of the BPPM and also with the GP. It was denied or laughed off and dismissed on balance by the researcher as not verified. Some months later it was confided by two of the GP that yes this had indeed happened. The extent of the attempts to charge and whether it was a unilateral act by individuals in the telecentre is a point of speculation. For those that complained of the attempts to charge the impact was clear; they did not go back. The lack of effective monitoring and evaluation at the critical early stage of the project cycle is, again, a point of considerable importance.

It should be noted that discontent with the telecentre was, as indicated, voiced by a minority; for the majority it was largely ignored. However, such thoughts and actions existed at one end of a continuum and may be expected to be felt by others to varying degrees. It should also be noted that this did not emerge as a major point of conflict or disruption. It was rather an outward expression of discontent and resistance reflective of Scott's 'weapons of the weak' that may be seen in foot-dragging and the spreading of gossip (or not as the case may be). As an ICT related aside, it may be said that e-Pabelan weathered any discontent in Pabelan far better than a well-known telecommunications company. The company in question was widening its mobile phone infrastructure and constructed a mast in the centre of Pabelan (*c.* 1999). There were rumours that some sweeteners had been paid to local officials and it was also suggested that the company had paid the elderly woman who owned the land an unfair price. This was the cause of discontent for some in the vicinity

of the planned mast. Surveyors used wooden pegs to mark out the tower base. Two individuals (poor, male) who lived nearby then stole the pegs and other wood that had been left there. The individuals then reported the theft to the police to cover their involvement. The result of this sabotage was that one of the individuals concerned and who lived nearby was placed on a monthly retainer to take care of the tower. The monthly retainer was split between the two and of course no further incidents occurred. The point of pride for the individual concerned was that the monthly retainer that he received was said to be the same amount (IDR 100,000 [US$ 11.11]) that officials allegedly received that one time only. (Informal discussion. Male, poor, 13.1.06).

e-Pabelan did not suffer from such blatant acts of resistance. In fact for the silent majority of poor individuals there was little to object to. The function of the telecentre was unclear, but on balance it was probably considered a good thing and particularly for the young. The telecentre was simply something that happened elsewhere and for others; its lack of relevance rendered it invisible to many in the community. However, a working knowledge of computers and the Internet were viewed as important for the future of the community's children. This was seen as all the more important due to the high rates of youth unemployment (and underemployment) in the area. Education was valued highly in Pabelan and the burden of paying for education was often voiced.[100]

> Every year the cost of schooling goes up. If a farmer has other work, it's not a problem, but if you don't have other work like me it's very difficult. Before we had children the income from farming was enough, but that was before school. After you have children it's not enough. […] Our son [14 years] goes to school in Magelang, it has computers and the facilities are good, so it's expensive. (Husband).
>
> […] Our daughter [11 years] goes to school in Borobudor [lower school fees]. She has registered, but she hasn't started yet because we haven't been able to pay the fees. (Wife)
>
> […] Of course, we want both of them to go to a progressive school (*sekolah maju*) […], but it's just too expensive. (Husband).
>
> Informal discussion. Farming household, poor. 22.6.05 [101]

While the rising cost of education was a major concern for poor households and represented the major household expenditure for many, it was a cost that families, and particularly women, would go to lengths to bear.[102] It was also a situation that could result in uneven opportunities within households as in the example above. That the selection of participants for the English course was not more beneficiary focused was an opportunity missed. The decision to choose children with better English skills irrespective of their connections to the host community and over children from poor households

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[100] Technically primary education is free. However, in practice schools charge fees for maintenance of the building (*uang gedung*) and parents have to pay for books, uniforms and sports clothing. Costs increase with better schools.
[101] This discussion occurred shortly after the new school term had begun.
[102] Married women often reported receiving the sum of 10,000Rp (just over 1USD) per day (but not every day) from their husbands. This was to pay for expenses, including food, bills, clothing and education for children. Not all women had independent sources of income and some were solely dependent on such money as well as informal sources of credit.

in Pabelan was an error. This decision seemed driven by the short-term need of trying to widen community access to the telecentre, rather than the longer-term development goals that parents held for their children. This decision was all the more sorely felt by some poor households as their children had applied for the course, but not been selected in favour of children from outside of the community. Again, the intended beneficiaries, along with their aspirations, were passed by. Others simply were not aware of how to use the telecentre and did not feel confident enough to enquire- as such was the nature of exclusion for many: 'I feel disappointed [that nobody ever told me about the telecentre] because my children want to learn how to use a computer […] and I don't clearly know what the procedure is for using [the telecentre].' (Informal discussion. Female, poor. 28.2.05)

With regard to education it was noted that older educated individuals seldom visited the centre. Some individuals with previous computer experience, and local computer owners, were also yet to visit. These observations cast doubt on suggestions that one of the major obstacles to accessing the Internet at Pabelan by poor households was illiteracy and low educational attainment.[103] Within Pabelan this was not the case and such arguments reflected taking the head of the household as the point of reference. Within the household educational attainment had steadily risen with a few poor household members surveyed educated to undergraduate degree level (*S1*). The situation at Pabelan was testament to overall increases in educational attainment within Indonesia over recent decades (Moertiningsih-Adioetomo, 2005). Naturally, things could always be improved, but within Indonesia relatively high levels of educational attainment should have been, in theory at least, conducive to the adoption of the Internet. It was also not demonstrated that exposure to the Internet would result in individuals seeing its utility and worth. As the experience of early trainings demonstrated this was not the case.

One reason for the lack of perceived utility was, as indicated above, that the telecentre had to compete with established demand for existing technologies and sources of information. The comparative advantage of the Internet in terms of either a tool for communication or providing access to information was not always apparent. As the midwife at the clinic next to the telecentre observed: 'People in the community, especially women staying at home, don't have the motivation to use the Internet […] you have to walk to the telecentre, write an e-mail and then wait for a reply. It's more convenient to use a mobile phone [i.e. Short Messaging Service].' (Informal discussion. Female. 17.3.05). Needless to say, individuals also accessed information from an array of formal and informal sources and as one farmer and local official protested: 'We have plenty of information. We visit other farmers, talk [...], listen to the radio, watch television, [...] read books!' (Informal discussion. Farmer & official. Male. 4.12.04).

During the research period any assumed link between accessing the Internet and increasing the security of livelihoods had yet to be demonstrated. At the risk of oversimplification, the reasons for low participation boiled down to some simple home truths. For the poor and non-poor alike the utility and

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[103] See, for example, Blontak Poer article on e-Pabelan in Jakarta Post (16.6.05).

relevance of the telecentre, and particularly the Internet, remained far from clear. The community voted with their feet; the majority walked straight past the telecentre and the few intended beneficiaries who did enter left and did not return. As one farmer who had attended the early *kelompok* trainings commented the e-Pabelan initiative simply did not appear to him to be all that serious (Informal discussion. Male, poor 21.7.05). All the same, at the intended beneficiary level this does not imply that there was no need for information. Equally, it should not be inferred that the abstract notion of information was viewed as a priority by the poor. The importance of information was regularly acknowledged, but its immediate relevance remained unclear in the face of efforts to secure daily needs. e-Pabelan clearly suffered from a range of administrative difficulties and struggled to assert its relevance, however, to fully understand e-Pabelan it is necessary to examine its conceptual foundations and how these related, or not, to the project's intended target group. This is examined in the following chapter.

6.5 **Conclusion to chapter**

The research project's conceptual framework emphasises the importance of distinguishing between access to technology and access to information. Drawing on the above discussion it seems reasonable to more explicitly distinguish between a third interpretation of access. That is, access to a meaningful development outcome, or 'act', and specifically poverty reduction in the context of this research and as indicated in the conceptual framework. However, the implementation of e-Pabelan as described demonstrated a leap of logic from access to act and largely ignored the staged process of assessment, adaption and application of information towards a development outcome. As such, e-Pabelan reflected the dominant ICT4D paradigm of its. As the chapter indicates e-Pabelan struggled as a development process and this was hindered through a failure to distinguish conceptually and in practice from the three types of access described.

The establishment of e-Pabelan evidently prioritised the provision of access to technology. As such, it was, and despite protestations to the contrary, indicative of a digital divide approach. Further, the implementation of e-Pabelan stood in contrast to the project's stated participatory and community-based aims. Instead the project was directed from the national level down through established political structures with the result being that the intended beneficiaries were excluded from the process. The paradigm (community-based development) adopted in theory did not materialise at the local level. The utilisation of participatory methods that did occur, such as through the infomobiliser, reflected efforts to sell the concept of the telecentre rather than to provide meaningful access to information and/or development.

The message presented was that the conceptual basis of the project was essentially sound and that it was the community that should adapt to the technology and not the other way around. Parallels with Schuurman's paradigm concerning the 'makeability' of society and Schech's and Avgerou's concerns regarding modernisation and the transfer of particular forms of knowledge and ways of being are thus

apparent. A failure to establish an understanding of the function of the telecentre as a tool to access information and facilitate a process of development among partners and beneficiaries led to a preoccupation with the tangible and the visible. As such, the telecentre's function and purpose were highly opaque and the e-Pabelan project became the telecentre building and the technology it held; access, to neither, as has been described was assured. In terms of the research project's conceptual framework it was not the validity of information that was assessed, but rather the project and the technologies it embodied. This assessment of the type of access promised did not score highly in terms of utility or relevance to the wider community.

The chapter demonstrates that what is considered universally applicable within much ICT4D literature, as embodied within a digital divide approach, may not resonate with lived realities if the environment into which the intervention is placed is not adequately taken into account. The geographical location of the village of Pabelan, the mobility of sections of the population (such as some students at the Pesantren), and pre-existing access to alternative ICTs and competition from demand from emerging ICTs (such as mobile phones) all impacted upon the telecentre project and challenged its legitimacy and relevance. However, it is the institutional environment through, and into, which the project was introduced that appears highly significant. This is an area that has been largely neglected in the literature and is further significant in the context of Indonesia and the transition from authoritarian to democratic rule.

In short, and as described above, the manner in which information is channelled to and accessed by rural communities has changed in rural Java. With the wane of the centralised dissemination of information, and the associated widening of choices, the role of rural institutions such as the *kelompok* have changed as has their influence. The irony of e-Pabelan, as demonstrated by the research, is that efforts to widen access to information for the majority were implemented through rural institutions that actively sought to limit and control access to information in the interest of a select few. The choice of local partner and particularly the utilisation of kelompok were highly pertinent in this regard. The function of rural institutions and the way in which access to information may be mediated is shown to be important to ICT4D in general and would benefit from further research in alternative contexts. With regard to the Indonesian context the wane of the influence of community groups as gatekeepers of information is particularly pertinent to community based poverty reduction initiatives and how they are implemented.

Although the implementing agencies maintained that e-Pabelan was not just about providing access to technology, at the local level it very much was. The Internet was all too readily perceived as a reified artefact of universal benefit and worth to all. The telecentre was the vehicle to deliver that artefact. Correspondingly, the poor were glossed as an amorphous mass ready to gratefully receive. Individuals' agency and realities are ignored and it was these that undermined the project. e-Pabelan in practice was an attempt to bridge the digital divide. The project was overly technologically driven and deterministic and as such the project failed to take account of local contexts and realities. As has been demonstrated the failure to adequately account for the local institutional context had real impacts on the project. Furthermore, the way in which information flowed (or not) within the village

prior to the introduction of the project was not suitably addressed. In short, the project focused on access to technology first and then struggled in seeking to provide access to information while the importance of communication was overlooked.

Chapter 7

Capital resources and existing socio-economic relations

7.1 Chapter introduction

The preceding chapter highlighted issues of access in terms of technology and information and also in terms of moving towards accessing a desirable development act or outcome. The research has also shown that proper contextualisation at the local level is required in order to understand uptake of ICTs, and barriers to uptake, following the introduction of access to ICTs. Similarly it has also been demonstrated that a significant number of poor individuals in Pabelan were excluded, or considered themselves excluded, from the local institutions that the telecentre was delivered through and that had previously played a significant role in disseminating information to rural communities. While the telecentre aimed to provide access to information for the poor, the conceptualisation of the telecentre project did not anticipate or respond to the way in which information was channelled and mediated within the community prior to the telecentre's establishment. The previous chapter has also suggested that low participation by the poor in traditional community institutions can be explained by wider access to information within communities in general following the fall of the New Order regime in Indonesia. Such contextual influences presented significant challenges to the e-Pabelan project and the particular form of ICT based intervention that the project embodied.

The following chapter further seeks to situate and deepen understanding of the context into which the telecentre was placed in order to better understand the e-Pabelan project's potential, relevance and utility to poor farmers. The discussion turns to examining the claim that the introduction of ICTs can improve the livelihoods of poor farmers through empowering individuals, increasing their security and the widening of opportunities. As discussed in earlier chapters, one manner in which ICTs are considered to have significant potential in this regard is through improving the ability of small scale producers to operate in markets through reducing information asymmetries and biases towards traders who are viewed as having a monopoly on market, and particularly price, information. The chapter presents this discussion in terms of the need to understand the socio-economic relations that dictate market outcomes for poor farmers. In this context, and as presented in the project's conceptual framework, the distinction between goods, actors and transactions after Plattner is employed.

The chapter proceeds with an introduction to the livelihood strategies employed in Pabelan and continues by outlining what it meant to be poor in Pabelan. This is followed by a review of the capital resources that potentially could be commanded by the poor in Pabelan. As indicated in the conceptual framework this is considered to be of particular note as the adaptation and application of information is taken to be dependent on the capital resources available. The chapter then provides a brief overview of the agricultural sector in relation to poor households and the livelihood opportunities open

to such households in this sector. This allows a deepening of understandings relating to the extent that poor farmers may be able to apply and or adapt information that may be accessed. In order to better understand the socio-economic relations that prevail within the agricultural sector, Plattner's market based categories of actors, goods, and transactions are utilised in order to further situate and analyse the potential of the telecentre and its relationship to poverty reduction. Through reviewing these socio-economic relations the issue of how poor farmers assessed the validity and relevance of providing access to new technologies, and potentially information, is discussed from a contextualised and situated viewpoint.

7.2 **Securing capital and security in Pabelan**

7.2.1 Livelihoods introduction

The image of a self-contained and isolated rural Javanese community is, as a representation, something of a historical relic. Just as Pabelan was not isolated in a communicative sense, neither was it economically. While approximately 50% of households in Pabelan were involved in agricultural activities, such an image could be misleading. The way in which households and individuals accessed capital and sought security from their livelihoods in Pabelan was best thought of in terms of diversity. Poor household livelihood strategies in Pabelan included growing food for own consumption, varied cash employment, borrowing, the selling of land and assets and reliance on government subsidies and/or farming. However, Pabelan was also home to salaried government employees, teachers, lecturers and artists. There were also micro and small-scale entrepreneurs who ran carpentry businesses, a small ironworks, bamboo and stone handicrafts, food processing, and petty commodity production including rope, brushes and children's toys. Some were drivers, some were tailors, a few were factory workers. Others traded and sold their own produce or the produce of others. This included trading in agricultural produce, running small kiosks and stores, selling plastic toys to children outside of schools, selling cheap cigarettes, selling paper for recycling and buying and selling used rice sacks. Poorer households took opportunities where they could and, in general, livelihoods strategies often straddled both the formal and informal economy.

With regard to the formal economy, Pabelan was structurally integrated into the national and global economy. Seeds were imported from Thailand, consumer goods from China, motorbikes from Japan and mobile phones from Europe. Market prices in Pabelan and the surrounding areas followed wider trends as did opportunities and limitations. The structural shift away from agriculture was evident and continues. Farm sizes for the majority had decreased over time. Land prices were rising, especially along the Borobudor road, and land was sold for short-term gains or, at times, out of need to cover unforeseen expenses. The inheritance of smaller parcels of land through the generations also had a

bearing.[104] For the young, opportunities were limited and traditional ventures were losing their appeal: 'These days I can make more money working in a photocopying shop than from farming our family land. Why would I want to farm?' (Informal discussion. Male, poor. 12.5.05). The slow shift away from agriculture coupled with increasing expectations from higher educational attainment had not been matched by an increase in employment opportunities. In some *dusun* villagers complained that youth unemployment ran as high as 70%.

Limited opportunities in Pabelan resulted in some seeking opportunities elsewhere. In early 2005, 218 individuals were reported as working outside of Pabelan. 157 of these individuals worked in the capital Jakarta and its urban surrounds (*Jabotabek*) and in Batam (part of a free trade zone in the Riau islands off Singapore). 36 were reported to be in Malaysia, seven in Saudi Arabia, one each in Taiwan, Singapore and Hong Kong. Bar two, the remainder worked in other areas within Indonesia. The work was usually within the construction sector or factory work or as maids or cleaners. The remaining two worked on cruise ships. (Semi-structured interviews. 10 *dusun* heads, November 2004). Working on cruise ships was a recurring topic in discussion with young men in the village; and had taken on an almost mythical status for some. Working on the ships was seen as a sure fire way to gain capital. There were a number of agents in Yogyakarta who offered to fill places on the ships; however this was expensive with some reportedly charging a fee of between IDR 6 to 7 million (US$ 666.68 to 777.78). One young individual who was studying for a hotel and tourism diploma in Magelang with a view to working on cruise ships reported finding information from the telecentre of a company in Jakarta that did not ask for a fee (Informal discussion. Male, poor. 24.1.05).[105] Enthusiasm for working on cruise ships stemmed from stories of one individual who had worked on the ships in 1997. He saved enough money, allegedly, to return and build a house and start a store in Muntilan. Stories were also told about villagers being tricked into doing menial work abroad by unscrupulous agents when they were expecting better, and better paid, work.[106] With a significant number of individuals seeking work outside of the village the question of remittances, their transfer and their potential contribution as a source of capital is raised. This is further discussed below.

7.2.2 Being poor in Pabelan

Theoretically the concept of poverty is, as previously discussed, hard to define. From an outsider's, or etic, perspective this was no less the case in Pabelan. From such a perspective it was evident that poverty in Pabelan was normalising. For the poorer member of the community issues of poverty were often related both directly and indirectly in terms exclusion and difference as indicted in the discussion of *kelompok* above. As illustrated in the previous chapter the implementation of the telecentre through such institutions and related institutional mechanisms stood contrary to the stated 'pro-poor' aim.

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[104] Inheritance in Java is usually split equally between sons and daughters.
[105] See: http://www.sbimanning.co.id (17.6.09)
[106] For an overview of the types of conditions facing migrant Indonesian workers, especially women, see Michelle Ford 2002.

Comments regarding the telecentre frequently emphasised the telecentre's perceived exclusivity: 'it's not for me', 'it's not for the little people (*orang kecil*)', 'it's only for the educated', the 'young', or even 'those above (*orang di atas*)'. The telecentre inadvertently encapsulated both the intention to overcome exclusion and the act of exclusion itself. In this manner poverty shaped perceptions within Pabelan and excluded from both within and without. This textured understanding of being poor is reflective of a liberal human development understanding that looks beyond purely the ability to access and command economic capital resources. The relative nature of poverty was also readily apparent within Pabelan. Relative and often stark differences in material wealth were apparent and could be observed in the media available within the village or alighting from the tourist buses at Borobudor. However, such understandings did not neatly tally with emic, or insider's, interpretations and communicated priorities.

The fundamental issue and concern regarding poverty that was most readily cited was a lack of financial capital (*modal*) or, simply, money. While this narrow view of poverty as dearth lacks a degree of contemporary credibility (or fashionability) within a broader human development understanding that emphasises security, opportunity and empowerment for the poor. In Pabelan it was evident that the secure, the empowered and those with opportunities had money. A common denominator was clear in this regard. While the need to acknowledge the multi-faceted nature of poverty was apparent in Pabelan, such as with regard the issue of exclusion, this narrower interpretation also assisted in understanding responses, as indicated by poor participation, to the telecentre. In one regard it was, as described in the previous chapter, unclear who the telecentre was for and what it was to provide access to. Similarly, it was unclear how exactly this venture related to the issue of poverty as understood as a lack of money. Any assumed link between the abstract notion of information and the increasing of capital resources seemed tenuous at best. While the poor employed various strategies to secure economic capital through formal and informal strategies both within and beyond the village boundaries, the telecentre project did not directly address the issue of capital resources.

Nevertheless, things in Pabelan, in keeping with Javanese culture, were not frequently addressed so directly. A common reason (*alasan*, meaning both reason and excuse) for the poor not visiting the telecentre in Pabelan was simply not having the time to do so. This (polite) *alasan* was frequently heard and was presented in terms of the extended time and effort needed to secure daily needs. Observations, however, did not bear this out. It was very rare, for example, that individuals did not have time to stop and talk to the foreign researcher. Time was made where a sufficient degree of interest and curiosity prevailed. It was also noted that some poor individuals would go to lengths to access information first hand. For example, the researcher accompanied one small group who travelled to a village around 15 km away to locate and find out more information from an individual there that they had heard was breeding freshwater shrimps. However, for women available time did seem more limited. Alongside household chores it was not infrequent for women to be the main breadwinner within the household. For example, this would be through small-scale trading at the market (*pasar*) with the husband dependent on the vagaries of occasional labouring. Occasional labouring for men was largely within the rural construction sector rather than within agriculture.

The day started early in Pabelan with the first call to prayer at 4.00am. Additional tasks reported falling to women included food preparation at around 5 am and again in the evening. This would be followed by preparing children for school, laundry and cleaning. The early morning swoosh of brushes against concrete or hardened earth is a familiar sound to anyone who has stayed in rural Java. Additional responsibilities falling to women lay in managing the household budget with regard to securing daily needs. By 8 am (earlier if women worked in the *pasar*) women would start their work or possibly help in the fields if they had no independent source of income. Between 12 am and 3pm was a quiet time in the village with individuals returning home to rest. This was followed by further work. By sunset (*magrib*) all returned home as it was considered unsafe in Javanese culture to be outside at dusk. Following the evening prayer evenings were passed helping children with homework, reciting the Koran for the more devout, occasionally attending community meetings and the universal pastime of watching television for those who had access (PRA, 17.6.05). In terms of time spent working it seemed reasonable to concur that women bore the heavier burden. However, for both men and women time could be found for a range of activities if the activity was considered inherently worthwhile. The telecentre did not meet these requirements for the poor.[107] For mothers with young children the workload was clearly higher. Some mothers with young children from poor households reported difficulties in visiting and attending events with young children. This was seen as a further barrier to accessing the telecentre. For these women, however, the lack of opportunities to earn income from home while looking after their children was a more pressing concern.

Attempts to better understand poverty in Pabelan invariably reverted, as noted, to a lack of economic capital or *modal* as the central and primary limiting factor. This was also extended to being of such import that all available time was said to be devoted to seeking to overcome such constraints. However, this was not the observed case and in terms of the telecentre this was a useful strategy to deflect attention and provide a socially acceptable excuse for not visiting. Nevertheless, seeking more nuanced emic understandings of poverty proved difficult beyond observation and interpretation of others' situations. The limiting factors reported invariably returned to the lack of *modal* perspective. This was linked to the inability to save and the difficulties of borrowing and the risks involved. By way of example one farmer reported managing to borrow IDR 1,000,000 (US$ 111.11) from a local bank in Muntilan (*Bank Rakyat Indonesia*, BRI). BRI is a state owned commercial bank that provided services often in rural areas. This was possible by placing his motorbike as collateral. The repayment schedule was 12 monthly payments of IDR 115,000 (US$ 12.78). This was considered incredibly stressful as it was not easy to meet payments. The cost of losing the motorbike, and of having to replace the motorbike, was said to have been considerably higher than the cost of the loan. (Informal discussion. Farmer. Male. 16.8.05). However, having the resources, and the nerve, to borrow from BRI set this individual apart from many. Land could also be used as collateral by the landed. However, the majority working in the agricultural sector did not have, or no longer had, this option. The inability of

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[107] With the new management team in place it should be noted that opening hours at the telecentre were extended to better reflect household activities.

poor individuals to access capital through borrowing was a major concern and is further addressed below.

Not being able to save and accumulate capital presented daily difficulties. Women from poor households reported receiving around IDR 10,000 (US$ 1.11) a day from their husbands; assuming, of course, the latter had work. Some women had independent income, for example selling brooms, foodstuffs or traditional medicine (*jamu*), and this could boost incomes to around IDR 25,000 a day. However, there was no guarantee that money would be available and received every day. As such, women reported trying to anticipate and plan ahead with whatever funds they had from day to day. It was reported as being possible for women from poor households to plan ahead for maybe one or possibly two days at most. Women further reported the need for independent access to capital separate from their husbands. On top of this, there were the bills to pay such as for electricity and as one women complained: 'I have to pay electricity bills of IDR 15,000 (US$ 1.67) every month and I don't even have a fridge or a water dispenser- that's only for light and a television'. (PRA. Female, poor, 13.6.05).

By far the biggest concern for many was the cost of schooling. The cheapest high-school equivalent option was to attend the *pesantren*. Attending the *pesantren* cost IDR 6,000 (US$ 0.67) a month. However, this was seen as a less popular option as attending the *pesantren* meant long days and children would not arrive until 10 pm on some nights. Junior high school cost IDR 20,000 (US$ 2.22) a month. This rose to IDR 40,000 (US$ 4.44) per month for senior high school. Before entering senior high school there was a charge of IDR 1,000,000 (US$ 111.11) (*uang gedung* or *uang bangunan*). The repeated emphasis, as noted earlier, on education for children was reflective of what some poor parents reported as being their own lack (*kekurangan*) of knowledge, specific skills (*ketrampilan pas-pasan*) or human resources (*sumber daya manusia*). Coupled with a lack of opportunities for the young education was seen as increasingly important. Simply, parents in Pabelan, just as parents elsewhere, wanted a better life for the children and formal education was perceived as a route towards this. Again, this reiterates the poor choice of students for the English course at the telecentre. This is all the more the case as it was with conversations on the topic of education for one's children that an understanding that information, knowledge and poverty were linked was evident within the community.

The above discussion illustrates a lack of opportunities born of limitations that spanned from securing daily needs to the future of the community's children. For some older members of the community this was just as things were and always had been. This was in some way captured by an elderly woman who lived near to the *pesantren*. She was widowed 10 years previously and was not employed in the formal sense. She had a small parcel of land that she used to grow produce for her own consumption. She was by any standards poor. She had 3 children. Two were at the *pesantren* and the eldest had left to work in Singapore five months ago. She was not sure what her daughter was doing in Singapore as she had received no news. 15 years ago she and her husband donated most of their land to the *pesantren*. When asked if she had received any money she simply replied: 'No, it's not important, it was religious charity' (*tidak apa-apa, buat amal* [*amal*- Javanese]). It was, just as things

were (Informal discussion. Female, poor. 30.6.05). While there was a degree of fatality for some about one's place in this world, no doubt influenced by the paternalisms of Sukarno and Suharto and the hierarchy of Javanese culture, for others there was adequate space for agency and resistance. However, it was also clear that poor individuals expressed their agency in a range of ways and this is discussed with regard to markets below. However, first it is worth briefly reviewing in more detail some of the other ways in which the poor sought capital resources and security in Pabelan.

7.3 Alternative capital resources

7.3.1 Remittances

As noted above, limited opportunities in Pabelan led to a number of individuals seeking opportunities elsewhere. The fact that individuals were working, or were seeking work, further afield suggests a need to question the extent to which remittance payments contributed to the transferral of economic capital and to security amongst poor households. With increasing mobility of labour and increased opportunities for improved ICT enabled communication there has been speculation as to ways in which ICTs may contribute to reducing the transaction costs associated with sending and receiving remittance payments (McNamara, 2003; FOCAL, 2005). Out of the 216 poor households surveyed in Pabelan, 46 of those with family members working outside of Pabelan reported receiving remittance payments. The remaining 30 of those households with family members working outside of Pabelan did not receive remittance payments. It was reported that while it was the norm for married individuals to send back money, it was not necessarily regarded as an obligation for unmarried individuals. Rather, working outside of Pabelan was seen as an opportunity to acquire individual financial capital and often prior to marriage. 17 respondents estimated that remittances accounted for less than 5% of their household income while 13 respondents estimated remittances counted for 16% to 20% of household income. Four respondents estimated that remittances accounted for over 20% of their household income (Household survey, Feb 2005).

The majority of remittances (22 respondents) were transferred by *Wesel*; a transfer service run by the Indonesian post office. 17 respondents reported receiving money in person. Receiving money in person also indicated the infrequent nature of receiving remittance payments. Although these payments were an important source of capital for a small number of poorer households, they may only have received this money during the holiday period of *Lebaran* following the fasting month. At this time it is traditional to return home to the village and it is customary to bring gifts. As such, it seemed unlikely that the telecentre would play a significant role in improving receipt of remittance payments. Secure transfer methods already existed and the culture of sending remittance payments was not strong among the main group (young unmarried individuals) working outside the village. Also, mobile phones seemed to have a comparative advantage if communication was needed. Communication with relatives outside of Pabelan, if it was done at all, was usually via the *wartel* (26

respondents). However, in 2005, 23 respondents were already communicating with family members outside of Pabelan via their own, or a borrowed, mobile phone (Household survey, Feb 2005). It was expected that the mobile phone, especially with falling SMS costs, would win out over the Internet in terms of accessibility, ease of use and convenience for communicating with younger family members abroad.

7.3.2 <u>Credit</u>

Far more significant to poor households than remittance in terms of accessing capital was the ability to access credit. Pabelan had a micro-credit scheme run within the village administration (*Sisa Hasil Usaha, SHU*). This was established in 2003 under the Ministry of Home Affairs (*Departemen Dalam Negeri*) as part of a village level economic development initiative (*Usaha Ekonomi Desa*). Initial funds from the ministry were reportedly low (IDR 2 million or roughly US$ 222.22) and the SHU also borrowed from a bank (BRI, Muntilan) and from the PKK. Borrowers could borrow up to IDR 1 million (US$ 111.11). Borrowers could borrow less, although none reputedly had. Interest was charged at 2.5%. The SHU was for existing businesses and small traders to access business capital. Borrowers had to meet criteria and have some security (*gadai*) in order to borrow. 10% of the money borrowed was kept as a 'deposit' by the SHU and invested. Borrowers became part of the SHU cooperative and received a return on the investment every December. The SHU reported it had lent to 50 individuals by the end of 2004 (Semi-structured interview. SHU office, 2.12.04). The scheme operated at the village level and was housed next to the village head's office (*balai desa*) to the north of Pabelan 4. At the dusun level there were informal sources of credit and some rotary savings scheme (*simpan-pinjam*) with a particularly active group in Blangkunan Selatan. This group had 57 members and had been running for 6 years (Semi-structured interview. Male, Sub-village head. 18.8.05).

Farmers could not borrow from the SHU scheme. The reason provided was that farmers could not make regular repayments and as one official noted, '[f]armers are difficult to lend to. If they have a bad harvest, they can't repay. If they have a good harvest, the price falls and they can't repay.' (Informal discussion. Female, SHU official. 17.3.05). Previously, in 1999, there had been a scheme targeting farmers (*kredit usaha tani*, KUT) initiated by the BPPM. The scheme targeted farmers' groups and was administered by a committee. Money could only be used for the purpose specified, which meant farmers could not change crops or strategies after they had borrowed the money. Rumours abounded about the demise of the KUT including suggestions of the misappropriation of funds by both farmers and the committee; a favourite source of speculation for some in Pabelan. However, the failure of the KUT seemed to have come down to management difficulties and ultimately, as reflected in the case of the SHU initiative, a lack of suitable financial products for, and flexibility towards, farmers. The way in which farmers play the market and manage risks is discussed below. This discussion also indicates the ways in which flexibility in the choice of the goods produced may be preferable for poor farmers.

Other sources of credit in the village included the informal moneylenders known as *rentinir* and *bank plecit*. Both charged high rates of interest (around 10% accumulative cited) and in the case of the latter required almost immediate return of funds making. This made informal borrowing in this manner a matter of weighing up the high costs involved, and the need for quick repayment, against the benefits of immediate access. In comparison to the banks in Muntilan, which required an initial survey, guarantees and minimum borrowings of IDR 2 million (US$ 222.20), the moneylenders provided a quick and readily available service. That so many poor individuals should borrow from such sources is telling and indicates the persistent difficulties in accumulating capital directly through labour. Credit would also be extended by traders and local stores and is discussed further below with respect to market actors and relations. While regarded as a somewhat sensitive topic 43.5% of poor households surveyed reported having accessed credit. This is notable in comparison to the 21% who reported receiving some form of remittance. Of the households that reported having accessed credit 21.3% used the credit for economic purposes, 12% used credit for basic needs and 5.1% towards the costs of education for their children (Household survey, Feb 2005).

7.3.3 Government social services

During the research period there were a number of social services available to poor households. Registration and decisions on eligibility for these services were via the village administration with data generally being passed up to the village level from the RT level. For access to free healthcare villagers could receive a health card (*kartu sehat*) that allowed free medical services in government run clinics and hospitals. In mid 2005 the *kartu sehat* system was replaced by a new health insurance scheme (*asuransi kesehatan masyarakat miskin,* ASKESKIN) under the administration of the state owned insurance company PT Askes Indonesia. Village officials reported requiring 2,448 *kartu sehat* in 2004, but only were able to distribute to 1,114 individuals (Informal discussion. Village head, 2.2.05).

Perhaps the most controversial programme in Pabelan was the subsidised rice for the poor programme (*beras untuk masyarakat miskin*, RASKIN) administered nationally by the state logistics agency (*Badan Urusan Logistik*, BULOG).[108] The standard price for a kilogram of rice under RASKIN was IDR 1,000 (US$ 0.11) at the central point of delivery in the village. Additional charges were made for delivery beyond this point. In Pabelan this charge was IDR 100 (US$ 0.01). In theory, households were eligible for 20kg per month. According to village officials there were 635 eligible households in Pabelan. However, the village only received enough rice for 300 households. This was seen as a major problem by the village officials; particularly as it was a significant source of discontent. A compromise solution was implemented in Pabelan whereby households received either five or ten

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[108] The state monopoly, and scourge of the IMF, BULOG has been revamped as a state-owned non-profit enterprise since 2003. BULOG is responsible for food security and price stabilisation of basic foodstuffs; primarily rice. For an insight into BULOG's colourful past, array of bank accounts and, allegedly, its role as a piggy bank for New Order cronies see Asia Times, 23.8.2003

kilograms of rice instead of the full quota.[109] Some households reported that even this was received intermittently. The decisions regarding who received how much was made in collaboration with the LKMD, PKK and RW and RT officials. Allegations of corruption, including the selling of rice by village officials, surrounding this arrangement were not infrequently heard from poor individuals.

In 2005 the Indonesian government began the process of removing oil subsidies in order to bring oil prices in line with global market prices. Prior to this initiative Indonesia had had some of the lowest domestic oil prices in the world. In order to avert what was predicted as widespread public unrest the government provided grants to poor households. Eligible households were to receive IDR 300,000 per quarter for one year. As well as the increase of prices at the petrol pump, the costs of basic foodstuffs similarly rose. With regard to the discussion of markets and prices that follows it is important to note that inflation rose to over 17% in 2005 during the research period. By mid 2006 the inflation rate dropped back to below 7% (BPS, 2009).

These government initiatives contributed to the security of individuals in terms of access to basic foodstuffs and medical services. However, these services did not reach everyone who was eligible as indicated and could be a source of some conflict and discontent. The constraints attributed to the reported problems of supply and allocations by the village administration in the provision of these services were not always readily accepted by the poor. Rather the provision of these services appeared to be contrary to their intended aims and exclusive. As such discontent would be directed at the government and the nearest representatives were the village authority. This again mirrored responses to the telecentre and its perceived alignment to the local elite. Although the provision of social services was significant to poor households, there was also a divisive element and for some this was interpreted as disempowering. It was also the case that changes in circumstances within a household could have dramatic effects and social safety nets were not always sufficient. During the research period the researcher was aware of one head of a household falling ill and requiring treatment in Yogyakarta. Faced with, relatively, large medical bills and a lack of immediate capital resources the family was forced to sell their land. The individual died and the family's capital resources base (in terms of human, economic and physical capital) was seriously depleted. Such stories were not uncommon and provide some indication of what it meant to be poor in Pabelan.

7.4 Existing socio-economic relations: Actors, goods and transactions

7.4.1 Agriculture in Pabelan: An introduction

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[109] Generally, reports reflected the 'official' village compromise, however, some respondents reporting receiving as little as three of four kilograms per month under *beras raskin*. This was more common in two *dusun* in particular.

The chapter continues with an examination of the existing forms of socio-economic relations that were present within the agricultural sector within Pabelan at the time of the research. In this regard the research is concerned with deepening understandings of the market relations that poor individuals enter into within the agricultural sector following the analytical structure presented by Plattner. It is the claim that ICT4PR initiatives, such as e-Pabelan, could impact positively upon such market relations that is of concern. However, the way in which existing socio-economic relations may impact upon an ICT4PR project such as e-Pabelan is also of interest.

While Pabelan could still be characterised as an agricultural community, households that owned land and made a living solely from farming did not represent the majority. Findings from the e-Pabelan baseline survey suggested that 31.3% of households in Pabelan farm; with the service sector at 28.6% followed by an opaque category of 'others' at 15.6% (PT Risadata, 2004). However, 52.8% of poor households surveyed worked within the agricultural sector (Household survey, Feb 2005). The majority (37.7%) were farmers without their own land who either sharecropped or rented land. 28.9% of households that farmed reported owning their own land. However, poor households' farm sizes were small and were not often larger than 0.2 hectare.[110] Some farmers that were in a position to do so would combine strategies and sharecrop alongside working their own land. The percentage of households that made a living from working as occasional farm labourers within the agricultural sector was 19.3%. A handful of poor farmers rented out their own land and a few poor households had livestock only.[111] (Household survey, Feb 2005).

Of the poor households that reported working in agriculture 67.9% reported additional sources of income (not including remittance payments). These sources included trading, petty commodity production and labouring. 28.9% of farming households reported receiving remittance compared to 21.3% for all poor households. Even with additional income sources, estimated monthly household incomes for 79.6% of respondents were below IDR 500,000 (US$ 55.56). 34.3% reported monthly household incomes below IDR 200,000 (US$ 22.22) per month. The percentage of households that reported selling their agricultural produce only was 24.7%. The majority of 54.8% reported mixed household strategies of selling produce coupled with retaining produce for own consumption. A significant 19.4% did not sell their produce, but instead kept produce entirely for their own consumption.[112] (Household survey, Feb 2005).

In summary, e-Pabelan was correct in identifying the importance of farming for poor households. However, the project did not adequately anticipate just how marginal an activity farming was for the

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[110] 1 hectare = 10,000 square metres. The local unit often used is a *kesok*. 1 kesok = the amount of land that can be ploughed by two buffalo in half a day; somewhere around 1,000 square metres. Owning only one *kesok* is not uncommon. A few farmers reported owning one quarter of a *kesok*. The upshot of such small farm sizes is that they are not economic and the economic attractiveness of selling the land increases as the farm gets smaller and land prices in the area rise.
[111] The research does not address those poor farmers that primarily owned livestock. These were few in number and for poor households usually it implied ducks and chickens, which were kept in small numbers and sold locally. One individual interviewed also bred fighting cocks, which could command high prices in Muntilan. Cock fighting was (technically) illegal. Larger livestock were the preserve of the better off, although occasionally poor farmers would invest in a share of an animal. It is assumed that e-Pabelan targeted the majority of poor agrarian farmers.
[112] The balance is due to 1.1% missing data from respondents.

majority of poor households and the varied strategies employed to secure livelihoods that were embodied within farming. The chapter proceeds by drawing on Plattner's categories of actors, goods and transactions in order to examine the relationship between how poor households secure their livelihoods within agriculture in Pabelan and ICT4PR.

7.4.2 <u>Market actors: Farmers</u>

The primary target group for e-Pabelan was poor farmers. It has been noted, above, that farmers in Pabelan exhibited a range of livelihoods options that could be classified as farming (*pertanian*). The particular target group within the broader agricultural sector that e-Pabelan sought to assist was not specified; except that they should be poor, which again was without qualification. In this sense the e-Pabelan project approached the issue of poverty among farmers in broad brushstrokes. However, in order to better understand the context into which the telecentre was established and that it in turn sought to influence it was necessary to distinguish between the different agricultural actors that the term farmer encompassed and their position with respect to markets and market participation. Within Pabelan three main groups of farmers could be identified. The first group were landless labourers, who operated within the labour market first and foremost. These farmers were largely dependent on other, and often poor, farmers and were considered the most insecure. The livelihood options of landless labourers were severely limited and were dependent on the wider market for agricultural products. The second group of actors were those subsistence farmers that did not participate in market exchange and grew agricultural produce as their primary livelihood strategy. This second group were considered more secure than landless labourers, despite their lack of market participation. The third group was farmers that generated surplus for sale. It should be noted that these were considered primary livelihoods activities by respondents; bearing in mind the need for many poor households to employ varied strategies.

As noted, around one fifth of poor individuals working in the agricultural sector in Pabelan did so as casual labourers. Ease of entry into this market was a major contributing factor for poor households. Some individuals (generally male) would also secure occasional cash wages as construction labourers as this was potentially a year round option. Opportunities were considered greater for young men in Santan with limited opportunities in central Pabelan. Casual labourers assisted in preparing land (generally hoeing), planting and/or harvesting. Planting and harvesting was usually conducted by women and hoeing would be conducted by men and women. In general, farmers were able to plant rice three times a year in Pabelan although rotation of crops was common. This presented nine main periods of opportunities throughout the year for labourers. The bulk of these opportunities fell within the dry season with long periods of unemployment during the wet season the norm.

Daily wages for hoeing were reported to be around IDR 10,000 (US$ 1.11) per *kesok*. For planting rice wages would drop to as low as IDR 3,000 (US$ 0.33) with women often working in groups of 6

and dividing the money between them.[113] While in effect amounting to a daily wage these amounts reflected the amount of land covered and often would be completed in less than a day. Harvesting presented the choice, at times, of receiving cash or rice in payment; one to one and a half kilograms per *kesok*. This choice would present a rare opportunity for negotiation for the labourer. If a hiring farmer was better off (*orang mampu*) there could also be the possibility of negotiating a higher price. Where hiring farmers were poor, it was expected that negotiation was not possible. The employment of labourers by farmers was considered mutually beneficial with farmers earning a degree of social kudos from being able to provide work to others. Information regarding work was received passively and by word of mouth. For hoeing, a farmer would seek out labourers that they knew directly. For planting and harvesting teams, farmers would approach a key individual who would pass on the information to their friends and neighbours.

For some poor households labouring helped supplement other income. Those that relied solely on selling their physical labour were the poorest of those engaged within the agricultural sector in Pabelan; and as such within the community. These individuals were linked in to a market that was largely reliant on the productive capacities of other poor actors. As such, opportunities for accumulating capital were minimal and security was dependent on demand for produce within the wider agricultural market to which they were tenuously linked. In terms of poverty reduction, of which ICT4PR clearly lays claim to, landless labourers were among the poorest in the agricultural sector in Pabelan. They were also the group who most clearly exposed the limitations of ICT4PR as an isolated development activity. The market such labourers operated within was local and limited and the information required for securing work in that market was local also. As the information chain reminds, the provision of information means little if individuals do not have the means to apply that information. Landless labourers as a rule did not. To this it must be added that information must be relevant and needs to be communicated appropriately in relation to needs.

Poor households whose main livelihood option was to grow food for their own consumption were often landed. However, this was invariably land of limited size that prevented the generation of substantial surplus. The renting of land was also problematic for subsistence farmers and beyond the means of those with highly limited resources. Sharecropping was also not often possible as it would have required an increase in capital inputs (seeds, fertiliser and so forth) that were often outside a poor farmer's means to procure.[114] Despite limited engagement with the cash economy in comparison to the landless labourer, farmers that grew food for their own consumption had a wider range of livelihood options. As such, they were considered as being more secure in relative terms. However, this was more a matter of degrees than a clear distinction.

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[113] Wage for casual labourers in Pabelan working in construction were quoted as being between IDR 12,500 (US$ 1.39) per day to IDR 22,500 (US$ 2.50); the latter being for more experienced and skilled labour. Households that relied on selling their labour in Pabelan would take construction work where possible.
[114] For example, planting one *kesok* of IR 64 would require around 70 kilograms of fertiliser at a cost of around IDR 1,200 (US$ 0.13) per kilogram. (Interview, seed shop owner. 16.5.05).

Rice as the primary staple was the usual crop grown for own consumption although other secondary crops including vegetables were grown (see below). Rice also presented the advantage to the subsistence farmer that it could be dried, milled and stored. Rice, therefore, presented opportunities to trade and barter with local stores over time. There were a few small traders in Pabelan who would buy small quantities of rice. Subsistence farmers preferred to sell rice in small quantities as the need arose. As such, the quantities involved could be as low as two or three kilograms. The options for selling such small quantities of produce were limited and so were the opportunities for negotiation. Traders that were prepared to buy such quantities were usually small storeowners within the village who could sell directly on to consumers. These traders would expect to make around IDR 500 (US$ 0.05) on the kilogram.

Some subsistence farmers would supplement incomes through selling their labour. Owned land was also an asset that landed subsistence farmers could sell for short-term gains if the need was considered immediate and the benefits were considered to outweigh a potential fall in security at a later date. While among the poorest, subsistence farmers were the precise demographic that were least likely to use the telecentre; the elderly poor.

Moving away from the poorest actors in the agricultural sector the potential of ICT4PR would perhaps seem brighter. While not explicitly specified within e-Pabelan documentation it was inferred that those poor farmers that generated surplus and were able to sell goods within the cash economy were the primary target of e-Pabelan. It was these farmers, after all, who were at the mercy of the 'unscrupulous' middlemen. Such farmers employed mixed strategies and could own their own land, rent, sharecrop or combine approaches. Within the household they were also likely to consume some of their own produce and also have alternative income sources. The latter indicating the difficulties inherent in earning a living solely from farming in Pabelan. In general, farmers that fell into this category were considered to have access to a greater range of resources and a more diverse livelihood basket. This in turn contributed to relatively higher security for these actors. During changes to the structure of the e-Pabelan project and the introduction of the new management team the emphasis, as noted, was to stay on a narrower interpretation of poverty reduction. The management team reported being informed that e-Pabelan should focus on the poor, but not those that were too poor (*miskin, tetapi tidak terlalu miskin*) (Informal discussion, female, telecentre management team. 7.6.05).

In light of the limitations that the poorest (landless labourers and subsistence farmers) in the agricultural sector faced, prioritising farmers that generated a surplus seemed reasonable. However, the bypassing of the poorest actors cast serious doubts on the validity of ICT4PR as a viable poverty reduction tool in Pabelan and suggested the prioritisation of ICT4PR as a concept over and above its utility. Further, it was clear that such an approach indicated a lack of awareness of the conditions of poverty in Pabelan and the way in which poor households secured their livelihoods. For those observers that choose to focus on the importance of providing technology focusing on the poor, but not too poor, may be viewed as realism. In contrast, for those that choose to focus on the reduction of poverty this may be read as duplicitous.

7.4.3 Market actors: Traders

The market structure for agricultural produce in Pabelan showed little variation from the example provided by Alexander (1987) above. Products would often be bulked and then split for sale to consumers. In some cases this process could be bypassed such as through the example of a subsistence farmer selling small quantities of produce to a local store. Nevertheless, the traders in Pabelan that farmers dealt with followed a similar pattern to Alexander's example and similarly were characterised by the quantity they traded. *Bakul* were the smaller traders; usually women, the most numerous and were often poor. The term *pedagang* (trader or merchant) was used for larger traders and *pengumpul* (collector) was used to refer to traders that bulked produce. Perhaps the most important consideration with regard to understanding traders operating in Pabelan was that they specialised and could be directly linked to specific goods within the market. There were primarily three types of trader in terms of goods. These were for rice, vegetables and secondary crops (*palawija*). *Palawija* is a generic term that refers to non-staple cops including maize, nuts and cassava. Traders

would sometimes combine dealing in vegetables and *palawija*. However, it was rare for a trader to combine rice with other goods.

Rice was considered the most specialised of the three fields and larger rice traders in Pabelan would often only deal in milled rice (*beras*). The more numerous *bakul*, however, would often deal in wet rice (*gabah*) traded directly from the field. A further specialised intermediary was a *tukang tebas.* A *tukang tebas* was a farmer who would act as an intermediary between farmers and *bakul* for the sale of *palawija* primarily. The *tukang tebas* would actively seek out different buyers and seek the best price in local markets. This individual would bulk produce from a number of farmers and sell for a prearranged price to a larger *bakul.* The *bakul* could then collect the bulked produce from the side of the road. The coordinating function of the *tukang tebas* reduced transaction costs for both farmers and *bakul.* He (usually in Pabelan) would take a cut for his services. Further specialised traders operating in Pabelan dealt in tobacco. On the edge of Selak there was a tobacco processing factory. Farmers in Pabelan were not in a position to sell directly to this factory and, incidentally, the majority of workers at the factory were from outside of Pabelan.

The relationship between traders and farmers is expanded upon in the discussion of transactions below. However, there are two important points from the above that are worthy of emphasis as they both cast doubt on the received understandings of markets common within ICT4PR. Firstly, trade in agricultural produce in Pabelan was a specialised occupation. This observation casts doubts on the assumption that farmers in Pabelan would be suitably equipped to establish and maintain themselves within new markets, that is, act as traders. The second observation is equally pertinent to ICT4PR in Pabelan. The example of the *tukang tebas* illustrates that poor farmers in Pabelan were, at times, willing to pay a third party to search for information rather than to conduct that search themselves. This not only indicates the high transactions costs associated with search for both farmers and traders, but also the level of work required by the latter in order to maintain relations with other market actors in order to ensure a ready supply of information.

7.4.4 Agricultural goods in Pabelan

Rice was the main agricultural commodity grown in Pabelan. High yield varieties (HYV) were commonly used and resistance to pests was highly valued.[115] Irrigation allowed up to three crops a year; however, some farmers in the south of Pabelan complained of insufficient water during the dry season. Dry season crops included peanuts and tobacco. Maize was also commonly grown. Alternating with secondary crops (*palawija*) was common practice. Sweet potato, cassava, tomatoes, melon, bitter melon (*pare*), long beans, and chilli were commonly grown. Wet rice fields would also be supplemented with young African catfish (*lele*) or silver pomfret *(ikan bawal)* bought from small

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[115] Common varieties were indica rice (IR) 21 and IR 64. Hera and Muncul varieties were also reported as common. Yields for rice in central Java were between 4.49 to 6.09 tonnes per hectare (Makarim, 1996). One *kesok* in Pabelan was commonly reported to give a yield of around 400 kilograms for rice, 500 kilograms for maize and 70 kilograms of peanuts.

fisheries on the Borobudor road. Fish could be reared for one month and sold quickly on for a small profit. Poor farmers were, therefore, faced with a portfolio of prospective goods from which to choose. Rather than present a lengthy (and repetitive) review of all agricultural goods in Pabelan the following focuses on rice and also the growing of tobacco and chillies. As such, both rice and *palawija* are represented. The justification being that these present contrasting goods that occupy opposite ends of a continuum of risk for farmers in Pabelan. The examples of rice, tobacco and chilli also adequately highlight conceptual problems with ICT4PR's approach to poor farmers in Pabelan.

Rice had a number of advantages to the farmer in Pabelan. These included a ready market, infrequent crop failure and the ability to store if desired. Rice could also be sold straight from the field or be dried and milled to seek a higher price. Rice, therefore, presented a range of options to the poor farmer. The planting of rice generally occurred around June, October and February. Rice was usually harvested after three months.[116] Farmers considered the October planting to be the best quality and able to command the highest price. As one farmer put it, 'if there is enough water you must plant rice. The price is reasonable even though there can be problems with pests, caterpillar [*ulat*] and planthopper [*wereng*] in the wet season. While there are less problems with dry season crops like nuts the price can be really low and the total harvest is small.' (Informal discussion. Farmer. Male, poor. 12.3.05a). In Pabelan, there was little evidence of experimentation with rice production since the introduction of HYVs. Farmers in Pabelan took few risks with rice and preferred to stick with varieties that were tried and tested. It was not uncommon for some farmers to have used the same varieties for 30 years or more.

One development that was reported as particularly significant was a change in rice planting patterns. The changes were based on the System of Rice Intensification (SRI) approach that was introduced by the government in a number of provinces in 2002. SRI emphasised a low-input approach to agricultural intervention. Examples included the earlier transplanting of seedlings, wider planting patterns with more space between individual plants and alternative irrigation patterns. Advantages included lower input costs, less water use and higher yields. (Sato, 2005). Farmers in Pabelan were introduced to the new planting patterns by district agricultural extension workers. By the time of the research a number of farmers throughout the village had adopted new planting patterns for rice. Farmers reported improved crop performance and better yields. The information, therefore, had been accessed, assessed, applied and resulted in a positive development outcome.

The adoption of new rice growing techniques was significant. This adoption demonstrated the dissemination and application of information within the confines of an otherwise risk averse agricultural activity. The implication being that farmers possibly would adopt new practices if those practices were deemed relevant and the risks of adoption could be adequately assessed. The risks for early adopters could be evaluated through face-to-face interaction, questioning and discussion with the agricultural extension workers. There were also opportunities for follow up over time. Later

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[116] Note prices would drop at the main harvest (*Panen Raya*) after the wet season around May.

adopters could simply wait and, quite literally, see if the promised outcomes materialised. In contrast and viewed from the perspective of the information chain, the telecentre did not offer any equivalent level of interaction required for the effective assessment of information. Such mechanisms were not in place; even assuming information would be accessed at the telecentre. There were two further points of note. One was the fact that although deceptively simple the replanting information was of a technical and specific nature; it was not basic information. The second point was that the replanting information did not require significant capital inputs for it to be applied. In terms of goods the example was highly significant as it was a rare example of innovation within an agricultural activity that was more often characterised by its conservatism in Pabelan.

Farmers would complain that the price of rice would fluctuate as it clearly did over the research period. In August 2005 farmers reported the price of *gabah* being between IDR 1,200 (US$ 0.13) and IDR 1,700 (US$ 0.19) per kilo and for *beras* at around IDR 4,000 (US$ 0.44) per kilogram. However, compared to other produce the price of rice was relatively stable in that it did not suffer from the drastic market shocks that affected produce such as chillies and tobacco. The low risk of crop failure and the ability to complete transactions presented a source of stability and security for farmers. Rice may not have made farmers rich in Pabelan, but it could be relied on. This allowed farmers in Pabelan to take their risks elsewhere. The growing of chillies and tobacco, in contrast, were both considered high-risk goods with potentially high returns.[117] Both crops were frequently planted in Pabelan with chilli the more common; the reason being that tobacco was considered more resource intensive in terms of time and inputs required. Chillies, on the other hand, could be planted by a wider range of actors, including subsistence farmers in some instances. Both crops were reported as being susceptible to disease and, acutely in the case of tobacco, sensitive to climatic changes. Heavy rainfall, for example, late in the growing cycle for tobacco could destroy a crop. The price of these crops fluctuated wildly. Failure of crops and markets were reported for both in Pabelan.

Both chilli and tobacco were harvested at intervals, or pickings (*petik*), in Pabelan. Prices for tobacco were generally lower for the first *petik* with later *petik* (up to five could be achieved) higher as they produced the better quality crop. Reported prices for tobacco could reach IDR 50,000 (US$ 5.56) per kilogram. However, in order to achieve these higher prices the farmer would need to hire workers to harvest the crop and then dry the tobacco herself. Accepting lower prices would transfer such costs to the trader. More resource poor farmers, and a number of older farmers due to the heavy nature of the work, were unable to seek higher prices in this way. If sold wet directly from the field, prices ranged from IDR 500 (US$ 0.05) to IDR 3,000 (US$ 0.33) per kilogram depending on quality. Tobacco, as with other goods, therefore presented a number of strategies to the farmer. Farmers reported the failure of tobacco crops due to rain late in the crop cycle in 2004. As no crop could be sold the plants were simply ploughed back into the fields as fertiliser. The growing of tobacco as a good was a very high-risk strategy for poor farmers in Pabelan. As one farmer pointed out there were simply two

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[117] 'The price of chillies fluctuates greatly. If the price is very good, it's possible a farmer can buy a motorbike after the harvest! The problem is the next year all the farmers plant chilli and the price drops drastically at the next harvest.' (Farmer, male, poor. 14.4.05).

scenarios; you either got a high profit or you totally lost out (*rugi total*) (Informal discussion. Farmer. Male, poor. 5.7.05). There was no in between.

Chilli was a further good characterised by risk in Pabelan. Chilli could be harvested up to three times. Pests and heavy rain during the early *petik* could ruin a crop; however, by the third *petik* plants were considered more resilient. The key issue reported concerning chillies was the rapid and drastic fluctuation in price. This could commonly range between IDR 5,000 (US$ 0.56) to IDR 30,000 (US$ 3.33) a kilogram. Fluctuations in price were reported for all crops, but not this severe. Wheat prices followed wider trends while vegetables were reported as having the greatest variation within spot markets in Muntilan, Magelang and Yogyakarta. It was, however, the rapidity of price changes within the market for chillies that set it apart as a good. The ability of farmers to manage this risk was low as they could only store chillies for a maximum of one day. Any longer, and in common with other vegetables, and there was a risk of too great a drop in quality. Prices could vary considerably in this time frame and chillies were usually sold immediately. Chillies were also considered input heavy requiring a high amount of fertiliser, pesticide and preferably plastic sheeting for soil moisture retention. Despite the very high risks associated with both chillies and tobacco the growing of both goods were considered viable livelihoods strategies in Pabelan. Previous failure was also not a deterrent. One farmer reported having two crops of chilli fail in succession in previous years (Semi-structured interview. Farmer. Female, poor. 16.6.05). These experiences did not prevent her from planting chillies for a third time at the time of the research.

The above examples of goods grown by poor farmers in Pabelan illustrate a number of key points. Most apparent is the differing approaches to risk within the choice of goods and the incorporation of goods within farmers' livelihood strategies. On the one hand, poor farmers were conservative in their approach to rice. On the other hand, poor farmers would take huge risks with chilli and tobacco and potentially suffer large financial losses. The difference in approaches, as suggested, may be understood by noting the foundational role rice played in a farmer's livelihood strategy. As such, changes in rice production were considered of the highest risk as a solid foundation in rice allowed risks to be taken with other goods. The significance for ICT4PR was that any new information concerning changing agricultural practices relating to rice production would be placed under particularly severe scrutiny by farmers in Pabelan; a point of some import considering rice was the major crop grown. The example of changes in rice growing techniques demonstrated the importance of source proximity in the assessment of information in Pabelan (see chapter 3). In situations regarded as high-risk, access to the Internet offered little in comparison to the two-way communication and engagement with an agricultural extension expert in a farmer's field. This gap is further illustrated through the conceptual framework; while e-Pabelan emphasised access, the lived experiences of farmers stressed the need for engaged assessment.

The way in which farmers assessed available information, evaluated risks and chose the goods they would produce has further lessons for ICT4PR. Perhaps the most striking, with the caveats above that apply to rice, was that poor farmers in Pabelan could not be considered to be overly risk-averse. On the contrary, farmers would often actively and repeatedly seek out high-risk livelihood strategies that

held the potential of high-returns.[118] This observation stands in sharp contrast to the representation of the passive and forlorn farmer that is the hapless victim of the impersonal market. The way in which farmers in Pabelan managed their livelihood strategies and risk through the choice of goods contrasted with the implementing agencies image of the exploited farmer. The way in which goods were selected also contradicted the view of the BPPM official who stated 'the most important thing you need to understand about farmers in Indonesia is that they are not businessmen.' (Informal discussion. Male. 2.12.04). Such a view played down the way in which farmers in Pabelan played the market.

Playing the market in Pabelan involved the calculation of risk and of potential gains and possible losses. This process involved accessing, assessing and applying varied and often complex information and further contradicts the implementing agency view that poor farmers in Pabelan needed access to basic information; they did not and such a view seemed overtly patronising. As the SRI experience demonstrated the information that farmers required with respect to goods needed to be technical, relevant and applicable. The choice of goods was the cornerstone of poor farmers' livelihood strategies in Pabelan and allowed them to employ varied market strategies. As such, the choice of goods was in effect an expression of poor farmers' agency in Pabelan. It was this agency that allowed farmers to both manage risk, in relation to household security, and to seek potentially higher rewards within markets. This expression of agency in Pabelan is further explored in the discussion of transactions below.

7.4.5 Market transactions: Personal and impersonal exchange

If the choice of goods provided farmers in Pabelan with an underlying strategy for playing the market, it was within transactions that these choices were played out and realised. However, it was not always the case that transactions were completed. Crops could fail or demand could fall and, as such, goods may not come to market. In such cases the entire burden of risk was borne out within the choice of goods. Assuming goods went on to be sold a new set of choices required consideration. These included the way in which transactions would be carried out and the terms involved. That is, who to trade with and when and considerations of price. To a large extent the choice of goods dictated such terms. Goods dictated, for example, the actors available to trade with (trade being specialised) and whether a product needed to be sold promptly or could be stored. The way in which goods and actors came together in transactions further clarifies the prevailing socio-economic relations that poor farmers operated in and were subject to.

Plattner (1985) describes that the information most pertinent to transactions relate to price, the conditions of payment and knowing whether or not the transaction will be completed. The difficulty that can be inherent in the latter is captured in the following example, which also introduces some of

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[118] These decisions, it should be remembered, were based on experience and an existing knowledge base. Deviating from this would imply additional risks.

the transaction options available to farmers in Pabelan. The farmer in question reported growing tobacco in Selak for over 10 years. This farmer regularly changed the traders that he would sell his goods to in order to seek a higher price. He would check price information from friends primarily. The exception was for *lele*. *Lele* would be sold to a single trader who he trusted to give him a fair price and prompt payment. Rice and tobacco were sold straight from the field. This saved him the cost of harvesting and processing and he was prepared to accept a lower price to offset these savings. Five years ago he chose to sell his tobacco crop to a trader from outside of the village. This was a larger trader who would bulk produce at a warehouse in Muntilan. The trader was, therefore, considered an outsider and the farmer had been tempted by the lure of a good price; the inherent attraction of tobacco. The trader took the first *petik* and did not return and did not pay. Needless to say, this was the first and last time the farmer conducted transactions with this trader. The farmer was adamant that this would never have happened with rice. (Semi-structured interview. Farmer. Male, poor. 15.6.05).

The above example may be read as indicative of the exploitative nature of traders. However, such a reading would be partial as it omits to consider the weighing up of risks by the farmer himself. A similar story was recounted by a farmer regarding aubergine. This was while talking in the fields. The farmer pointed to a dried out crop of aubergine that had not been harvested. He said at the time of planting the price was around IDR 700 (US$ 0.08) per kilogram. It was a new crop for him. The first harvest gave around 100 kilograms and he had expected plenty more from his plants, but then the price dropped and the *bakul* he had initially sold to did not return. He said he went to see the *bakul*, but the *bakul* refused to buy; which he grudgingly understood. He laughed and said: 'Maybe I should take it to the telecentre!' (Informal discussion. Farmer. Male, poor. 27.8.05). Both examples illustrated the dangers of experimentation with unknown quantities; in terms of both actors and goods. However, for some poor farmers this could be considered reasonable in light of the possible rewards to be gained. Both farmers, and the traders involved, exercised agency and all played the market. Following Plattner, there was clearly an informational component to the above dilemmas for the farmers. However, traders also faced uncertain information within the vagaries of the markets for both goods. While the farmers were not able to accurately predict if the transactions would be completed as agreed, it is not clear how the telecentre could have helped with this particular informational concern.

Of the 70 farmers formally interviewed on the topic around half reported changing traders as the normal course of action. The reason given was simply to seek out the highest price (*cari harga*). However, the fact that many poor farmers would decide to change traders did not suggest that farmers would throw caution to the wind in the pursuit of impersonal transactions to maximise profit. Farmers that changed traders did so from an existing pool of traders that operated in that particular area of the village. The number of traders available to a farmer in a particular area depended on the good to be sold, the specialisation of the trader and, from the traders' perspective, the reputation of the farmer. For example, the number of traders reported as available to a single farmer, who changed traders, showed considerable variation. While one farmer may have been able to choose between two to five farmers in their locale for rice, a good *tukang tebas* could increase this number to 10 or more.

Selecting traders from a pool, created a number or advantages for the farmer. Firstly, for some farmers it created an element of social distance that allowed the farmer to better play the market (*c.f.* the trader's dilemma above). Contrary to Plattner's interpretation there was a disadvantage to transactions being too personal in Pabelan and this was particularly the case with kin. As one farmer noted, a key consideration for not changing traders would be if that trader was the farmer's wife (*kalau tak ganti- pasti isteri*!) (Semi-structured interview. Farmer. Male, poor. 16.6.05). This observation ran both ways. Another farmer complained how she would like to change traders, but that she was stuck with one simply because he was a relative (Semi-structured interview. Farmer. Female, poor. 6.6.05).[119] Personal networks were not always beneficial. Drawing from a pool of known traders could introduce a degree of distance to mitigate the risks of too personal a relationship. The second advantage of drawing on a pool of traders was that the risks associated with trading within impersonal networks could be minimised. It was unlikely that a trader operating in a particular locale would default as they were keen to maintain their reputation and continue to work in that area. Through drawing on a pool of known traders, farmers were able to minimise the risks associated with transactions within too personal a network and within too impersonal networks. It was a compromise position that increased the opportunities for a farmer to exercise her agency within a market.

The reasons provided by poor farmers for changing traders were straightforward in that they were simply seeking out a higher price. However, multiple strategies were employed with some farmers changing traders for one good and not for another. There seemed to be little consistency with regard to particular goods. The exception to this was fish as in the example above. This may be explained by being largely a matter of convenience and reflects the secondary nature of rearing fish and the need to drain rice fields promptly. It was also considered that poor farmers with larger farms would be more inclined to change traders as they might have been better able to bear risks. However, this did not appear to be the case. Both smaller and larger-scale poor farmers employed differing strategies; some changed traders, some did not and some mixed the two. The decision to change traders for particularly goods reflected personal decisions influenced by individual livelihoods strategies and existing relations with available traders. Similarly, it was also evident that there were advantages that could be accrued to traders through establishing longer-term relationships and reducing the costs of search.

Knowing who a trader was could clearly be beneficial to farmers in Pabelan. The way in which such relationships could benefit traders was also useful for understanding the conditions within which poor farmers operated. A trader's ability to play the market in Pabelan lay largely in her ability to bulk produce. For poorer *bakul* this was not always possible and the expression of agency lay largely in their ability to haggle (as Alexander describes). For *pedagang* and larger *bakul* the challenge was how to bulk produce when farmers produce small amounts of a good. An example of a solution to this problem was the use of a *tukang tebas*. Generally, however, the onus fell to the trader. As one trader

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[119] Again, who to trade with often reflected personal preferences. One farmer (Informal discussion. Female, poor. 24.8.05) noted she would only sell peanuts to her niece who was a *bakul* at the spot market in Muntilan. She said she trusted her implicitly.

of milled rice explained, it was up to the trader to seek out farmers with goods to sell and rarely the other way round (Informal discussion. Rice trader. Female. 12.1.06). The establishing of relations with farmers reduced the transaction costs associated with search for traders. This trader also pointed out that the trustworthiness of a farmer established over time was important to the trader as it reduced the risk of farmers cheating; such as through mixing in poorer quality rice. In ICT4PR, the notion that farmers may cheat is hard to find. This trader also noted that the reason some farmers could access more traders than others was precisely because those farmers had a reputation for honesty. The issue of quantity was also raised by a small vegetable trader, who complained he was often disadvantaged at spot markets in Muntilan and Magelang as he often only sold around 10 kilograms of tomatoes and 20 kilograms of cucumber at a time (Informal discussion. Vegetable trader. Male, poor. 16.05.05). With these quantities he was unable to compete on price with larger traders at spot markets.

As the rice trader above noted the time required to stay in contact with farmers and with larger traders that she sold on to was considerable. It was also considered necessary. While reporting that SMS had made it easier to stay in touch with larger traders and, therefore, exploit small variations in price the trader complained that between staying in touch with traders and farmers she only had the time to operate and maintain relations with traders in one market in Magelang. This trader also lamented the conservatism of farmers in Pabelan with regard to rice and their reluctance to plant newer varieties. Such varieties, she maintained, would command a higher price and be of benefit to all. In contrast to the image of the exploitative trader benefiting from easy and rich pickings, it was this trader's ability to sell in bulk and exploit small price variations in transactions that enabled her to generate profits. Individual small farmers were simply unable to do this. With respect to maize one farmer made the point that he was well aware that if he took his dried produce to the spot market in Muntilan he could increase the price he would receive by around IDR 100 (US$ 0.01) per kilogram (Informal discussion. Farmer. Male, poor. 15.4.05). However, considering the cost of transport and the quantities involved this made no sense.[120] Interestingly, one farmer reported quite the opposite and for similar reasons (Informal discussion. Farmer. Male, poor, 22.7.05). The farmer sharecropped one *kesok*, and therefore, had very little produce to play with. He rotated rice with maize. He would dry the maize and sell after two or three days; the price of which varied he said between IDR 1,300 (US$ 0.14) and IDR 2,000 (US$ 0.22). Rather than sell to a *bakul* in Pabelan, he carried his produce (corn-on-the-cob) to the main road and then took it via public transport (mini-bus, *angkutan*) to the market in Muntilan (cost IDR 4,000 [US$ 0.44] return). In this way he could gain a slightly higher price. He would move from buyer to buyer seeking the highest price. This made sense to this particular farmer as the amounts of produce involved were portable and as the smallest increase in his profit margin was deemed worth seeking. Another farmer made the following observation:

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[120] More than once the idea of a poor farmer sending off a sack or two of rice to distant markets in Jakarta was the source of considerable amusement among farmers (and officials) in Pabelan. In a related vein one farmer exclaimed; 'they [BAPPENAS/UNDP] don't try to help farmers, they don't even ask what we need' (Informal discussion. Male, poor. 8.12.04). The cost of transporting one 20 kilogram sack of rice to the spot market in Muntilan by local transport (*angkutan*) was IDR 2,000 (US$ 0.22).

[…] In my opinion, the important thing and problem for farmers is that they have so little produce. If farmers try and sell directly in the [spot] market, it will be expensive- because they must pay for transport. So, traders are very important for farmers. But the problem is that the character of every trader is different. There are those that take the side [*berpihak*] of the farmer and those that don't take their side and who try to fool the farmer.

Informal discussion. Farmer & official. Male. 17.4.05

For poor farmers not changing traders could also present benefits. One such example in Java was the *ijon* system. *Ijon* only applies to rice and is a situation where the rice is sold while still green and prior to harvest. In an *ijon* transaction a trader would pay around 75% of what the crop would be expected to reach at the time of harvest. If any transactions were considered exploitative in favour of the trader in Pabelan, it was within the *ijon* system. *Ijon* transactions were an option of last resort and usually for poorer farmers. While considered a bad deal by farmers the system presented an obvious benefit in providing quick access to capital in times of need. The low price paid by the trader did not only reflect the limited bargaining power of the farmer; nor some despotic nature of the trader involved. Rather the price also reflected the transferral of risk to the trader. This was significant as rice was considered more susceptible to pests late in the crop cycle.[121] Longer-term relations could also benefit farmers through the extension of credit from traders. This would be as an advance on the final sales price of the crop. For rice this transaction may occur up to one week prior to harvest. For maize it could be up to one month before. Similarly, one store holder reported that he would extend credit to trusted (subsistence) farmers that sold to his store (Informal discussion. Trader, Male. 30.8.05).[122] However, he went on to point out that some of these relationships had been built up over 30 years. It was also the case that a small number of farmers who worked the land on behalf of a large landowner, essentially the village head in Pabelan, were unable to change traders with the landowner negotiating directly with buyer (Informal discussion. Farmer. Male, poor. 26.7.05).

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[121] On balance, and particularly with regard to high-risk crops, farmers felt traders benefitted from the risks borne by farmers. That traders took risks was sometimes, and grudgingly, admitted by farmers. One farmer recalled when after three particularly good harvests a local tobacco trader was able to buy a car. When asked what would happen when the harvest was bad he replied: 'Umm.. maybe he would have to sell that car.' (Informal discussion. Male, poor. 14.5.05).

[122] In contrast, one subsistence farmer reported that the primary reason for her choosing to sell rice to a particular local store was whether the store had the type of vegetables she wanted or not. The equivalent price she may get was not of such importance. The individual also noted she had seen better produce from crops in other farmer's fields. She had often wondered what seeds these farmers used, but had never been confident (*kurang berani*) to ask. The level of intervention required to empower such poor individuals to seek information from which they felt excluded was entirely underestimated by the e-Pabelan project. (Semi-structured interview. Female, farmer, poor. 17.6.05).

(Informal discussion. Pabelan IV. Male respondent, 52 years).

09.45 Sat in rice fields to north of Pabelan IV and east of the main road through the village.

'[…] I farm one *kesok* here- sharecrop. The owner owns around six *kesok*, which he rents to different people. The owner pays for half (*separo-separo*) of the costs of seeds, fertiliser and pesticide- and the harvest is split. The owner organises the planting and pays IDR 20,000 (US$ 2.22) per *kesok*, which is divided between the women who plant.'

This process allows the owner to plant all fields simultaneously. The harvest is arranged similarly and, he explains, after the harvest the women are paid one plate of rice for every 12 plates they process. He says in a good harvest he can get almost 500 kilograms of rice. He will then get 50% of the remainder.

[I am with Pak M. We walked up from Pabelan IV together earlier]. Pak M knows little about farming, but he has a penchant for mathematics, which he is proudly trying to instil in his young son [regularly helping with his son's homework]. After a while he turns to me in surprise and says this he reckons this is about US$ 30 dollars a month [before paying for inputs]. Pk M seems genuinely shocked, and he is not exactly well off himself. Pk S (the farmer) responds (quite matter of factly and in good humour).

'Yes, I am poor. Farmers here suffer from hardships [Javanese, *rekasa*]… we still only have a little… it is still difficult. We are not yet able to move forward [maju] because we produce too little.'

[…] I ask about how he sells. He explains after the harvest he goes to a *bakul* (a neighbour). He takes the produce there himself. The price is agreed there and then at the home of the bakul. He says he does not check the price before, and that it is largely decided by the *bakul* (*menurut bakul aja*). However, he seems aware of prices- and gives examples of prices for rice, maize and sweet potatoes. […] No, he has never changed *bakul*. He knows this *bakul* well. He says the risk of changing would be very high. I ask what the risks would be. He repeats that he knows this *bakul* well, and has never had any problems with him. How would he know with someone else he asks?

7.4.6 <u>Market transactions: Price</u>

Within ICT4PR the single piece of information presented as being critical to poor farmers, and with the potential to transform their ability to conduct transactions, is the availability of price information. As the above discussion indicates farmers in Pabelan were not oblivious to the price of the goods that they sold. The ability of poor farmers in Pabelan to vary strategies with regard to goods, actors and transactions indicated an acute awareness of price. This, contrary to the received wisdom of ICT4PR, was the case even among the poorest farmers. Simply, it would not be possible for farmers in Pabelan to play the market without understanding prices. Information, therefore, played a central role

in transactions in Pabelan. In short, farmers in Pabelan presented a more nuanced understanding of the function of price than that presented as a primary justification for ICT4PR.[123]

As indicated, poor farmers face a range of options to exploit variations in price. To a large extent this ability was dependent on the goods produced. For chillies and tobacco, this was largely a matter of chance although for the latter the decision, and ability, to dry tobacco could increase the potential for profit. Vegetables also presented limited options for farmers due to a lack of facilities to store and the need to sell on quickly. Vegetables were reported to show the largest variation in price between local markets. However, again the quantities traded were usually small and frequently sold to a *bakul* who would have limited capacity to search for higher prices themselves. *Palawija* presented more options as generally these secondary crops could be processed and stored. Nevertheless, poor farmers were not in a position to hold on to goods for long. Cash, as the example of *ijon* demonstrates, was often required. Some farmers reported having the option of selling *palawija*, such as peanuts, directly to home industries in the village.[124] Rice presented further options. *Gabah* could be sold from the field with either the farmer or the trader arranging the harvest. Farmers generally reported preferring the former as it increased the room for price negotiation within the transaction. The farmer could also choose to have the rice milled herself. These decisions were clearly influenced by price. However, the critical variables related to cash flow and the availability of resources. If a poor farmer needed cash quickly, the quickest option would be taken. If a poor farmer did not have the resources or capacity to have rice milled, it would be sold from the field.

The way in which transactions were conducted influenced price considerably. For *gabah*, transactions could be agreed without the *bakul* viewing the rice. This assumed that the *bakul* was confident there were no problems with the rice crop in the general area. This was not the case for vegetables and *bakul* would not buy unseen. The point at which prices were agreed also varied and to varying degrees could present the farmer with some ability to plan. For example, prices would often be agreed two days before (but sometimes up to a week before) harvesting for rice and between 10 to 20 days before harvesting for tobacco. Assuming *ijon* and possible options of advances were not taken transactions were completed with the handing over of cash at the time of harvest. A small number of farmers reported the exchange of money occurred a day later. The majority of farmers reported bargaining with traders to get a better price. The gains that were reported were often a few (two to five) percent of the total price. A few poorer farmers reported that the price was set by the *bakul*. However, these price takers would play the market in other ways as indicated above. The accepting of a price was often an issue of trust and price was not the be all and end all that a neo-liberal viewpoint of the market may claim. Several farmers reported that they would not trust a *bakul* that

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[123] A member of the implementing agency team suggested that they had received information regarding the need for price information and the exploitation of farmers by traders in Pabelan from the local partner. However, this did not seem consistent with the local partner views expressed during the research. More telling was this individual's comment that the exploitation of farmers was simply considered to be the normal state of affairs. (Interview. Implementing agency. Jakarta. 23.9.04).

[124] The amount of money involved needs to be kept in mind when considering these transactions. One group of farmers pointed out that by changing traders they may make a gain of IDR 50 per kilogram for beans (*kacang brol*) and IDR 100 for dried maize. This equates to approximately US$ 0.006 and US$ 0.01 respectively. (Informal discussion. Farmers, poor male 7.5.05).

offered too high a price for goods. The assumption being that the *bakul* was manipulating the scales.

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Box 7.4 Field note extract. 22.7.05

(Informal discussion. Pabelan 3. Male respondent. 35 years).

14.20 Inside brick (unplastered) house, concrete floor.

[…] Finished junior high school. […] Wife makes small snacks (*kue*) to sell. [..] Sharecopper 0.75 hectare. Knows of telecentre, as has passed by. Has not visited. Said when he and his wife were at school computers were still very unusual (*belum terlalu umum*). Has radio and television. […]

Plants rice IR 64 and Heru. Has farmed for the past five years and says that during that time the harvest has always varied every year. He says this depends on the season (weather). He sells to a *tukang tebas* while the rice is still in the field. He says the *tukang tebas* or larger trader (*pengumpul*) will usually inspect the plants in the field first and then come to his home, where they would negotiate a price (2 days before harvest). He says he can usually choose between 2 or 3 people to sell to. He says the advantage is that he does not have to arrange the harvest and also he does not have to pay any transport. However, he says he is not able to negotiate much difference in price with an individual buyer. On the topic of price he considers himself well informed as he gets an idea of current prices from local television. […]

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During the research farmers in Pabelan seemed acutely aware of the price, and the associated fluctuations, for the goods they were growing. Poor farmers could not afford the luxury of not knowing; too much depended on it. The research found no evidence to support the idea that farmers needed improved access to such information. The idea that poor farmers do was not based on the realities of farmers in Pabelan and an understanding of the goods, actors and transactions involved. As noted, price was important, but as with other information and knowledge it meant little if it could not be applied. This observation extends to the ICT4PR ideal that if farmers knew the prices in distant markets, they could sell their produce there. The reasons that this did not hold true in Pabelan were numerous. These included the structural limitations that farmers faced, including falling farm sizes, and the small quantities that poor farmers could produce off such land. The fact that transporting small quantities of goods made little economic sense to most poor farmers was clear. There was also the truism that the book price of a second hand car, to build upon Akerloff's theme, only holds true if there are available buyers who are prepared to pay that price. As both farmers and traders were aware, knowledge of the price for vegetables, for example, in a distant market may have little relation to the price that a trader or farmer may command in their local market. Simply, the intended beneficiaries in Pabelan understood what ICT4PR appeared to have overlooked; the fact that there

are multiple markets and that the relevant information needed for poor farmers to operate within these markets was primarily local.

Perhaps the most important oversight within e-Pabelan was the failure to recognise that trading is a specialised vocation. The idea that poor farmers could be empowered through simply accessing new price information was erroneous and overtly paternalistic. Similarly, the idea that poor farmers could access new information and then effortlessly trade in new markets was flawed. At a basic level the reason for this was simple. Poor farmers did not want to trade and add to their already substantial basket of risks. The margins involved in trade were also too small for individual poor farmers; as such is the condition of poverty. While it was true that high transaction costs were an obstacle to trade, the notion of who directly bore these costs within ICT4D literature appeared misplaced. As a rule, farmers did not bear these costs and did not want to. Traders bore the brunt of these costs in searching for price and, crucially, in maintaining relations within the supply chain. The latter was critical and largely influenced the ability of traders to operate in the marketplace. The effort required in terms of time and resources to sustain such relations was not lost on poor farmers:

> Of course, maybe if I travelled to the market in Magelang I could sell my crop [rice] for a higher price. But I don't know anyone there… I might be tricked and I would have to pay for the transport. It would take a lot of time and does not make much sense for me. For a farmer, it is better to use that time more appropriately… for what we know… and to prepare for the next planting.

> Informal discussion. Farmer. Male, poor. 27.7.05

This was how farmers made money and, as such, the choice was perfectly rational. As shown above, there were a range of ways this farmer could exercise his agency and play the market. Becoming a trader was not one of them. One farmer offered the following by way of explanation: 'The relationship between farmer and trader is like the *kethoprak* (Javanese drama) with each having their particular role to play.' (Informal discussion. Male, poor. 28.8.05). Despite, or perhaps in spite of, the outside wisdom of ICT4PR, poor farmers in Pabelan were not particularly enamoured with the idea that they should also take on the additional burdens of the trader.

7.7 Conclusion to chapter

The preceding discussion has sought to better situate and contextualise the potential contribution of ICT4PR through examining the particular socio-economic context into which the e-Pabelan telecentre was placed and that the initiative sought to impact upon. This has included discussing the issue of poverty in general and seeking to reconcile community perceptions of poverty largely related in terms of monetary dearth and broader issues of inclusion and exclusion reflective of a human development approach. It has also been shown that poor households employed various livelihood strategies in Pabelan in order to secure capital and security. It has also been noted that some villagers were able

to access alternative sources of capital through remittances and credit. Some security was also provided by government social services. However, similarly the chapter also describes how the e-Pabelan project through its focus on access did not address the topic of how resource poor farmers would have been able to apply information received. In this way telecentre was assessed by poor farmers, who may be surviving on significantly less than a dollar a day in some cases, as having limited utility and relevance. This was further complicated by the fact that the telecentre was seen to be closely aligned to elite actors who could also be the target of discontent due to what was seen as unequal, or un-transparent, allocation of further external assistance in the form of government grants and subsidies. While this experience is in several ways specific to the Javanese context, and particularly with respect to the institutional changes outlined, the need for better contextualisation that moves beyond access within ICT4D in general is of wider relevance. As the chapter has argued such context specificity is essential in order to better understand how the introduction of ICTs may contribute increasing opportunities, security and empowerment in particular socio-economic environments.

The chapter then moved on to discuss the socio-economic relations that constitute the markets in which farmers seek to secure capital and security. Following Plattner, the analytical categories of goods, actors and transactions have been applied. In general terms this has shown that the prevalent ICT4D image, as promoted by the e-Pabelan project, of a passive poor farmer who is at the whim and mercy of an unscrupulous trader is erroneous. Instead it has been shown that poor farmers in Pabelan exercised agency through their choice of goods and the transactions they entered into. In so doing the farmers in question calculated and managed risk. Further, it has been shown that far from being risk-averse poor farmers actively take often-substantial risks. It has been shown that this risk taking can be explained through the particular role that rice plays as a foundational good offering a minimal degree of security to the poor farmer. Furthermore, the way in which risk was at times actively transferred through transactions between farmers and traders, such as in the example of tobacco above, illustrates the dyadic interplay of agency between key market actors. The picture painted from Pabelan, therefore, is far more nuanced than the ICT4D discourse that e-Pabelen represented.

The research outlined above challenges the digital divide influenced market view that supposes a single market that can be accessed through overcoming asymmetries in access to information. There are two important considerations presented by the research. The first concerns the idea that farmers will be able to access new markets if they are provided with the appropriate information. This view assumes that poor farmers want to take on the role of the trader and is shown to be misplaced. Trading is specialised and with respect to certain goods such as rice very specialised. Farmers simply do not have the time or inclination. This is reinforced by observation that poor farmers will go to significant lengths to minimise search. As with the case of the *tukang tebas*, poor farmers will actually prefer a cut in profits in order to transfer the effort involved in search to another actor. This is clearly significant to ICT4PR. As noted above many villagers said they did not have the time to visit the telecentre and this was questioned by the research. However, for poor farmers the issue was that working time would be far better allocated to production rather than to search. Search was the primary

domain of the trader. As such, the utility of the telecentre was not assessed positively by the project's intended target group.

The second point of concern relates to the claim that poor farmers need access to price information. This was not found to be the case in Pabelan and such a conceptualisation glosses over the fact that there are multiple actors at play in multiple markets. The actors in Pabelan were generally aware of the prices on offer within the markets they operated, or chose to operate, within. Having an understanding of value and price was the primary prerequisite required to play the market. It has also been shown that the ability of traders to manipulate prices has been largely overstated in much ICT4D literature. The traders that farmers in Pabelan traded with generally operated within small margins thus limiting their ability to influence markets. Both traders and farmers in Pabelan were at the whims of larger market fluctuations in terms of price. However, it was the case that information, or a lack of it, was central to livelihoods strategies in Pabelan. However, often the information required was local or related to long-term speculation as in the large fluctuations if the price of chillies for example. The telecentre was not the most appropriate way of accessing the former and was also of limited utility in predicting the latter.

Following Plattner, in Pabelan the single most important piece of information that farmers required was knowing if a transaction would be completed. Again, this information was not available on the Internet. The question of knowing if a transaction will be completed raises the issue of source proximity. Contrary to Plattner it has been shown that personal exchange is not always preferable for poor farmers in Pabelan. It has also been shown that farmers will manage risk and market opportunities through changing traders with farmers often having a pool of potential traders. As However, the experience of poor farmers in Pabelan does little to support the idea that a poor farmer would willingly deal, even if they had the resources to do so, with a faceless buyer in a distant market. This notion is naive and, in direct contradiction to ICT4Ds best intentions, ignores the fact that such ICT enabled communication can actually increase information gaps, and risks, through the introduction of significant unknown and quantities. The opportunities for adequate engagement and assessment simply do not exist.

Chapter 8

Conclusion: Evaluation and reflection

8.1 Chapter introduction

The final chapter presents results in relation to the stated research aims and draws conclusions from the research presented. These findings are presented in relation to the project's conceptual framework, which is further developed in relation to the research within this chapter. The chapter presents the contribution to knowledge of the thesis with respect to three key areas. Firstly, the chapter discusses and highlights key findings with respect to the development of the conceptual framework used to guide the research. Based on this discussion the conceptual framework is developed to contribute a framework for the analysis of market based ICT4PR interventions. Secondly, the chapter discusses the issue of the transferability of conceptual and methodological approaches to other contexts and regions. Thirdly, the findings of the research and its contributions are discussed in relation to, and situated against, contemporary ICT4D literature. Findings and recommendations from the research are then summarised in relation to theory, potential future research and practice.

8.2 Summary of findings relating to the research aims and objectives

The following summary draws on the fieldwork presented and discussed in the previous two chapters. Key findings with regard to the research aims and objectives are highlighted.

8.2.1 Primary research aim

- Explore the contribution of an ICT based development intervention to poverty reduction among poor farmers in rural Java.

The research found that the e-Pabelan ICT4PR project did not make any significant or quantifiable contribution to poverty reduction within the project's target group of poor rural farmers in Java. Conversely, the manner in which the e-Pabelan pilot project was implemented was exclusive and, as such, the implementation of the project merely served to reinforce the status quo and to reinforce poor individuals' positions within the village's socio-political structure. In this sense, the e-Pabelan project may be regarded as disempowering. As such, within a human development approach and with respect to the stated research aim, the impact of the e-Pabelan project is viewed as having a negative impact on poverty overall. While important, this should not be overstated as for the majority the e-Pabelan project had little demonstrable bearing on the lives of poor farmers in Pabelan.

From the poor farmers' perspective the primary reason for a lack of impact from the ICT based intervention studied was a perceived lack of utility and relevance in relation to established market relations and risk. The intervention offered no clear comparative advantage over established market networks based largely on personal interaction at that time. The lack of opportunities for engaged assessment within the project mechanism was a further contributing factor coupled with confusion over the interventions' aims.

8.2.2 <u>Secondary research objectives</u>

- Identify how the introduction of new information/communication channels may affect extant relations and power structures within communities.

Low participation by target groups in e-Pabelan did not result in significant changes to power relations and power structures within the community. However, as noted above, the implementation of the project did not in any way challenge established perceptions of inclusion and access to resources. The introduction of ICTs through existing political channels, and in partnership with a local elite, merely served to reinforce existing relations of power within the community. This, as noted in chapter six, gave some groups and individuals concerns that they were once more being excluded and the telecentre provided a further and concrete point of reference that demonstrated outside interventions were not for them. Again, this was considered to be disempowering and to reinforce the view that opportunities were, and remained limited, for the poor.

- Identify who may benefit from, and who may be disadvantaged by, participation in new ICT facilitated networks.

Students, primarily from the *pesantren* and from outside of Pabelan following the establishment of the English course, were the major beneficiaries of the telecentre. In general, these individuals were young, educated and male. While no clear developmental impact was identified for these groups in terms of a direct impact on poverty, as per e-Pabelan's stated aims, in terms of potential educational value through widening personal networks the telecentre appeared to have potential for students. For other groups the telecentre project failed to account for how any information received may be acted upon and, therefore, did not provide any benefits. Importantly, the venture was assessed as irrelevant for the majority of the poor. This was largely caused by e-Pabelan's outwardly focused orientation, which drew attention away from the local context into which the project was introduced.

Participation in the project itself presented benefits to the local elite in terms of association and prestige connected with a visible and high-level development project. However these individuals did not make use of the telecentre or the potential new networks it was suggested to offer. It should also be further noted that traders in Pabelan were already making use of ICTs to maintain their networks at the time of the research. In this regard the choice of ICTs was important and the mobile telephone seemed a clear winner. This raises questions concerning the possible benefits that focusing on local

traders within ICT4D, in contrast to seeking to bypass them, may bring to rural producers through increasing the volume of goods that could be traded.

- Identify if, and why, some may prefer (or are disadvantaged by) ongoing participation in extant networks.

In order to better anticipate and manage risk in a highly marginal economic pursuit, poor farmers were, based on the evidence from e-Pabelan likely to continue to prefer to participate in extant market networks. The failure to recognise this, and why this was so important to poor farmers, lay at the heart of e-Pabelan's conceptual and practical difficulties.

8.3 Contribution to knowledge and development of the conceptual framework

8.3.1 <u>Poverty reduction as the desired development act</u>

e-Pabelan could not be said to have achieved its aims within the research period. After 15 months following the establishment of the e-Pabelan project, the project was still trying to find its feet with little increase in participation by primary target groups and subsequently minimal impact on the intended beneficiaries' daily lives. Naturally this had a direct impact on the research and the application of the research project's conceptual framework. Working backwards along the conceptual framework from the intended outcome of the e-Pabelan project it was not possible to show an impact on poverty in terms of increased empowerment, increased security or through an increasing of opportunities for the intended beneficiaries. With regard to the topic of opportunities it is noted that it is primarily through increasing opportunities through the widening of access to information, and the overcoming of informational asymmetries, that the e-Pabelan telecentre, and ICT4PR in general, claimed to hold promise. As such, the e-Pabelan experience demonstrated marked differences between understandings of poverty from the ICT4PR perspective and understandings of poverty from the intended beneficiaries.

Viewed from a human development perspective an ICT4PR notion that prioritises the widening of opportunities through establishing access to technology and information can be seen as partial and incomplete. This primary focus on widening opportunities is, as described, driven by a desire to overcome, and prevent, exclusion and marginalisation within what is seen as an emerging information age. However, such an approach downplays, or omits to address in the case of e-Pabelan, the importance of security and empowerment in relation to poverty. Rather than viewing the concerns of opportunities, security and empowerment as interconnected aspects of an overall whole, the e-Pabelan experience illustrates a conceptual weaknesses within the ICT4PR approach adopted. Within such an approach the creation of opportunities is presented as fundamental and becomes the foundation from which poverty reduction should begin. This understanding is reductionist and stands counter to a multi-dimensional approach that sees access to opportunities as a single contributing

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factor to the complex condition of poverty. Importantly, the research demonstrates that the prioritisation of opportunities within ICT4PR did not sit well with beneficiary understandings. Counter to the ICT4PR view presented the intended beneficiaries tended to better relate to poverty in terms of security.

As described in the preceding chapter the way in which the intended beneficiaries of e-Pabelan employed varied livelihoods strategies was driven by a need to seek security in primarily economic terms. While such strategies were born of limited opportunities, the difficulties inherent in securing daily needs were felt as most immediate and pressing. This immediacy of the impact of poverty contributes to explaining the perceived lack of relevance of the telecentre by the intended beneficiaries. The association of a lack of capital resources with poverty raised questions regarding the telecentre in this role. This was further compounded by there being no mechanism within the e-Pabelan project to generate or build the capital resources that the poor perceived as the prerequisite for poverty reduction. The conceptual gap between an ICT4PR approach that sought to widen opportunities first and foremost and the beneficiaries concern with security was a major weakness that impacted negatively on the e-Pabelan project.

In terms of empowerment it has been argued that the implementation of e-Pabelan can be claimed to be disempowering, contrary to its intended aim. It has been argued, that this was largely due in practical terms to the way in which the telecentre was implemented and a failure, in conceptual terms, to anticipate the changing function of local institutions in Indonesia following the fall of Suharto. The aligning of the telecentre with elite local institutions and the initiating of activities through increasingly less relevant *kelompok* increased perceptions of otherness and exclusion. Viewed from the perspective that ICT4D initiatives seek to contribute to inclusion the e-Pabelan project may be regarded as having an, unintentional, negative impact and thus may be read as being disempowering. However, as noted, this should not be overstated as for most of the intended beneficiaries life carried on as before. The contribution of the research in this regard is not only that ICT4PR in general needs better contextualisation at the local institutional level, and in terms of the ways that information is mediated through such institutions, but that community development programmes in general in Indonesia need to reassess the potential value and limitations of implementing projects through what are often viewed as indigenous community based structures.

The above indicates the need to revise the conceptual framework to better indicate the interrelated and interdependent nature of poverty. Within an ICT4PR framework it is, therefore, important to acknowledge that a focus that prioritises the widening of opportunities at the expense of security within a poverty reduction context is likely to be met with scepticism or runs the risk of being ignored. In terms of contribution to knowledge the research demonstrates through field-based findings in rural Java the weaknesses within, and the need to reconceptualise, approaches to the issue of poverty within a digital divide approach to ICT4PR. In this respect a narrow focus on increasing opportunities is misplaced.

8.3.2 <u>Capital resources and the adaptation and application of information</u>

Following the conceptual framework utilised within the research it is necessary to review briefly the issue of capital resources. Capital resources, guided by the information chain, are taken as being a necessary pre-requisite for being able to adapt and ultimately apply information. As noted, the ability to obtain and command capital resources was not addressed directly within the e-Pabelan project. Neither, as described, was the prioritising of security and the way in which security was aligned within local perceptions with the ability to access capital resources. The issue, therefore, was what resources were available to the poor in Pabelan. Clearly, and by definition, the intended poor beneficiaries did not have sufficient capital resources to readily respond to or apply potential information they may have received. Faced with an inability to accumulate capital and to save, many of the telecentre's target group relied on informal sources of credit and government social services in order to supplement meagre incomes. Correspondingly the relevance of the telecentre was not immediately apparent to these individuals.

The linkages between poor individuals' capital resources and their ability to adapt and potentially apply information were clear and were in line with the conceptual framework. With respect to the research project's focus on market relations, the conceptual framework was considered relevant to those individuals that secured capital through market-based transactions. No modification to the conceptual framework in this regard was considered necessary based on the e-Pabelan experience. However, it should be noted the adaptation and application of information could not be directly observed as no poor rural producer was identified during the research who had reached the stage of wishing to apply information from the telecentre towards poverty reduction ends. The reasons for this are summarised in the following section.

8.3.3 <u>Assessment in relation to existing socio-economic relations</u>

In relation to the conceptual framework it was not possible to determine a direct impact on the existing knowledge base during the research period. This was again due to poor participation in the telecentre project by the intended beneficiaries. Nevertheless, the existing institutional context into and through which the telecentre was implemented, as described, was highly significant. Similarly, the existing socio-economic relations analysed through the research framework in terms of actors, goods and transactions were of particular note. In relation to the conceptual framework both of these factors were closely linked to assessment. While existing socio-economic relations provided insights into the way in which information may have been assessed had it been accessed from the telecentre, both factors very much influenced how the telecentre itself was assessed in terms of relevance. Assessments were clearly related to existing knowledge and understandings; however, it was within the socio-economic and institutional spheres that the comparative point of reference was established. As such, the utility and relevance of the telecentre and its function as a conduit of information was judged against existing knowledge that was informed and shaped by the socio-economic relations

that the telecentre, in turn, sought to impact upon. In this regard the importance of existing socio-economic relations rather than the existing knowledge base was highlighted as the most significant factor influencing assessment by the intended beneficiaries through the research. This contribution is further highlighted in relation to Plattner's categories below.

It has been shown that e-Pabelan did not adequately account for the range of actors, or their particular circumstances, within the agricultural sector. This is read as being representative of a digital divide approach that sees access to technology, and secondly information, as being of universal relevance. As demonstrated the premise that poor actors in Pabelan needed access to basic information in Pabelan did not stand up to scrutiny. Poor actors were not living in an information vacuum, but rather required information that was specific to particular contexts and needs. The ICT4PR approach as represented by e-Pabelan further reflects the understanding that entry into markets is realistic and achievable once, what are viewed as, artificial barriers have been overcome. Such barriers are understood to stem from unequal or asymmetrical access to information. However, this view does not adequately account for the roles that individuals play within markets and the specialisation of labour that occurs. The research finds the notion of access to information and the ability to freely enter new markets as being over simplistic in the light of the differing capacities and capabilities of different market actors.

With regard to market actors there appears a necessity within ICT4PR to better engage with the roles that poor actors play or are able to play within markets. It has been argued that a key justification for ICT4PR is to remove the exploitative nature of relations between traders and farmers with the former being taken as having the upper hand. This understanding assumes that once information asymmetries, which are taken to favour traders, are removed farmers will be prepared and equipped to enter markets themselves and/or increase their bargaining power in relation to traders. The research has shown the limitations of such an understanding. Firstly, it has been demonstrated that trading is a specialised occupation and that farmers in Pabelan were not particularly enamoured with the idea that they themselves should venture into trade. In short, poor farmers did not want to trade and preferred to focus on production first and foremost. Similarly, poor farmers demonstrated they would, at times, prefer to take a cut in profits in order for another actor to conduct search on their behalf. This was illustrated through the discussion of the *tukang tebas*. This raises serious challenges to ICT4PR as represented by the e-Pabelan experience. Search was clearly a time consuming and resource intensive activity and it is arguably right for ICT4PR to emphasise such issues. However, the market actors that were concerned with search were traders; who it should be remembered may be poor themselves. The idea that poor farmers could and would embark on trade in Pabelan is challenged by the research as is the idea that poor farmers are the passive victims of exploitative traders.

In terms of goods it has been shown that the choice of goods made by poor farmers was central to their ability to play the market. The choice of goods dictated whether they could be stored and sold over time, the point of sale and the terms of transactions. The choice of goods also determined who could be traded with. All these factors allowed poor farmers to gain varying degrees of purchase

within the market. Specifically, the choice of goods provided two distinct strategies to the poor farmer. On the one hand, rice provided stability and security. On the other hand, secondary crops presented opportunities for both success and failure. The extent to which poor farmers were able to play the market related to their ability to manage risk in relation to rice and secondary crops. Without a sufficient basis in rice, such as in the case of the subsistence farmer growing for own consumption, the ability to take risks was severely limited. A more substantial foundation in rice and the ability to generate a surplus allowed greater room for experimentation with secondary crops that could potentially generate high profits. The risks associated with high-risk crops, such as chillies and tobacco, were well known and were readily taken by poor farmers who judged they were secure enough to do so. The contribution of the research in this area is particularly significant for ICT4PR as it indicates the need for greater consideration of the role of the choice of goods and their role in creating security for the poor. The implication for ICT4PR being that any intervention that seeks to change practices relating to foundational goods that provide essential security, such as rice, would be placed under far greater scrutiny.

The above is not to say that information relating to rice would not be adopted by poor farmers out of hand. However, it is the finding of this research that any information relating to introducing changes to rice farming would require far greater assessment than those relating to secondary crops. The example provided of the adoption of low-input SRI methods provides an interesting counter example to the telecentre project. The SRI example shows that information could be applied assuming that it did not require additional capital resources. However, the crucial factor was that the SRI example provided adequate opportunities for assessment and the weighing up of risk over time by both primary and secondary adopters. The telecentre project did not provide such mechanisms. The adoption of information in Pabelan by poor farmers was directly related to the ability to engage with, test and assess the utility of that information in relation to socio-economic conditions and risk. The telecentre project was placed at a double disadvantage in this regard as the project itself was assessed prior to the assessment of any information that may have occurred. It is important to emphasise that farmers in Pabelan were not risk adverse. The research demonstrates that the significance of goods in relation to the risk management strategies of poor rural small-scale producers deserves fuller investigation within ICT4PR.

Essentially, it was the coming together of actors and goods within market transactions that ICT4PR at Pabelan sought to impact upon. As noted, the telecentre and ICT4PR, as represented by the telecentre, neither anticipated nor engaged with the differing market actors and goods and the conditions and means of trade associated with each. Simply, ICT4PR at Pabelan was not contextualised in any meaningful way. This was most evident with regard to transactions. Following Plattner the significance of knowing whether a transaction would be completed, or not, was of central concern to poor farmers in Pabelan. This was regarded as being of far more significance than the need for price information, which was generally known and differed between multiple markets of varying relevance to the resource poor farmer. The risk associated with incomplete transactions was not confined to farmers, but extended to traders also. However, this was one piece of information that

the telecentre was ill equipped to provide. For Plattner, the solution to such information problems is to enter into long-standing personal relationships of exchange.

Some respondents in Pabelan did enter into long-term trading relations. However, these farmers were often older and were marginal market players relying largely on growing food for their own consumption. In this case the benefit presented by long-term trading relations was that very small quantities of goods, rice primarily, could be sold or exchanged for essential needs over time. Conversely, for those farmers that played the market changing traders was by no means uncommon. However, changing traders was a measured strategy and, as shown, farmers would often select from a pool of known traders. This situation allowed farmers to exploit small variations in price and the terms of transactions while still maintaining a degree of social sanction to the mitigate risk associated with dealing with an entirely unknown quantity. The research also demonstrates that too personal a mode of transaction was not always preferable. In Pabelan examples of non-favourable personal relations in terms of transactions stemmed from familial obligations, which were not always seen as advantageous.

The above discussion summarises that the choice of goods was fundamental to how poor farmers in Pabelan managed risk in response to informational problems. The choice of goods allowed the poor farmer to express agency and play the market. This was in stark contrast to the ICT4PR image of the farmer as being a hapless victim of an impersonal market. Similarly, the choices an actor might make were dependent on their ability to accumulate sufficient capital to both gain a degree of security and to act on information they may have received. These factors in turn shaped the way in which transactions were conducted and dictated whether personal or impersonal exchange may be preferred. For example, personal exchange may be preferable for bartering small quantities of rice. Impersonal exchange may be considered by poor farmers a risk worth taking with secondary crops assuming a degree of security has already been secured. However, it is important to note that poor farmers in Pabelan had a more nuanced approach to the impersonal or personal exchange dichotomy suggested by Plattner. By drawing on a pool of traders, poor farmers presented a third option that allowed them to balance the risk and benefits associated with the contrasting options of personal and impersonal exchange. In this regard, the research demonstrates Plattner's thesis requires modification.

With regard to a digital divide, or telecentre driven approach, the above issues are significant and contribute a number of considerations. Although, farmers would change trading partners this should not be read as implying that farmers would enter into transactions with distant partners. Trading from a pool of traders created a degree of social distance that better facilitated negotiation while at the same time minimising risk through establishing a degree of knowledge about the trader and some social pressure. As such, a farmer could better ascertain whether she was confident a transaction would be completed. The telecentre did not anticipate or respond to the level of engagement that such assessments require. However, in Pabelan assessment was not limited to assessing information within the confines of the information chain. Assessment extended to assessing actors in relation to goods and the management of risk within the socio-economic environment that prevailed. It also

extended to assessing the telecentre project itself, which is discussed below. This active process of assessment was dependent on the ability to engage with information over time and to, further, assess utility and relevance in relation to risk. A key contribution of the research in this regard is that assessment within ICT4PR should not be viewed as an isolated stage, as within the information chain, but rather as an ongoing process of evaluation of utility and relevance in relation to context.

8.3.4 <u>Access to technology and information</u>

While chapter seven discussed the issues outlined in the preceding discussion the following section summarises issues raised in chapter six with regard to establishing access. It has been argued that e-Pabelan was, despite claims to the contrary, representative of an approach to bridge the digital divide. As such, the project prioritised access in order to overcome exclusion and marginalisation. This approach it has been concluded resulted in a tendency towards seeking to increase opportunities at the expense of differing, and related, understandings of poverty. This, in turn, raised issues with respect to the relevance of the intervention. It has also been argued that the increasing of opportunities, alongside security and empowerment requires better contextualisation within ICT4PR. Conceptually, the focus on access also contributed to a lack of clarity in terms of objectives and understandings in Pabelan. The benefit of the information chain in this regard was to assist in identifying and distinguishing between access to information and access to a desired development outcome or act. In the case of the ICT4PR approach that e-Pabelan represented this was taken to be the accessing of new, or better functioning within, markets. Within the conceptual framework the addition of access to technology as distinct from access to information proved useful in assisting in delineating between the different types of access that were conceptually blurred within the object of the research. However, there was concern in the way these two distinct types of access could also become confused with access to a meaningful development outcome.

The way in which the topic of access became conflated within e-Pabelan obscured and prevented engagement with distinct themes and issues. With regard to access to technology e-Pabelan did not account for changes within the pre-existing informational landscape. This included the availability of alternative technologies and, in particular, the emergence of mobile telephony and its rapid adoption within the village and beyond. The difference in terms of adoption between the telecentre as a supply led donor driven venture and the growing organic demand for mobile telephony services was stark. Following Heeks, the importance of organic ICTs was also noted within the context of local institutions. While the changing role of the *kelompok* was specific to the Indonesian context, the importance of engaging with how institutions may mediate access to information and the flow of information, and to who, is of wider significance to ICT4PR. In terms of access to information it was not possible to demonstrate that accessing information led to any impact on poverty. This was, as described, primarily due to low participation by the intended beneficiaries. Low participation may be attributed to issues of seeking to establish access to technology, foremost, through a local political elite. However, the major contributing factor was that the e-Pabelan project was assessed as lacking

in utility and relevance in relation to the socio-economic relations as outlined previously. In this regard the research demonstrates the importance of relating ICT4PR interventions to the market context that the intervention seeks to impact upon.

8.3.5 <u>The conceptual framework revisited in relation to the research findings</u>

Figure 8.1 below illustrates the adaption and development of the research project's conceptual framework as guided by the research findings described. The framework is presented as a development of the research project's conceptual framework and addresses market based ICT4PR interventions. In its simplest form the framework emphasises three distinct analytical stages of access, context and outcome. These broadly relate to the information chain and the initial research framework; however, refinements have been contributed by the research as outlined above. These contributions include the role of local institutions and how they may mediate access to information and interpretations of ownership. However, while this is based on the Pabelan experience in other situations it may be helpful to view institutions as conduits of information alongside organic ICTs depending on the context. Relatedly, further contextualisation with regard to access is required by noting access to alternative ICTs. Finally, the specificity of information content in relation to the intended beneficiaries' contexts is required. All of these factors relate to issues of moving from the provision of access to technology to the accessing information via that particular technology.

In terms of context, the framework stresses the centrality of transactions as it is here that the coming together of goods, actors, agency and risk is played out. The categories of actors, goods and transactions provide analytical clarity and when combined summarise and represent the market relations that ICT4PR based interventions of this nature seek to influence. These market relations also influence perceptions of relevance with respect to information received and provide the basis for calculating risk, which as noted will vary within transactions with respect to differing goods and actors. Ultimately, the ability or desire to adapt, if necessary, and apply information will again be measured against the availability of capital resources and perceived utility of that information. As such, assessment is a continual process from access, and in relation, to context. This process of assessment against context and in consideration of risk will largely dictate whether information is applied and, one hopes, a positive developmental outcome is achieved.

The Pabelan experience suggests that within a poverty reduction context that focuses on improving market participation the desired development outcome is likely to be best perceived as offering utility and relevance if it prioritises security. This is not to ignore the importance of opportunities and empowerment, but serves to better relate external interventions to local contexts. This in turn is more likely to present a positive assessment from the intended beneficiaries in terms of relevance and the utility of the overall intervention. The extent to which contributions may be applicable to alternative contexts and regions is addressed in the following section. Firstly, this section concludes with a summary of the contributions to knowledge outlined above.

Figure 8.1 A framework for the analysis of market based ICT4PR interventions targeting poor rural farmers
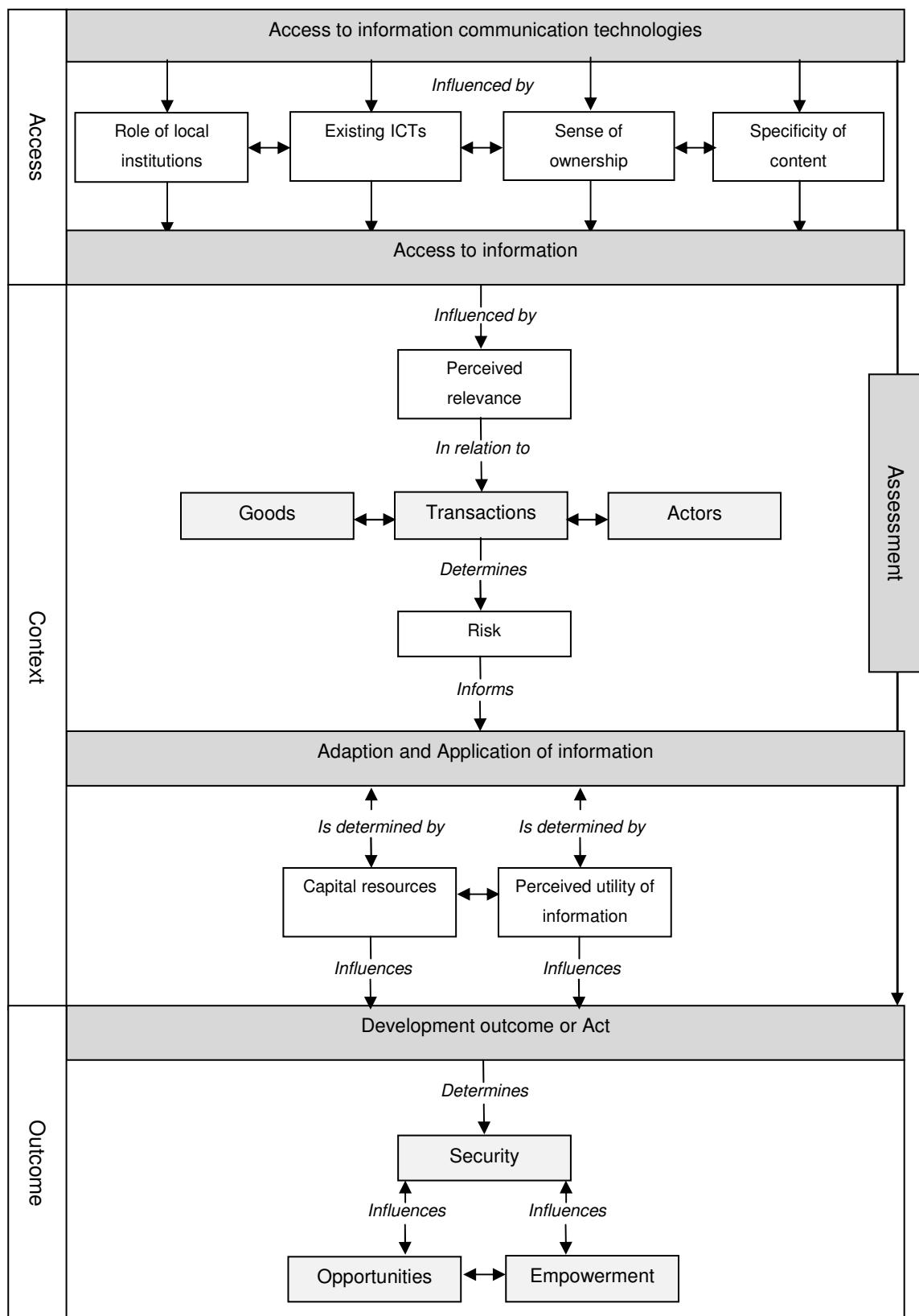
8.3.6 <u>Summary of contribution to knowledge</u>

The research has provided the following contributions to knowledge, which are presented in relation to the framework above:

- The contribution of a framework for the analysis of market-based ICT4PR interventions targeting poor farmers.
- The understanding of the need for better contextualisation of ICT4PR interventions in rural Java in light of the changing role of local institutions (*kelompok*) and their declining relevance to the poor as conduits of information following the fall of the New Order regime.
- The importance within ICT4PR of distinguishing between different market actors and recognising that poor farmers do not automatically see any advantage in becoming traders. The idea of disintermediation as a meaningful ICT4PR action does not hold in the context studied.
- The received ICT4PR image of the passive farmer in Pabelan is misplaced. Farmers exercise agency to ensure security and manage risk within markets. The management of risk, and the expression of a farmer's agency in Pabelan, was ultimately dependent on an ability to choose between different goods.
- Modification of Plattner's thesis is required to account for balancing the risks and benefits of personal and impersonal exchange in relation to informational concerns through selecting trading partners from a known pool.
- The importance of the ongoing process of assessment throughout the information chain in relation to relevance and utility balanced against risk. This is a central concern and should be emphasised.
- The limitations of an ICT based poverty reduction approach that conceptually prioritises the widening of opportunities over increasing security for poor rural producers in Java.

8.4 **Contribution to knowledge and transferability of findings**

The findings above are drawn from the study of a single ICT4PR project implemented via way of a telecentre approach in rural Java. As such, the research described within contributes a unique and grounded case study of ICT4PR within the Javanese context to the literature. However, questions are raised regarding the transferability of findings to other contexts and geographical areas. Further, the research highlights findings that are of particular relevance to the Javanese context at a particular point in time. A case in point is the changing relevance and function of the *kelompok* system in relation to access to information. While this particular finding may be transferred to other rural contexts and to other community based development interventions in Indonesia, it is unlikely to have direct transferability to other regions. However, at the same time the issue of contextualisation that findings relating to the *kelompok* system in Pabelan illustrate are likely to have wider significance. In

order to better gauge the issue of transferability it is necessary to briefly review the ICT4PR discourse that e-Pabelan represented.

The thesis has argued that ICT4PR is an act of intentional development that is executed in response to a process of immanent development characterised by what is seen as an emerging information age. The negative impacts of this change are taken to be increasing polarisation and marginalisation for those not equipped to take advantage of the opportunities presented within the new age. Conceptually, at the turn of the millennium this led to a dominant ICT4PR discourse that emphasised the provision of access in order to widen access to opportunities. This view was extended to seek to use ICTs to improve the participation of poor producers within markets. Such views, which prioritised the provision of technical access to impact upon socio-economic concerns, were encapsulated within the call to bridge the digital divide. Nevertheless, at the time of the research there was a more moderate voice emerging within ICT4D that downplayed the magic bullet potential of ICTs. This was particularly evident in the run up to WSIS 2003. It is this more moderate view that e-Pabelan sought to emulate.

It has also been argued that there was a mutual lack of engagement between ICT4D and development studies. This backdrop also helps in positioning points of reference and potential relevance with regard to the topic of transferability. This lack of engagement included a lack of theoretical convergence between the emerging discipline of ICT4D and development studies. Popular interpretations of ICT4D were largely driven by the speculative potential of ICTs and their ability to be applied to various developmental concerns. Equally, ICT4D with its universally applicable stance was open to charges of seeking to promote particular ways of being and of preferencing dominant values and knowledge. Such understandings and critiques it has been argued could also be, and have been, addressed back to the wider field of development studies over the years. With this in mind the topics of markets and poor rural producers seemed a fitting object of study in relation to both ICT4D and the wider body of development studies. The section proceeds with relating the transferability of findings in relation to the framework (Figure 8.1) presented above.

Research findings from Pabelan support a view that seeks to better distinguish between access to technology and access to information within ICT4D and a staged process towards a desired development outcome in line with the information chain. With regard to access the e-Pabelan telecentre as an artefact of technology indeed appeared to represent outside prioritisations. This supply driven venture appeared decidedly lacking in comparison to the demand driven uptake of mobile telephones that was occurring on the region. This uptake is increasingly relevant to other contexts and regions as discussed in the following section. In terms of information content e-Pabelan warned against paternalistic interpretations of information needs. As indicated, the information required by the intended beneficiaries was specific to particular contexts and invariably of a technical nature. This again challenges approaches to information delivery that suggest universal relevance within ICT4D and again is likely to have wider relevance suggesting the need for targeted interventions. While, as noted, the changing role of local institutions and the way in which they mediated the flow of information may well be specific to the Indonesian context it raises questions of

ownership within a process of ICT4PR that can only be ascertained through proper contextualisation. In terms of access and context, which is discussed further below, it is considered that the above points are likely to have wider relevance within ICT4PR and in the case of the *kelompok* relevance to other community based development interventions in Indonesia.

If in general terms the issue of access requires proper contextualisation in relation to ICT4D, this is certainly the case in relation to the target of the intervention. As has been argued in the previous sections the research demonstrates that ICT4PR interventions that seek to impact upon the market participation of poor farmers require greater contextualisation. This view is supported by the limited contextualisation provided by the majority of case studies outlined in chapter three. The research shows that it is against this backdrop of actors, goods and transactions that the utility and relevance of an intervention will be assessed by beneficiaries in relation to risk. With reference to poor actors it is worthwhile reiterating that the research was primarily concerned with poor rural producers that operate within markets. As such, there is an inherent assumption that such producers are able to generate a degree of surplus that may allow them to apply information that was accessed and assessed in relation to risks as relevant. For very poor individuals with little market engagement the utility of the framework presented is likely to be limited. It should also be noted that in cases of extreme poverty the greater will be the need to address the topic of the provision of capital resources.

Further it has been argued that ICTs, and particularly mobile telephones, may offer significant potential for reducing the transaction costs associated with search. The research demonstrates that it is traders who bear this cost and that conversely poor farmers will, at times, go to lengths to avoid search. This finding is likely to have wider relevance to ICT4PR in better assessing the role of traders in value chains that may positively impact upon poor producers. This requires a shift in the common received ICT4PR perception that traders are parasitic and exploitative. However, as the framework presented above is based on the experience of poor producers it is unclear to what extent the framework may be transferable to an analysis that focuses on traders. A final point of note with relevance to the discussion of traders is the suggested modification to Plattner's thesis. The way in which farmers in Pabelan mitigated the particular risks associated with both personal and impersonal exchange is likely to have wider bearing and relevance to those engaged in exploring the dynamics of transactions within localised markets.

On balance, it is suggested that the framework presented in Figure 8.1 contributes a transferable model that can be adapted and applied to the analysis of similar market based ICT4PR interventions. However, there is a final caveat. The research was conducted in a middle-income developing country with a relatively developed telecommunication infrastructure and, at the time of the research, a relatively stable political and economic context. It is not clear to what extent the findings of the research in terms of market based ICT4PR interventions would be transferable to contexts characterised by abject absolute poverty. Nevertheless, it is noted that the framework also provides a basis for a methodological point of departure and it is from such a point that the search for answers may begin. The research in Pabelan was conducted over an extended period and combined both qualitative and quantitative methods. With regard to the analysis of actors, goods and transactions a

qualitative approach that allowed engagement with emerging themes over time was found to be useful. In the context of academic research this approach is transferable; however, in the context of donor-driven development practice it is unlikely that extended qualitative research would, or could, be employed in the majority of cases.

8.5 **The research findings in relation to contemporary ICT4D literature**

As noted, the research at Pabelan was situated against the emerging field of ICT4D in the early 2000s. This field, in line with technological and conceptual developments, has matured over recent years. It is, therefore, necessary to evaluate the findings presented in relation to contemporary literature on ICTs and markets. This is presented in the following section and presents additional reflections in relation to the research project's contribution, transferability and ongoing relevance.

8.5.1 The contribution of the research in relation to contemporary literature

Since 2005 there have been a number of notable additions to the ICT4D literature. This section presents a review of more recent ICT4D literature with a particular focus on the role of ICTs and markets and potential linkages with poverty reduction. All of the following articles are from outside of the Javanese, or Indonesian, context and, therefore also present opportunities for assessing the transferability of findings from Pabelan. Within the following review there is a common interest in differing access to information within markets and of the role of demand driven ICTs. These ICTs are mobile phones that, as highlighted, were also of growing significance in Java at the time of the research.

With a large amount of the evidence for the benefits that ICTs may bring to market-based development interventions being anecdotal, studies from the fishing sector of Kerala in south India have gained significant attention. Reuben Abraham's (2007) research investigates the uptake of mobile telephones within the fishing community in Kerala through a supply-chain based approach and survey of 172 respondents. Abraham finds that there has been notable uptake of mobile telephones within the fishing sector and that this is demand driven. This is taken to have led to a number of positive market impacts including less wastage in terms of fuel and time used in searching for fish as news of shoals could be communicated more efficiently. Abraham also notes that the majority of users surveyed reported a perceived reduction in risk and uncertainty following the uptake of mobile phones. However, Abraham finds that the reported reduction in risks did not translate into increased incomes. This is a point of some concern especially as Abraham claims the fishing community to be 'among the poorest of the poor' (Abraham, 2007: 6). With this in mind it is helpful to review Abrahams study in relation to elements of the framework presented above.

Firstly, one should note the goods involved are highly perishable and need to be taken to market quickly. This contrasts with the example of rice and from the Pabelan experience it would seem

reasonable to expect different market dynamics. Secondly, Abrahams does not disaggregate his findings by the different market actors within the fishing community in detail so it is, therefore, hard to identify specific benefits to the poorest of the poor, which one assumes are the fishermen themselves. However, it is noted that fishermen do not own their boats and that the income that they receive is a percentage of profits accruing to the boat owner. For poor fishermen with limited bargaining power such contextualisation, including access to capital resources, suggests that structural limitations within the sector may be of similar, or greater, significance than limitations pertaining to information asymmetries.

Abrahams finds greater benefits accruing to traders than producers by the uptake of ICTs. This is similar to the situation in Pabelan where it was traders who needed to allocate significant time and resources to search. Finally, a notable finding from Abraham's research is revealed through approaching findings from the perspective of transactions. The example is provided that the decision for a boat to land at a market is frequently dictated by an agent who has an invested stake in the boat and who earns commission from sales at previously designated markets rather than simply seeking the highest market price on offer. Here, again, it appears it is established relations between actors, credit and access to capital and, one assumes, a balancing of opportunities against risk by the recipient of credit that guide the terms of trade within transactions rather than a reductionist focus on price. Abraham's work is significant in showing linkages between the introduction of ICTs and changes within a market; however, with regard to poverty reduction there is no clear link demonstrated. In this regard further clarity between, actors, goods, transactions and access to capital resources may be revealing.

A further study of ICTs and markets based on the fishing sector in Kerala is provided by Robert Jensen (2007). Jensen's study focuses on an economic analysis from 1997 to 2001 of the price for sardines (type of good specified) following the introduction of mobile telephones. Jensen's model and findings are informed by price analysis over time within 15 spot markets and is supported by a sample of 20 household surveys, informal interviews and limited monitoring of fuel costs and travel. Jensen demonstrates, how following the introduction of mobile telephones there has been a distinct reduction in price variations across the markets. The study also shows welfare benefits, identified in terms of decreasing prices, for consumers and, in contrast to Abraham, increased profits for fishermen.[125] The conclusion being that market efficiency was improved due to greater and more equitable access to information that was facilitated by ICTs. Again, it is fruitful to highlight some key points in relation to the research at Pabelan and also in relation to Abraham's study above.

In terms of the study's relationship to poverty reduction Jensen's study does not distinguish between key market actors, particularly fishermen, and their differing access to resources. However, it was

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[125] Jenny Aker's (2008) study of grain traders and mobile telephone usage in Niger also demonstrates consumer and trader welfare benefits. Aker's model uses a broader set of variables including, alongside price, transport cost, rainfall and grain production. Traders also benefited from reduced search and access to a greater number of markets following uptake of mobile telephones. Acker speculates welfare benefits may extend to farmers, however, notes this was not addressed within the research.

noted that larger fishing boats (therefore one assumes richer fishermen or owners) were the early adopters of mobile telephones. The only reference to differing capacities or access to resources is confined to a footnote noting several fishermen may jointly own a boat. The study also assumes that fishermen sell directly to the markets of their choosing from their boats. This appears at odds with Abraham's findings above, although Abraham does not specify the type of goods fishermen are dealing in, who notes the role of agents and other actors; particularly boat owners and traders. The relevance of the research outlined herein is that it appears essential that ICT4D engages with the different types of actors and goods and the transactions these might give rise to. The application of such an approach in the Kerala examples may well add value and clarity to what appears to be contrasting findings within two significant pieces of research.

A final point of note with regard to Jensen's study is that it is again reiterated that there still very few grounded studies of ICT based interventions. Jensen further notes a key difference in the Kerala example as the uptake of mobile telephones was demand driven and sustained wholly by the private sector in contrast to a development intervention such as e-Pabelan. Again the growing uptake of mobile telephony among rural communities in Indonesia is of note in this regard. However, a final note of caution from the Kerala experience is required. Jensen concludes that the research findings show that ICTs can benefit the poor and he specifically notes fishermen and, somewhat surprisingly, farmers. The fact, as noted, that fishermen were not disaggregated according to their ability to access capital resources or in terms of poverty is problematic. Simply, the research in Kerala did not address the issue of farmers and the experience of Pabelan warns against overgeneralisation in this regard; a degree of caution and further research would seem to be required.

Ragnhild Overå (2006) finds evidence of changing market practices following the introduction of mobile phones in Ghana. Overå also notes a reduction in travel and associated costs among traders. These benefits are found to be greater in 'commodity chains that are geographically extensive and organizationally complex, especially when all partners in a network have (cell) phones.' (Overå, 2006:1309). However, in contrast to the welfare benefits described above, Overå's findings did not indicate any reduction of prices at markets. Overå notes the reason for the lack of changes in prices being that the majority of traders operating in the markets studied were yet to be using mobile telephones. Overå argues that the uptake of mobile telephones extended networks in some cases and significantly contributed to building trust within networks. However, it is important to note that the building of trust via ICT mediated communication in this instance was built on already established trading relations. The finding that ICTs were integrated into, rather than replaced, existing socio-cultural relations is noteworthy in relation to the findings from Pabelan that sees the adoption of ICTs as an engaged process of assessment set against existing socio-economic relations and norms.

The issue of trust is also addressed by Thomas Molony's (2007) study of micro and small-enterprises and mobile telephones in Tanzania. Inspired by a lack of qualitative research that details discrete segments of the economy the research takes a subsector approach and makes an analytical

distinction between trust and social capital.[126] Molony's study also finds mobile phones to be adapted to the pre-existing socio-cultural context with existing relationships being strengthened rather than being replaced. For example, traditional frequent, yet brief, greetings were readily suited to SMS and assisted in maintaining contacts with colleagues and customers. Reductions in travel costs were also noted as were savings relating to search. Despite the uptake of mobile telephones, Molony finds 'the social aspects of economic activities' contribute to maintaining the necessity, and dominance, of face-to-face communication overall (Molony, 2007:76).

A further study on mobile telephony and markets in Africa is provided by Abi Jagun, Richard Heeks and Jason Whalley (2008). This case study focuses on micro-enterprises within supply chains of the cloth-weaving sector in Nigeria. In terms of access to ICTs, again the rapid demand driven uptake of mobile telephones is the interest. The research takes an information first approach and notes the need for differing information prior to, during and following trading. This research gives rise to situated data and also includes the identification of differing actors (stakeholders in the authors' terminology) and addresses transactions. Findings also relate to trust and geography with direct, or face-to-face, interactions preferred in less integrated and less dispersed trading relationships. Again, reductions in transport and search costs were found. Further benefits of the adoption of mobile telephones related to a number of supply chain activities including monitoring orders and deliveries and confirming arrangements and meetings. However, despite these benefits the study also shows the persisting importance of face-to-face interactions as in Molony's study. Importantly, the authors found no evidence of the much-vaunted topic of disintermediation. These findings resonate with the experiences from Java described herein and add to the evidence that the idea of removing middlemen is conceptually poorly conceived.[127]

The contemporary ICT4D research outlined above represents a significant development of interest and priorities within ICT4D. In terms of access to ICTs, following the broad categories presented within the framework above, the growing global uptake of mobile telephones stands in stark contrast to the telecentre approach described in Pabelan. Consumer based uptake such as this may well mitigate many of the issues in establishing access as faced by the telecentre in Pabelan. As such, in terms of access it is perhaps likely that the framework described earlier in this chapter is more applicable to supply led ventures emanating from the development community. In terms of the choice of ICTS in relation to existing technologies and in providing a sense of ownership and, therefore, utility and relevance mobile telephony would appear to present advantages. In terms of context, all the above authors seek to move beyond unsituated success stories and anecdotal evidence to better situate the use of ICTs within localised socio-economic relations. The utility of Plattner's model and its integration into the framework presented is seen to contribute analytical clarity in this regard with

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[126] Compare with Fergus Lyon (2000) who sees trust as an 'integral part of what is termed social capital' (Lyon, 2000:664). Lyon also finds trust to be essential to the functioning of markets in his study of rural production and marketing in Ghana.
[127] In a related vein, and in direct contrast to the ICT4D received stance, it should be noted that Marcel Fafchamps (2006) argues that search costs and information asymmetries are what makes sophisticated markets possible through ensuring that contracts can be enforced. Without search there is no basis for the development of trust, coercion and formal contracts and so forth within markets.

respect to the goods, actors and transactions involved. For those studies described where this remains opaque, transparency and deeper contextualised understandings may be found through such distinctions. The topic of trust that is addressed by several authors resonates with the need for active and ongoing assessment as found in Pabelan. In this regard the findings from Pabelan show that it is the latter that gives rise to the former. A question that arises is at which point is trust assessed to outweigh perceived risk by differing market actors? An understanding of which would greatly contribute to understanding the point of initiation of change within market based ICT4D interventions.

In terms of outcome, the studies above represent two distinct lines of thought. The case studies from Kerala, and also Jenny Aker's (2008) study in Niger, emphasise discontinuities. This is not the brash and drastic expression of change of immanent development and the information age, but all the same the emphasis stresses the emergence of new market relations and practices that have been brought about by ICTs. The studies by Molony and Jagun *et al* offer a more cautious view that emphasises continuity and the adoption, and the adaptation of usage, of ICTs to pre-existing socio-economic relations. So, while all the papers outlined present a convergence in seeking to better understand the mechanics and function of ICTs in relation to markets, a clear difference remains in terms of interpretations of impacts. Overall, the convergence that appears evident is welcome in that it draws ICT4D back closer into the fold of wider development literature. This contrasts with the disjunction between ICT4D and development studies that, it has been suggested, was apparent at the turn of the millennium. In terms of outcomes and the impact of ICTs on markets clearly further research is needed to better identity both continuities and discontinuities and, as this is unlikely to be a zero-sum game, the interactions between the established and the new within markets following the introduction of ICTs. The research from Pabelan finds the importance of continuities in relation to existing socio-economic relations to be of key importance alongside the need for engaged assessment towards the application of information. In this respect the research from Pabelan contributes a contextualised case study from the Javanese context, with ongoing relevance, to the more cautious side of the debate.

8.5.2 Limitations of the research and transferability in relation to contemporary literature

A single case study evidently raises the issue of the possibility of the transferability of findings. In this regard the large socio-cultural differences within Indonesia itself requires acknowledgement and it should be reiterated that the research is situated in the rural Javanese context. However, in order to address the issue of context a case-study approach is justified. As noted above, while there are a number of contextualised studies emerging, such studies remain few and far between. The focus on context within the research also raises issues in respect of the transferability of methods and approaches. This is also applicable to the design of several data collection instruments employed. These included the questionnaire for the household survey and the use of the interview matrix for guiding structured interviews with farmers. As these instruments were designed following time spent at the research location they were considered to contribute to better exploring localised contexts in Pabelan. While the approach is transferable, the use of the data collection instruments would require

review and adaptation to alternate contexts. However, the matrix survey instrument utilised within the farmers' survey proved effective in providing structure while minimising formality. This may well be useful in other interview situations with poor or marginalised groups. Nevertheless, it requires reiterating that it is essential that proceedings are fully recorded during the interview in order to avoid possible errors within such an approach. These instruments are provided as appendices. The emphasis on qualitative research also brings into question the issue of subjectivity and the role of the researcher in relation to the researched.

A key strength of the research was also its largest weakness. This was the extended nature of the research and the resources such an approach requires. While this places such an approach outside the realms of most development practice, and hence the interest in PRA and more rapid appraisals as discussed in chapter four, it was considered essential in providing a deeper understanding of context in terms of the implementation of e-Pabelan and the local context e-Pabelan tried to influence. It was also, as noted in chapter six, the case that some insights were only gained towards the end of the research period following a thorough assessment of the researcher by the hosts. While this may more reflect the researcher being a male upper working in a second language rather than the approach to the research itself, it provides a clear indication of the value of time. The extended nature of the research also assisted greatly in better situating the case study approach employed. This approach appears justified by the recent articles discussed above, all of which tend away from isolated ICT4D snapshots.

In terms of data collection there were clear concerns relating to local poverty figures and as described in chapter four actions were taken to minimise any such risks. The observation that responses also varied over time in terms of content and detail with a number of respondents was evident in a number of discussions and again supports the view that extended studies should be undertaken where feasible. The time required to establish certain facts that were initially seen as quite straightforward, such as the initial activities undertaken at Pabelan, was another case in point. Errors in these respects were minimised through triangulating with other data collection techniques, follow-ups and cross-checking with other respondents. Nevertheless, with particular regard to the emphasis on qualitative data within the research the assessment of the validity of the data collected ultimately fell to the flawed subjectivity of the researcher. It was also considered that this may be exaggerated by the use of open coding in the initial stages of analysis although efforts, in terms of self-reflection and revisiting texts, were taken to minimise such risks. Despite these shortcomings the approach adopted remains valid in light of the more recent studies outlined above and the ongoing need for contextualised contributions.

In relation to the post-2005 research outlined above it requires noting that the research was concerned with a single study of a supply-led ICT venture. As noted, this raises questions regarding the utility of the framework presented in terms of access to demand-driven ICT ventures. In terms of the establishing of access the research is limited to an examination of donor, or practitioner, driven development interventions. Further, the research is primarily presented from the production side of the supply chain. On the one hand this provides some indication of the time required for research to

effectively engage with the topics in hand and the need for targeting limited respondents. On the other hand, it suggests that a more detailed analysis of the role of traders within extended supply-chains would be useful. Finally, it requires noting that addressing the idea of a direct link between information and poverty was difficult within the research due to such notions being viewed as largely abstract and of purely academic interest. Further research into developing data collection instruments that can better assist in analysing causality in this regard would be helpful. The issue of limitations of the research conducted are further discussed in relation to the recommendations for theory, future research and practice that are presented below.

8.6 **Recommendations for further research, theory and practice**

Based on the findings and limitations presented above this section summarises recommendations for theory and future research and practice and policy. In terms of theory the research demonstrates the need for, and the benefits of, better contextualisation within ICT4PR. The broader theoretical premises that e-Pabelan were based upon, and represented, stressed universals in terms of the applicability and relevance of ICT based interventions. This has not stood up to scrutiny. In Pabelan such conceptualisations were challenged by pre-existing market and institutional relations. As noted, recent research does indicate potential benefits towards the poor stemming from the adoption of ICTs; however, it is also becoming increasingly evident that such benefits are context dependent and variable. Such a view may not be entirely new to historians of development and one hopes that the indications of a theoretical merging between ICT4D and development studies that the more recent work outlined above suggests continues.

The contribution from Pabelan emphasises the need to better isolate key factors and potential impacts among varied actors. This implies a move away from meta-theories, such as the information age thesis, to engagement with local realties amidst a rapidly changing ICT, in terms of mobile telephony, landscape. As has been emphasised, the way in which poor rural producers actively assess and manage risk in order to secure livelihoods requires a rethinking within much ICT4D literature. Although an emphasis on the local tends to preclude universally applicable theories, such an approach is likely to provide more helpful in better situating the potential of ICT4D. It is increasingly clear that the former has been of limited use and what appears to be a theoretical shift from the justification of the use of ICTs to an examination of the use of ICTs would seem helpful. With respect to the markets that the poor operate within further research exploring the mechanisms within which trust is developed through a process of assessment and the relationship with access to information for different actors within localised markets. The issues of risk, trust and processes of assessment seem worthy of further theoretical consideration within ICT4D. The function of the selection of differing goods in relation to risk is of particular note in this regard.

Finally with regard to theoretical underpinnings the research presented herein has sought to better situate ICT4D within the wider field of development studies. While there have been a number of

attempts, as reviewed in chapter two, seeking to theoretically position ICT4D in relation to broader development discourse these have been largely influenced by post-development critiques. As such, they are limited in terms of bridging development theory and praxis. There would appear opportunities for seeking to better bridge this particular divide within ICT4D particularly considering ICT4D's leanings towards praxis. The more recent research outlined earlier in this chapter suggests that the demand driven uptake of mobile telephones has resulted in a shift away from the issue of access and towards usage and impact. This emphasis seems to be lending wider support to the information first approach that Heeks (1999b) has advocated in particular. While this appears laudable future research, and particularly that concerned with poverty reduction, should not shy away from the benefits presented by a development first approach to ICT4D.

In relation to further research the need for further case studies appears justifiable; with the strong proviso that such studies are contextualised. To date, there are no other substantial studies of ICTs and poverty in Indonesia that the author is aware of. While there are parallels with the studies from Africa mentioned above that emphasise continuity, additional points of reference from the Indonesian context would be helpful. In this respect the application of a supply-chain approach in relation to markets and the uptake of mobile telephones by producers, traders and consumers would appear applicable to further research in Java and Indonesia as a whole. However, a focus on supply chains should resist and continue to move away from *a priori* assumptions of the role of traders and producers and better base such understandings in reality.[128] A historical analysis of why ICT4D has inherited such a biased view of traders may also prove to be of theoretical interest. With regard to mobile telephones to date in Indonesia there have been no detailed studies of the potential ancillary benefits of mobile telephony to low-income households through presenting new micro-enterprise opportunities. As noted, the numerous micro-enterprises that are emerging to retail and distribute pre-paid phone cards and second hand mobile phones are becoming a highly visible part of the Javanese landscape.

In terms of development practice the research described herein does not directly lend much support to one-size-fits all telecentre approach. Rather the research suggests the need for targeted interventions that seek to impact upon clearly identified development needs that have a strong information and/or communication component. In this regard it is very likely the ICT of choice would be the mobile telephone. However, it is important that the intended beneficiaries of ICT4D interventions, and this by definition is emphasised for those that target poverty, are provided with ample opportunities for engagement and assessment over time. For donors this may mean a conceptual shift from expecting rapid results from the provision of access to a more process oriented approach over time. However, if a development first approach is adopted there would seem to be advantages from an approach that seeks to better incorporate ICTs into poverty reduction interventions rather than seeing ICT4PR as a viable standalone venture. A further issue arising from

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[128] This requires reiterating as, for example, while in Java the research herein shows specialisation in trade by crop, in Benin and Malawi Marcel Fafchamps and Elini Gabre-Madhin (2006) find there is specialisation by sector but not by crop. The primary goods involved in this instance were maize, beans, roots and tubers.

Pabelan is the need for active monitoring and evaluation throughout the project cycle. Within ICT4D enthusiasm for access should, at times, be curbed in favour of good practice.[129] Finally, there should be a more balanced approach to poverty reduction within ICT4PR that recognises that seeking to increase opportunities without addressing related factors will be of little impact.

Finally, in turning to the policy field, and with particular reference to Indonesia, there would appear to be a decline in added value in pursuing high-cost, though visible, supply led ventures such as telecentres. This is particularly acute when compared to the utility, uptake and convenience of mobile telephony. With the private sector increasingly providing access to mobile telephones, the issue then turns to how these ICTs can be applied to range of policy issues. The potential applications in Indonesia are numerous and range from increasing accountability and transparency in the delivery of government services, including better integration and targeting within agricultural extension services, to outreach and social marketing initiatives. With regard to the latter, following the 2004 Indian Ocean tsunami and 2006 Yogyakarta and Central Java earthquake, a major policy shift in Indonesia with significant relevance to the poor has been the rise of disaster risk reduction (DRR). DRR is now a national priority and presents interesting potential for the application of ICTs towards preparing communities and individuals for potential natural (and human made) hazards. Research in this area may reveal specific applications of ICTs towards securing the livelihoods of poor individuals in a highly disaster prone region and would appear to link with current policy initiatives and emerging priorities. Although this may not appear directly relevant to how the poor secure their livelihoods in markets, it is highly significant in reducing vulnerability and reducing the potential loss of the few productive resources and capital assets the rural poor may possess. In terms of poverty reduction targeted and contextualised applications in this field may well prove significant. Finally, despite the simplistic allure that the idea of the digital divide may provide, policy makers must be mindful of the fact that ICT4PR offers no quick fixes. To continue to act as though it does shows little understanding of the realities of the poor.

8.7 **Concluding remarks**

e-Pabelan proved to be far harder to implement in practice than anticipated. Despite acknowledgements of social factors, community engagement, and a pro-poor process, in practice the project reflected an attempt to bridge the digital divide. e-Pabelan was implemented as if it was an event and was subsequently forced, by necessity, to try to become a development process. ICT4PR needs to be viewed as a coherent and targeted process of development from the outset. This requires both a significant commitment and a shift of emphasis away from technology and towards development solutions that are based on identified needs. As has been demonstrated a way forward may be found through moving away from an emphasis on the external to better engaging with

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[129] While one would hope that the poor monitoring described was peculiar to Pabelan this does not appear to be the case. On explanation for this may be the emphasis on establishing access above all else in such approaches. See the World Bank (2005) report on ICTs in Indonesia that this research contributed to.

networks and relations of power within communities. Further, with respect to how the rural poor secure their livelihoods, ICT4PR would do well to better engage with and address how poor individuals actively play the market if more relevant solutions to the troubling and persisting issues of poverty and marginalisation are to be found. Contrary to digital divide based promises, e-Pabelan did not increase inclusion in either external or internal networks for the poor and it is increasingly clear that e-Pabelan was not an isolated event in this regard.

Within ICT4PR there can be a temptation to focus on the tangible rather than the intangible. While the bricks and mortar of a telecentre are a highly visible use of funding the fact remains that it is information that lies at the heart of ICT4PR. Needless to say, information alone does not have the same immediate appeal to donors as buildings, hardware and RAM. It may well not have the same appeal for potential local partners also. However, the experience of e-Pabelan demonstrates that the utility of ICT4PR ultimately rests on both its conceptual foundations and the socio-economic and political environment into which such projects are introduced. ICT4PR is also heavily dependent on the linkages through which such projects are implemented and the socio-economic and political networks they seek to influence. Due attention must be paid to these issues if fuller inclusion is to be achieved. An approach that emphasises universally beneficial technical access obscures such critical factors. Importantly, such an approach does not address the need for ongoing and engaged assessment that is so central to determining utility and relevance. The danger of ICT4PR, as illustrated by e-Pabelan, is that enthusiasm for the technical can, if left unchecked, lead to ICT4PR riding rough shod over many development fundamentals already accrued. While this would appear to be changing, the continuation of such an approach would do few favours for ICT4PR within the wider field of development or for the individuals and communities that ICT4PR claims to seek to empower.

Appendix A: Field research Gantt chart

		Field Research period											
		2004			2005								
	Date	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
		1	2	3	4	5	6	7	8	9	10	11	12
Pre-research events/activities													
PePP	2004 to 2007												
e-Pabelan baseline survey	12-16 May												
e-Pabelan launch	23 May												
Ethnographic Action Research	7 May to 20 June												
EAR team led community trainings	late May												
Kelompok trainings	8 to 31 July												
Telecentre volunteer (GP) training	July												
Lowest recorded particpation at e-Pabelan	September												
Registration of research in-country	September												
Orientation of researcher Bappenas/UNDP	September												
Researcher arrives at research site		X											
Key events during research period													
Ramadan			X X X X										
Partner crisis meeting				X									
Revised MoU between partners					X								
English language course					X X	X X X X	X X X X	X X X X	X X X X	X X X X	X X X X	X X X X	X X X X
Technical administrator appointed							X						
New telecentre management team appointed									X				
Infomobiliser appointed											X		
Fees for using telecentre introduced												X	
Extension of Internet payment (Bappenas/UNDP)												X	

Research activities		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
		1	2	3	4	5	6	7	8	9	10	11	12
Informal interviews: Community leaders		X X X X											
Infomal discussions: Community		X X X X	X X X X	X X	X X X X	X X X X	X X	X X X X	X X X X	X X X X X X		X X X X	X X
Review 2ndry data: baseline survey, EAR, local stats.		X X	X X										
Analysis e-Pabelan participation figures			X X		X	X	X	X	X	X	X	X	X
Mapping of village (10 *dusun)*		X	X X X X										
Interview sub-village (*dusun*) heads			X X X X										
Choice of 5 *dusun* for inclusion in research				X X X									
Establishment of e-Pabelan timeline/activities (PRA)		X X											
Semi-structured interviews: TC trainees (*kelompok*)				X X	X X								
Direct/participant observation at telecentre		X X X	X X X X	X X	X X X X	X X X	X X	X X X	X X	X X X	X X	X X X	X X
Supplementary PRA			X X	X X				X		X		X	
Design, train surveyors and test household survey				X	X X X X								
Conduct household survey						X X X X							
Participant observation in village/fields		X X	X X X	X X	X X	X	X X X	X X	X X X X	X X X	X X X X	X X X	X X
Semi-structured interviews: farmers			X X	X X	X		X X X						
Design and test farmer survey								X X X					
Conduct farmer survey										X X X X	X		
Survey telecenter users											X X X X	X X X X	
Additional informal discussions with key individuals*		X	X X		X X	X	X	X	X	X X	X	X	
Review, analysis and reflection				X X X			X X		X		X		X X

* Former head of *pesantren*; statistical office; microcredit officials; agricultural extension workers; key business people in village; traders; agricultural suppliers; telecentre team; *pesantren* officials and teachers; village health worker.

Source: Author.

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Appendix B: Summary table of overlap of research instruments and triangulation

Research Tool	Research topic following conceptual framework					
	Background	Access Techology	Access Information	Socio-economic relations	Capital Resources	Poverty
Informal interviews: Commnity leaders	primary	primary	primary	primary	primary	primary
Infomal discussions: Community	primary		primary	secondary	primary	primary
Review 2ndry data: baseline survey, EAR, local stats.	primary	primary			secondary	secondary
e-Pabelan participation figures		primary			secondary	secondary
Mapping of village (10 *dusun*)	primary	primary			secondary	
Interview sub-village (*dusun*) heads	primary		secondary	secondary	primary	secondary
Establishment of e-Pabelan timeline/activities (PRA)	primary	primary	secondary			
Semi-structured interviews: telecentre trainees		primary	primary			
Direct/participant observation at telecentre		primary	primary			
PRA	secondary	secondary	secondary	secondary	primary	secondary
Household survey	primary	primary	primary	secondary	primary	primary
Direct/participant observation in field			secondary	primary	primary	primary
Semi-structured interviews: farmers	secondary		secondary	primary	primary	secondary
Farmer survey			secondary	primary	secondary	secondary
Survey telecenter users		primary	primary		secondary	secondary
Additional key informant interviews	primary		primary	primary	secondary	primary

Source: Author.

Note: Primary and secondary above refer to the use and focus of the specific research instrument. These labels do not reflect overall prioritisation within the research.

Appendix C: Poverty categories by village sub-unit for selection of poorest sub-units

	A	B		C		D	E	F	G	H				
	No. Very poor households	No. Poor households	Sum of A & B	No. Almost sufficient households	Sum of A, B & C	No. Households monthly income <80,000Rp	No. of poor households (composite)	No of poor households village statistics	Households receiving subsidised rice	Individuals receiving health cards	*Count 1*	*Include?*	*Count 2*	*Include?*
Pabelan I	4	7	*11*	6	*17*	15	10	95	37	115	*5*	maybe	5	maybe
	12.5%	21.9%	*34.4%*	18.8%	*53.2%*	46.8%	32.3%	x	x	x				
Pabelan II	1	11	*12*	9	*21*	16	17	48	30	44	*2*	no	2	no
	2.5%	27.5%	*30.0%*	22.5%	*52.5%*	40.0%	42.5%	x	x	x				
Pabelan III	4	16	*20*	9	*29*	24	32	59	32	115	*5*	maybe	6	YES
	7.5%	30.2%	*37.7%*	17.0%	*54.7%*	45.3%	61.5%	31.7%	17.2%	16.1%				
Pabelan IV	11	4	*15*	6	*21*	16	22	81	31	140	*5*	telecentre	5	YES
	26.8%	9.8%	*36.6%*	14.6%	*51.2%*	39.0%	55.0%	32.1%	12.3%	15.9%				
Blangkunan Utara	7	10	*17*	3	*20*	14	13	46	26	103	*1*	no	2	no
	17.5%	25.0%	*42.5%*	7.5%	*50.0%*	35.0%	38.2%	x	x	x				
Blangkunan Sel	5	14	*19*	12	*31*	22	22	87	43	74	*4*	no	5	Maybe
	9.4%	26.4%	*35.8%*	22.6%	*58.4%*	41.5%	43.1%	x	x	x				
Tangkilan	5	2	*7*	3	*10*	7	9	47	20	75				
	27.8%	11.1%	*38.9%*	16.7%	*55.6%*	38.9%	52.9%	27%	11.5%	12.1%	*2*	no	4	no
Jagalan	11	8	*19*	11	*30*	26	23	82	34	136	*6*	yes	7	YES
	21.2%	15.4%	*36.6%*	21.2%	*57.8%*	50.0%	47.9%	34.5%	14.3%	15.3%				
Batikan	7	11	*18*	7	*25*	17	20	20	20	100	*5*	maybe	7	YES
	18.9%	29.7%	*48.6%*	18.9%	*67.5%*	46.0%	54.1%	16.8%	16.8%	21.4%				
Selak	6	11	*17*	6	*23*	20	20	68	27	116	*5*	maybe	6	YES
	15.1%	28.2%	*43.3%*	15.4%	*58.7%*	51.3%	54.1%	39.1%	15.5%	16.8%				
Total	**61**	**94**	*155*	**72**	*227*	**177**	**188**	**633**	**300**	**1018**				

Source: Author. Adapted from the following: A, D, C, D, & E Pabelan Baseline Survey (PT Risadata, 2004); F Data Keluarga Miskin (Pabelan village data, 2004); G Beras Raskin (Pabelan village data, 2004); H Kartu Sehat (Pabelan village data, 2005).

Appendix D: Telecentre users' questionnaire

<u>Kuesioner- Penggunaan Telecentre e-Pabelan</u>

'Semua informasi yang anda berikan akan dirahasiakan dan hanya akan digunakan untuk penelitian ini.' Alex.

Tanggal: ____ Juli/Agustus 2005

Berilah tanda (√)

1. Jenis kelamin: **a**. Laki-Laki ☐   **b**. Perempuan ☐

2. Umur:

	√		
Kurang 10 tahun		26 - 35	
10 - 15		36 - 45	
16 - 19		45 – 55	
20 - 25		Lebih 55 tahun	

3. Apakah anda sudah menikah: **a**. Sudah ☐ **b**. Belum ☐

4. Apakah anda ada anggota keluarga anda yang tinggal di daerah yang lain?

√

a. Ya ☐   **b**. Tidak ☐   Kalau Ya, tolong sebutkan: _____

5. **a**. Daerah/kota asal: _____

    b. Tempat tinggal sekarang:_____

    c. Apakah status rumah anda?
        √ Punya sendiri? ☐   Ikut orang tua? ☐   Kontrak/kos? ☐   Yang lain? ☐

√

    c. Apakah anda santri di Pondok Pesantren Pabelan: **a**. Ya ☐   **b**.
Tidak ☐

    d. Apakah anda sedang ikut kursus Bahasa Inggris di Telecentre? **a**. Ya ☐ **b**. Tidak ☐

6. Pendidikan terakhir (sudah selasai):

                √

SD atau sederajat	
SMP atau sederajat	
SMU atau sederajat	
Diploma III	
Sarjana	
Pascasarjana	

7. Pekerjaan sekarang:

√

Pelajar/Mahasiswa	
Guru	
Pegawai (PNS)	
Pegawai swasta	
Petani	
Pedagang	
Pengrajin	
Wirausahawan	
Pengangguran	
Ibu rumah tangga	
Yang lain (Tolong sebutkan):	

----

8. Apakah anda punya alat-alat ini (punya sendiri atau ada di tempat anda tinggal)?

√

Radio	
Televisi	
Komputer	
HP	
Telepon rumah	

9. Rata-rata, berapa jam per hari yang anda gunakan untuk:

    a. Menonton TV/VCD/DVD   _____ jam

    b. Mendengarkan radio atau musik   _____ jam

    c. Membaca koran/majalah/jurnal   _____ jam

    d. Membaca literatur professional/studi   _____ jam

    e. Membaca literatur cetak lainnya   _____ jam

                                                               √

10. Apakah anda pernah menggunakan komputer sebeleum hari ini? **a**. Ya ☐   **b**. Tidak ☐

11. Apakah anda pernah mengakses Internet sebelum hari ini?   **a**. Ya ☐   **b**. Tidak ☐

12. Menerut anda, bagaimana ukuran kemampuan/pengetahuan anda dalam hal-hal berikut:

	Pemula sekali	Pemula	Sedang	Terampil	Terampil sekali
a. Pengetahuan komputer	1	2	3	4	5
b. Pengetahuan Internet	1	2	3	4	5
c. Kemampuan Bahasa Inggris	1	2	3	4	5

13. Bagaimana cara anda mempelajari cara menggunakan Internet/komputer? (boleh lebih dari satu pilihan)

√

Belajar sendiri	
Bertanya kepada teman	
Bertanya kepada staf Telecentre	
Pendidikan/kursus Telecentre e-Pabelan	
Pendidikan/kursus di tempat yang lain. Tolong sebutkan:	
Yang lain. Tolong sebutkan:	

14. Apakah anda mengakses Internet di tempat yang lain, selain telecentre e-Pabelan? (boleh lebih dari satu pilihan)

√

Warnet	
Tempat kerja	
Sekolah/kampus	
Yang lain. Tolong sebutkan:	

15. Rata-rata, berapa hari dalam seminggu anda menggunakan Internet/komputer?

√

1 kali atau kurang	
2 - 3	
4 - 6	
7 - 10	
11 - 14	
15 atau lebih	

16. Rata-rata, berapa jam anda memakai Internet/komputer setiap kali menggunakannya?

√

1 jam atau kurang	
2 jam	
3 jam atau lebih	

17. Berikan persentase (%) bahasa yang Anda gunakan ketika mengakses Internet

%

Bahasa Indonesia	
Bahasa Jawa	
Bahasa Inggris	
Yang lain: Tolong sebutkan	

18. Faktor apa yang membatasi anda dalam menggunakan Telecentre e-Pabelan? *(Silakan beri angka pada kolom di sebelah kanan untuk menunjukkan mulai <u>yang paling membatasi</u> dengan angka 1 (satu) dan seterusnya)*

	Ranking
a. Biaya (setelah 1 August 2005)	
b. Lokasi telecentre	
c. Kecepatan akses	
d. Waktu luang	
e. Kemampuan pribadi	
f. Jumlah informasi dan layanan yang bermanfaat di Internet	
g. Yang lain, tolong sebutkan:	

19. Biasanya, apakah anda mengunjungi Telecentre e-Pabelan sendiri atau ada arang yang ikut (teman, saudara dll)?

√

a. Sendiri ☐   **b**. Ada yang ikut ☐

20. Biasanya, anda memakai Telecentre ini untuk apa? (boleh lebih dari satu pilihan)

√

a. E-mail	
b. Chatting	
c. Membaca berita online	
d. Main game computer	
e. Belanja online	
f. Download musik	
g. Mengetik dokumentasi, skripsi dll	
h. Print	
i. Mencari informasi tentang pendidikan (belajar, beasiswa dll)	
j. Mencari informasi tentang kesehatan	
k. Mencari informasi yang berhubungan dengan pekerjaan/profesi	
l. Mencari informasi tentang lowongan kerja	
m. Mencari informasi yang lain, tolong sebutkan:	
n. Menggunakan Telecentre untuk hal tidak terkait komputer (seperti ngobrol, sosialisasi, dll.)	
o. Yang lain, tolong sebutkan:	

i.   Kalau 'E-mail', anda mengirim e-mail ke mana? (boleh lebih dari satu pilihan)

√ Lokal? ☐   Propinsi? ☐   Nasional? ☐   Internasional? ☐

ii.   Kalau 'chatting', anda chat dengan orang dari mana? (boleh lebih dari satu pilihan)

√ Lokal? ☐   Propinsi? ☐   Nasional? ☐   Internasional? ☐

21. **Menurut anda**,

a. Apakah *kelebihan* utama Telecentre e-Pabelan?

_____
_____
_____
_____

b. Apakah *kekurangan* utama Telecenter e-Pabelan?

_____
_____
_____
_____

c. Apakah saran, pendapat dan usulan anda terhadap Telecentre e-Pabelan?

_____

_____

_____

_____

'Terima kasih banyak atas kerjasamanya!' *Alex.*

Questionnaire: e-Pabelan Telecentre Users

'The information that you provide will be treated in confindence and is only to be used for my research into the telecentre.' Alex.

Date: _____ 2005

Please indicate (√)

1. Gender: **a**. Male ☐ **b**. Female ☐

2. Age:

	√		√
Younger than 10 years		26 - 35	
10 - 15		36 - 45	
16 - 19		45 – 55	
20 - 25		Older than 55 years	

3. Are you already married: **a**. Already ☐ **b**. Not yet ☐

4. Do any of your family live in other areas (of Indonesia)?

√

a. Yes ☐ **b**. No ☐ If yes, please say where: _____

5. **a**. Home region/town: _____

b. Where do you live now:_____

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d. Residential status?

√ Own home? ☐   Live with parents? ☐   Rent/boarding house? ☐   Other? ☐

√

c. Are you a student at Pondok Pesantren Pabelan: **a.** Yes ☐   **b.** No ☐

d. Are you attending the English course at the telecentre? **a.** Yes ☐ **b.** No ☐

6. What's your highest educational attainment (completed):

√

None	
Primary	
Junior high	
Senior high	
Diploma	
Graduate	
Post-graduate	

7. What's your current profession:

√

Pupil/student	
Teacher	
Government employee	
Business person	
Farmer	

Trader	
Craft person	
Unemployed	
House wife	
Other (Please specify):	

----

8. Do you have any of the following that you own yourself or you can access where you live?

√

Radio	
Television	
Computer	
Mobile phone	
Fixed line phone	

9. Approximately, how many hours a day do you spend doing the following:

    a. Watch TV/VCD/DVD   _____ hours

    b. Listen to radio or music   _____ hours

    c. Read newspaper/magazine   _____ hours

    d. Read for work/study   _____ hours

    e. Read other print media   _____ hours

√

10. Before today, have you ever used a computer before?　　**a**. Yes ☐　**b**. No ☐

11. Before today, have you accessed the Internet before?　　**a**. Yes ☐　**b**. No ☐

12. In your opinion, how would you rate your skills/knowledge of the following?

	Complete beginner	Beginner	OK	Good	Advanced
a. Using computer	1	2	3	4	5
b. Using Internet	1	2	3	4	5
c. English language ability	1	2	3	4	5

13. How have you studied or learnt how to use the computer/Internet? (You may choose more than one answer)

√

Not yet	
Taught myself	
Asked my friends	
Asked e-Pabelan telecentre staff	
Studied or attended course at the e-Pabelan telecentre	
Studied or attended course at another place. Please specify:	
Other.	

210

Please specify:	

14. Do you access the Internet at another place besides the e-Pabelan telecentre? (You may choose more than one answer)

√

No	
Internet cafe	
Work place	
School/ campus	
Other. Please specify:	

15. Approximately, how many days a week do you use a computer or access the Internet?

√

0 -1 time	
2 – 3 times	
4 – 6 times	
7 – 10 times	
11 – 14 times	
15 or more	

16. Rata-rata, berapa jam anda memakai Internet/komputer setiap kali menggunakannya?

	√
1 jam atau kurang	
2 jam	
3 jam atau lebih	

17. Please indicate as a percentage (%) approximately how often you use the following languages when you access the Internet:

Indonesian	
Javanese	
English	
Other: Please specify	

18. Which of the following, if any, do you think limit your use of the e-Pabelan telecentre? *(For the limitations you choose please number the most limiting 1 , the next most limiting 2 and so on)*:

	Ranking
a. None (√ no ranking)	
b. Cost (after August 2005)	
c. Telecentre location	
d. Internet speed	

e. The free time you have	
f. Own knowledge/ability	
g. The amount of usable information and services available on the Internet.	
h. Other Please specify:	

19. Usually do you visit the e-Pabelan Telecentre alomne or with other people (friends, relatives, etc)?

√

a. Alone ☐   **b**. With others ☐

20. What do you usually use the e-Pabelna telecentre for? (you may choose more than one answer)

√

a. E-mail	
b. Chatting	
c. Read news online	
d. Play computer games	
e. Shop online	
f. Download music	
g. Typing documents etc	
h. Printing	
i. Looking for information about your studies	

j. Looking for information about health issues	
k. Looking for information related to your work	
l. Looking for information about employment opportunities	
m. Look for other information Please specify:	
n. Do you use the e-Pabelan telecntre for other reasons that are not connected with computers (meeting friends, socialising or similar)	
o. Other Please specify:	

j. If you 'email', where do you usually send emails to? (you may choose more than one answer) √

Local area? ☐ Same province? ☐ Other part of Indonesia? ☐ International? ☐

ii. If you 'chat', where do the people you chat with usually come from? (you may choose more than one answer) √

Local area? ☐ Same province? ☐ Other part of Indonesia? ☐ International? ☐

21. In your opinion,

a. What are the advantages of the e-Pabelan telecentre?

_____
_____
_____
_____

b. What are the disadvantages of the e-Pabelan telecentre?

_____
_____
_____
_____

    c. Do you have any other comments or suggestions that you would like to add?

_____

_____

'Thank you very much for you cooperation!' *Alex.*

Appendix E: Communication with outside areas by young telecentre users

PRA Output (cleaned) 16.8.05. Library, Pabelan. (9 female, 18 male).

	Location	No of respondents communicating via e-mail	No of respondents communicating via chat
Local	Pabelan	5	3
	Muntilan	2	0
	Magelang	1	1
	Yogyakarta	7	6
Sub-total		15	10
Running total		15	10
Java	Semarang	0	1
	Surabaya	0	3
	Bandung	1	1
	Jakarta	3	5
Sub-total		4	10
Running total		19	20
National	Kalimantan	1	0
	Indonesia	0	1
Sub-total		1	1
Running total		20	21
Asia near	Malaysia	1	2
	Singapore	0	2
	Phillipines	0	1
Sub-total		1	5
Running total		21	26
Asia distant	Taiwan	0	1
	Japan	2	1
	India	2	0
	Pakistan	0	1
	Australia	1	0
Sub-total		5	3
Running total		26	29
Other	Egypt	1	1
	USA	2	3
	UK	2	2
Sub-total		5	6
TOTAL		**31**	**35**

Source: Author, 2005.

Appendix F: Persons already attended telecentre training

<u>**Semi-structured interview**</u>

Nama: _____

Alamat: _____

Jenis Kelamin: Laki-laki/Perempuan

Umur: _____

Tangal: _____

Pekerjaan: _____

Apakah anda sudah pernah mengiikuti kursus pelatihan computer dan Internet di telecentre?

1 Berapa kali?

2 Dengan kelompok apa?

3 Apakah anda sering datang ke pertemuan kelompok ini?

4 Berapa anggota kelompok ini?

5 Menurut anda berapa persen (rata-rata) anggota kelompok orang kurang mampu?

6 Kelompok ini bertemu kapan dan dimana?

7 Kelompok ini melakukan aktivitas-aktivitas apa?

8 Ketua kelompok ini siapa?

9 Apakah anda anggota kelompok yang lain?

10 Apakah anda sudah memakai computer atau Internet sebelum kursus itu?

11 Dalam kursus ini, anda belajar apa (dan mencari informasi apa)?

12 Salah satu ide adalah orang yang sudah ikut kursus telecentre akan memberikan informasi kepada orang yang lain, apakah cara itu efektif atau tidak?

Mengapa?

13 Apakah anda mengunjungi TC sesudah kursus selasai?

Mengapa?

14 Tujuan proyek ini untuk meningkatkan masyarakat, menurut anda bisakah proyek ini meningkatkan masyarakat?

Mengapa?

15 Menurut anda apakah memakai Internet berguna atua tidak?

Mengapa?

16 Menurut anda bagaimana cara bisa membuat TC lebih baik atau lebih berguna untuk masyarakat?

17 Tujuan proyek untuk itiu adalah memberikan informasi yang berguna kepada masyarakat. Menurut anda, informasi apa yang anda perlukan?

18 Menurut anda, apakah anda kurang mampu atau tidak?

(Kenapa anda merasa anda kurang mampu?)

19 Menurut statistik lokal, apakah anda termasuk keluarga kurang mampu atau tidak?

(BERAS RASKIN, kartu sehat dll)

Anda merasa bagaimana tentang itu?

20 Menurut anda, apa artinya 'kemiskinan'?

21 Menurut anda apakah hubungan kemiskinan dan mengakses informasi?

English Translation

Persons already attended TC training

Semi-structured interview

Name: _____

Address: _____

Gender: Male/Female

Age: _____

Date: _____

Occupation: _____

Did you attend the computer and Internet training course in the telecentre?

1 How many times?

2 With which community group?

3 How often do you attend these community group meetings?

4 How many members are there in this community group?

5 In your opinion roughly how many percent of this group are 'poor' (*kurang mampu*)?

6 When and where does this group hold meetings?

7 What activities are conducted by this group?

8 Who is the head of this group?

9 Are you a member of any other community group?

10 Have you ever used a computer or the Internet before this course?

11 What did you study during this course (and what kind of information did you look for)?

12 One idea is that people from this course will give information to other people, Do you think this is effective or not?

Why?

13 Have you visited the telecentre since when you finished this course?

Why?

14 One of the aims of this project is to help community development. Do you think this project may help people progress?

Why?

15 Do you think using the Internet is useful or not?

Why?

16 How do you think the telecentre could be improved?

17 One of the goals of this project is to provide useful information to people. What kind of information do you think is needed?

18 Do you consider yourself 'poor' (*kurang mampu*) or not?

Why?

19 According to local statistics are you considered 'poor' (*kurang mampu*) or not?

(Subsidised rice, health card, etc)

What do you think about this?

20 In your opinion, what is the definition of poverty?

21 In your opinion what is the relationship between poverty and information?

Appendix G: Household Questionnaire

<u>Daftar Pertanyaan Keluarga Kurang Mampu, Pabelan</u>

Sample No:

Nama KK: _____ P / W (hadir / tidak)

Nama Responden (kalau lain): _____ P / W

Dusun: _____

RW: _____

RT: _____

Nama Pewawancara: _____

Tangal: _____ Pebruari 2005

Kami melakukan penelitian tentang *e-Pabelan telecentre/Internet* yang didirikan pada tanggal Mei 2004.

Tujuan proyek itu untuk '(m)eningkatkan kemampuan masyarakat pabelan dalam hal mengakses informasi […].' (BAPPENAS, Jan 2005).

Khususnya, penelitian ini tertarik dengan jaringan kerja dan jaringan informasi dan berkommunikasi di masyarakat Pabelan.

Penilitian ini penelitian mandiri dilakukan oleh Alex Robinson di Universitas di Inggeris.

Semua informasi akan dipakai*, **tanpa** menunjukkan identitas apapun dari responden*.

Terima kasih banyak

Alex Robinson

Alex J Robinson
Peneliti
University of Huddersfield, England
CEEE, Centre for Enterprise, Ethics and the Environment
(Universitas Huddersfield, Inggeris)
(Pusat Perusahaan, Etik dan Lingkungan)

A Data Keluarga

A1 Berapa orang di keluarga?

	P	W	Umur
A Kepala Keluarga			
B			
C			
D			
E			
F			
G			
H			

A1.1 Pendidikan formal?

	Sudah selesai:							*Sebutkan:*	
	Tidak	SD	SMP	SMA	S1	S2	S3	Pondok *Pesantren?*	Masih?
A Kepala keluarga									
B									
C									
D									
E									
F									
G									
H									

B Kerja

B1.2 Orang di rumah ini kerja apa?

Sebutkan: bakul, tukan kayu dll

a Pegawai	Orang A: **P** / **W**
	Orang B: **P** / **W**
	Orang C: **P** / **W**
	Orang D: **P** / **W**
b Wiraswasta	Orang A: **P** / **W**
	Orang B: **P** / **W**
	Orang C: **P** / **W**
	Orang D: **P** / **W**

c i Petani / Petani buruh	Orang A: **P** / **W**
Petani / Petani buruh	Orang B: **P** / **W**
Petani / Petani buruh	Orang C: **P** / **W**
Petani / Petani buruh	Orang D: **P** / **W**

c ii Kalau milik sawah berapa hektar?

ha

Berapa Orang:

	P	W
d Nganggur		

Sebutkan: kerja di rumah dll

e Lain	Orang A: **P / W**
	Orang B: **P / W**
	Orang C: **P / W**

B2.1a Kalau **petani**, menanam apa?

a   **b** Dijual dimana?   **c** Dijual bagaimana?

d

Sebutkan: Bakul/Dagang P/W ?

	Lokal %	Propinsi %	Nasional %	Internasional %	Langsung %	Bakul %	Pedagang %	Konsumsi Sendiri %
i Padi						P / W	P / W	
ii Palawija *Sebutkan:*						P / W	P / W	
iii Peternakan *Sebutkan:*						P / W	P / W	
iv Lain *Sebutkan*:*						P / W	P / W	

* Anggrek, koi dll

B2.2 Apakah hasil (atau jasa) yang lain dihasilkan oleh keluarga anda?

a   **b** Dijual dimana?   **c** Dijual bagaimana?

Sebutkan: Bakul/Dagang P/W ?

Hasil (Jasa) *Sebutkan*	Lokal %	Propinsi %	Nasional %	Internasional %	Langsung %	Bakul %	Pedagang %
i						P / W	P / W
ii						P / W	P / W
iii						P / W	P / W
iv							

Komentar:

_____ _____
_____
_____
_____
_____
_____
_____
_____
_____

C Kerja di luar Pabelan

C1.1 a Apakah seseorang dari keluarga kerja diluar Pabelan sekarang?

YA / **TIDAK**

 C1.2a Apakah seseorang dari keluarga kerja diluar Pabelan sebelum krisis monetar?

YA / **TIDAK** (Berapa Orang?_____)

b Apakah dia pulang ke Pabelan karena krismon?

YA / **TIDAK** (Berapa Orang?_____)

Semua di bawah dari pertanyaan **C1.1** *(-sekarang):*

C1.3 Kalau **YA** dia/mereka kerja dimana?

	P	W	Umur	Jabotabek & Batam	Java lain	Indonesia lain	Luar negeri *(Sebutkan)*
Orang A							
Orang B							
Orang C							

C1.4 Kalau **YA**, kerja apa?

	P	W	Umur	Kerja *(Sebutkan)*
Orang A				
Orang B				
Orang C				

C1.5 Kalau **YA**, berapa lama dia/mereka bekerja di sana?

	P	W	Umur	kurang 3 bulan	3-6 bulan	6 bulan - 1 year	Lebih lama (Sebutkan)
Orang A							thn
Orang B							thn
Orang C							thn

C1.6 Kalau **YA**, apakah dia/mereka mengirim uang ke rumah?   **YA** / **TIDAK**

C1.7 Kalau **YA**, bagaimana caranya mengirim uang ke rumah?

Datang sendiri	
Melalui bank	
Lain (Sebutkan)	

C1.8 Kalau **YA**, berapa persen jumlahnya dari pemasukan keluarga?

0-5%	6-10%	11-15%	16-20%	Lebih drpda 20%

C1.9 Kalau **YA**, bagaimana anda berkomunikasi dengan orang yang kerja di luar Pebelan?

Wartel	
Hand Phone	
Telephone Rumah	
Surat	
e-Mail	
Lain (Sebutkan)	

D Kredit

D1.1a Apakah seseorang dari rumah ini pernah meminjam uang/kredit dari sumber di bawah?

YA / **TIDAK**

	P	W	i Kantor Kredit Mikro	ii Bank	iii Organisasi yang lain (PKK, Kredit Usaha Tani dll) Sebutkan	iv Lain (**Bakul**,**pedagang**, teman dll) Sebutkan
Orang A						
Orang B						
Orang C						

b Kalau **YA**, meminjam untuk apa dan berapa?

	Maksud:	Berapa:
i Kantor Kredit Mikro *(sebelah Balai Kepala Desa)*		Rp
ii Bank		Rp
iii Organisasi yang lain		Rp
iv Lain		

c Kalau **TIDAK**, Mengapa?

_____
_____
_____
_____
_____
_____

E1.9 Periksa: Apakah keluarga anda ada sumber keuangan yang lain belum tersebut?

%
Sumber keuangan

_____ %
_____ %
_____ %
_____ %

F Anggota Kelompok

F1.1a Apakah seseorang di rumah ini menjadi anggota kelompok?　　　**YA** / **TIDAK**

Sebutkan:

	P	W	Kelompok A	Kelompok B	Kelompok C
Orang A					
Orang B					
Orang C					

b Kalau **TIDAK**, mengapa*?*

_____
_____
_____
_____

Misalnya: *Tidak berguna, kurang efektif, tidak cocok, tidak ada dll.*

F1.2 Kalau **YA**, berapa kali pernah hadir pertemuan kelompok selama 1 tahun terakhir?

	P	W	Tidak	1-2	3-5	Lebih 5
Orang A						
Orang B						
Orang C						

Komentar:

_____
_____
_____
_____
_____
_____

G Telecentre/Internet

G1.1a Sebelum hari ini, apakah anda tahu ada telecentre/Internet di Pabelan?

YA / **TIDAK**

b Kalau **YA**, bagaimana anda tahu tentang telecentre/Internet itu?

		Orang A		Orang B*		Orang C	
		P	W	P	W	P	W
i	Balai Kepala Desa						
ii	Kepala Dusun						
iii	RW/RT						
iv	Pondok Pesantren						
v	BAPPENAS/UNDP						
vi	Teman/keluarga *kalau anak2 Sebutkan:*						
vii	Peneliti/Survei yang lain *Mei-Juni 2004*						
viii	Pertemuan *Sebutkan:*						
ix	Brosur						
x	Hari ini (**Periksa** lagi!)						
xi	Sumber yang lain *Sebutkan:*						

* Kalau hadir

G1.2 *Menurut anda*, telecentre/Internet untuk siapa?

	Orang A		Orang B		Orang C	
	P	W	P	W	P	W
a Pondok Pesantren						
b Umum						
c Orang pemuda						
d Orang kurang mampu						
e Kelompok						
f Lain *(sebutkan)*						
g Tidak tahu						

Komentar:_____

_____

_____

_____

_____

G1.3 *Menurut anda*, telecentre/Internet itu dimiliki oleh siapa?

	Orang A		Orang B		Orang C	
	P	W	P	W	P	W
a BAPPENAS/UNDP						
b Pondok Pesantren						
c Masyarakat						
e Lain *(sebutkan)*						
f Tidak tahu						

Komentar:_____
_____
_____
_____
_____
_____
__

G1.4 Apakah seseorang dari rumah ini sudah mengunjungi telecentre/Internet?

YA / TIDAK

    a Kalau **YA**, untuk apa?

	Orang A			Orang B			Orang C		
	P	W	Umur	P	W	Umur	P	W	Umur
a Kursus *(sebutkan)*									
b e-mail *(ke mana?)*									
c 'chat'									
e Mencari informasi *(sebutkan)*									
f Lain *(sebutkan)*									

    b Kalau **TIDAK**, mengapa?

_____
_____
_____
_____
_____

_____
_____

Misalnya: *Tidak minat, kurang cocok, terlalu sulit, untuk pemuda aja dll*

G1.5 Periksa: Apakah seseorang dari rumah ini sudah pernah pakai komputer?

YA / TIDAK

Kalau **YA***:*

	P	W	Umur	Dimana?	Kapan?	Mengapa?
Orang A						
Orang B						
Orang C						

G1.6 Apakah anda bisa mengakses/memakai alat-alat di bawah?

	Di rumah	Di tempat kerja	Tempat lain *(Sebutkan)*
Telephone Rumah			
Hand Phone			
Televisi			
Radio			
Fax			
Komputer			

G1.7 *Tujuan proyek telecentre untuk meningkatkan masyarakat Pabelan, khususnya keluarga kurang mampu.*

a Apakah anda sudah pernah ditanya tentang telecentre sebelumnya itu didirikan?

YA / **TIDAK**

b Periksa: *Kalau* **YA***, oleh siapa dan kapan? Kalau* **TIDAK***, anda merasa bagaimana?*

_____
_____
_____
_____
_____
_____

H Informasi

H1.1 Apakah anda <u>menerima</u> informasi dari sumber di bawah ini selama 18 bulan terakhir?

	Kesehatan	Pendidikan	Kerja (Ekonomi)	Lain *(Sebutkan)*	*Contoh:*
i Balai Kepala Desa					
ii Kepala Dusun					
iii RW/RT					
iv Pondok Pesantren					
v Klinik kesehatan					
vi Kantor Kredit Mikro					
vii Kelompok *(Sebutkan)*					
viii Penyuluh					
ix Bakul					
x Pedagang					
xi Pelanggan					
xii Suplier					
xiii Teman/Keluarga					
xiv Media *(Sebutkan)*					
xv Lain *(Sebutkan)*					

Komentar:

_____
_____
_____
_____
_____

H1.2 Kalau anda menerima informasi dari sumber di bawah ini atau tidak; *menurut anda*, sejauh mana anda bisa mempercayai sumber informasi di bawah ini?

✔

	Sangat Percaya	Percaya	Tak begitu Percaya	Tak Percaya
i Pemerintah (Nasional)				
ii Balai Kepala Desa				
iii Kepala Dusun				
iv RW/RT				
v Pesantren				
vi Penyuluh*				
vii Bakul*				
viii Pedagang*				
ix Pelanggan*				
x Suplier*				
xi Teman				
xii Keluarga				
xiii Media *(Sebutkan)*				
xiv Lain *(Sebutkan)*				

* Abaikan kalau tidak sesuai
.

Komentar:

_____
_____
_____
_____
_____

H2.1 Apakah anda <u>menerima</u> informasi dari sumber di bawah ini?

✔

	Sering	Kadang-kadang	Tidak
A Televisi			
B Radio			
C Koran			
D Majalah			
E Papan pengumuman desa/dusun			
E Lain *(Sebutkan: buku-buku dll)*			

Komentar:

_____
_____
_____
_____
_____

H2.2 Apakah anda <u>menerima</u> informasi dari sumber di bawah ini?

	Sering	Kadang-kadang ✔	Tidak
A *Ruang Petani* (Radio)			
B *Bangun Desa* (Radio atau TV-*Sebutkan*)			
C *Trubus* (Majalah)			
E Lain *(Sebutkan-buku2 dll)*			

Komentar:

_____
_____

H3.1 Apakah anda <u>mencari</u> informasi di bawah ini selama 2 tahun terakhir *(Sebutkan)*?

	P	W	✔	Contoh	Dari mana?
i Kesehatan*					
ii Pendidikan*					
iii Kerja* (Ekonomi)					
iv Lain					

*Misalnya:
i kesehatan ibu dan anak (KIA**)**, *sanitasi, imunisasi, gizi dll.*

ii Pendidikan: *anak-anak, dewasa, pelatihan, kursus khusus, workshop dll.*

iii Kerja: *ide yang baru, peluang pasar, masukan (pupuk, pesticida dll), kredit, harga pasar* dll.

H4.1 Apakah anda merasa anda sudah <u>terima</u> informasi cukup atau tidak?

	Cukup ✔	Belum Cukup
i Kesehatan		
ii Pendidikan		
iii Kerja (Ekonomi)		
iv Lain *Sebutkan)*		

Komentar:
_____
_____

Tujuan proyek telecentre/Internet untuk membantu masyarakat Pabelan dengan informasi yang berguna dan sesuai.

H4.2 Apakah anda bisa kasih contoh informasi yang sudah anda terima (atau mencari) yang bantu keluarga anda?

YA / TIDAK   [TERIMA / MENCARI]

Contoh:
_____
_____
_____

Dari mana?
_____
_____
_____

Kapan?
_____
_____
_____

Bagaimana informasi ini bisa membantu?
_____
_____
_____

H4.3 Apakah anda bisa kasih contoh informasi yang mungkin keluarga anda perlu?

i Kesehatan
_____
_____
_____
_____
_____

Misalnya: *kesehatan ibu dan anak (KIA), sanitasi, imunisasi, gizi dll.*

ii Pendidikan

_____
_____
_____
_____

_____

Misalnya: *anak-anak, dewasa, pelatihan, kursus khusus, workshop dll.*

iii Kerja/Ekonomi

_____
_____
_____
_____

_____

Misalnya: kesempatan kerja, *ide yang baru, peluang pasar, masukan (pupuk, pesticida dll),* *kredit, harga pasar* dll.

I Pendapatan

I1.1 Rata-rata pendapatan keluarga per bulan?   Rupiah (*rata2*)

```

```

I1.2 Apakah pendapatan keluarga bervariasi dalam setahun?   **YA** / **TIDAK**

Mengapa/tidak?
_____
_____
_____
_____

Misalnya: *musim hujan/panas, musim kerja, panen dll*

I1.3 Menerut anda apakah pendapatan keluarga anda cukup atau tidak?

	✔ Musim Hujan	Musim Panas
Cukup		
Kurang cukup		

I2.1 Apakah keluarga menerima BERAS RASKIN?   **YA** / **TIDAK**

Komentar :
_____
_____
_____
_____
_____
_____
_____
_____
_____
___

J1.1 Partisipasi responden: Kooperatif / Kurang kooperatif / Tidak kooperatif

Sample No: [   ]

Name Head household: _____ M/F Present/Not present

Name Respondent (if different): _____ M/F

Dusun: _____

RW: _____

RT: _____

Name Interviewer: _____

Date: _____ February 2005

We are conducting a survey about the *e-Pabelan telecentre* project that was established in May 2004.

The aim of the project is to better enable the community in Pabelan to access information (BAPPENAS, Jan 2005).

Specifically, this research is interested in work networks, information networks and communication with the Pabelan community.

This research is independent research conducted by Alex Robinson from a University in England.

Any information provided will be used in confidence and without the identification of the respondent.

Thank you very much

Alex Robinson

Alex J Robinson
Researcher
University of Huddersfield, England
CEEE, Centre for Enterprise, Ethics and the Environment

A Household data

A1 No of household members?

	M	F	Age
A Head household			
B			
C			
D			
E			
F			
G			
H			

A1.1 Formal education?

	Completed: No. Primary. Jun High. Sen High. Degree. Masters.						*Pesantren?*	*Specify:* Current?
A Head household								
B								
C								
D								
E								
F								
G								
H								

B Work

B1.2 Occupation of household members?

Specify e.g small trader, carpenter etc

a Official	Person A: M/F Person B: M/F Person C: M/F Person D: M/F	
b Self-employed	Person A: M/F Person B: M/F Person C: M/F Person D: M/F	

c i Farmer / Farm labourer	Person A: M/F Person B: M/F Person C: M/F Person D: M/F

c ii If own land, how many hectar?

ha

How many people:
M   F

d Unemployed		

Speficfy: home worker etc

e Other	Person A: M/F Person B: M/F Person C: M/F

B2.1a If farm, what do you plant?

a		**b** Where is it sold?				**c** How is it sold? *Specify: Bakul/Trader,?*			**d**
		Local	Province	National	International	Direct	Small trader	Trader	Own consumption
		%	%	%	%	%	%	%	%
i Rice							M/F	M/F	
ii Secondary crops *Specify:*							M/F	M/F	
iii Livestock *Specify:*							M/F	M/F	
Iv Other *Specify:*:*							M/F	M/F	

* Orchids, fish, etc

B2.2 Are there any other goods/services that your family produces that have not been mentioned?

a		**b** Where sold?				**c** How sold? *Specify: Bakul/Trader?*		
Good (service) *Specify*	Local %	Province %	National %	International %	Direct %	Small trader %	Trader %
i							M/F	M/F
ii							M/F	M/F
iii							M/F	M/F
iv								

Comments:

_____ _____
_____
_____
_____
_____
_____
_____
_____
_____

C Work outside Pabelan

C1.1 a Does anyone from your family currently work outside Pabelan?

Yes/ No

C1.2a Did anyone from your family work outside Pabelan before the monetary crisis?

Yes/ No

(How many people?_____)

b Did he/she return home to Pabelan during the monetary crisis?
Yes/ No

(How many people?_____)

The following relate to question **C1.1** *(-currently outside Pabelan):*

C1.3 If Yes, they worked where?

	M	F	Age	Jabotabek & Batam	Java other	Indonesia other	Abroad *(Specify)*
Person A							
Person B							
Person C							

C1.4 If Yes, what work did they do?

	M	F	Age	*Work (specify)*
Person A				
Person B				
Person C				

C1.5 If Yes, how long did they work there?

	M	F	Age	Less than 3 months	3-6 months	6 months - 1 year	Longer *(Specify)*
Person A							year
Person B							year
Person C							year

C1.6 If Yes, did they send money home?   **Yes/ No**

C1.7 If Yes, how did they send money home?

In person	
Via Bank	
Other (*specify*)	

C1.8 If Yes, what percentage of your family income does this represent?

0-5%	6-10%	11-15%	16-20%	More than 20%

C1. If Yes, how did you communicate with the person outside of Pabelan?

Wartel	
Mobile Phone	
Telephone Landline	
Letter	
e-Mail	
Other (*specify*)	

D Credit

D1.1a Has anyone from your household ever borrowed money or accessed credit form the sources below?

Yes/ No

	P	W	i Microcredit office	ii Bank	iii Other organisation (*PKK, Kredit Usaha Tani etcl*) *Specify*	iv Other (*Bakul,trader, friend etc*) *Specify*
PersonA						
PersonB						

PersonC						

b If Yes, what did they borrow for and how much did they borrow?

	Purpose:	Amount:
i Microcredit office		Rp
ii Bank		Rp
iii Other organisation		Rp
iv Other		

c If No, why not?

_____
_____
_____
_____

E1.9 Check: *Does your household have any other source of income not mentioned yet?*

%
Income source

_____ %
_____ %
_____ %
_____ %

F Community group membership (*kelompok*)

F1.1a Is anyone from your household a kelompok member?   **Yes/ No**

Specify:

	M	F	Kelompok A	Kelompok B	Kelompok C
Person A					
Person B					
Person C					

b If No, why not*?*

_____
_____
_____
_____

F1.2 If Yes, how often have you attended a kelompok meeting in the last year?

	M	F	No	1-2	3-5	More than 5
Person A						
Person B						
Person C						

Comment:

_____
_____
_____
_____
_____
_____

G Telecentre/Internet

(Note: individuals often did not understand the word telecentre hence the inclusion of the word Internet, which was more commonly understood and associated with e-Pabelan).

G1.1a Before today have you heard about the telecentre/Internet in Pabelan?

Yes/ No

   b If yes, how did you hear about the telecentre/Internet?

		Person A		Person B*		Person C	
		M	F	M	F	M	F
i	Village head's office						
ii	Sub-district head						
iii	RW/RT head						
iv	Pondok Pesantren						
v	BAPPENAS/UNDP						
vi	Friend/family *If child, specify:*						
vii	Other survey/research *e.g May-June 2004*						
viii	Meeting *Specify:*						
ix	Brochure						
x	Today (**Check** again*!*)						
xi	Other source *Specify*						

* If present

G1.2 If Yes. According to you who is the telecentre for?

	Person A M	F	Person B M	F	Person C M	F
a Pondok Pesantren						
b Public						
c Young people						
d Poor						
e Kelompok						
f Other (specify)						
g Not sure						

Comment:_____
_____
_____
_____
_____

G1.3 According to you who is the telecentre owner for?

	Person A M	F	Person B M	F	Person C M	F
a BAPPENAS/UNDP						
b Pondok Pesantren						
c Community						
e Other (specify)						
f Not sure						

Comment:_____
_____
_____
_____
_____
___

G1.4 Has any family mamber visietd the telecentre/Internet?

Yes/ No

    a If Yes, for what purpose?

	Person A M	F	Age	Person B M	F	Age	Person C M	F	Age
a Attend training/course *(specify)*									

b e-mail *(to where?)*											
c 'chat'											
e Search for information *(specify)*											
f Other *(specify)*											

     b If No, why not?

_____
_____
_____
_____
_____
_____
_____

Note: Explore why not

G1.5 Check: Has anyone for your household used a computer before?

                                    Yes / **No**

If Yes*:*

	M	F	Age	*Where*?	When?	Purpose?
Person A						
Person B						
Person C						

G1.6 Do you have access to any of the following?

	At home	Workplace	Other *(Specify)*
Land line			
Mobile Phone			
Television			
Radio			
Fax			
Computer			

G1.7 The aim of the e-Pabelan project is to improve the situation of the community in Pabelan, particularly for poor households.

a Were you consulted about the telecentre before it was established?

Yes / **No**

b Check: *If Yes, by who and when? If No, what is their opinion regarding this?*

_____
_____
_____
_____
_____
_____

H Information

H1.1 Have you received information from any of the following during the last 18 months?

	Health	Education	Work (Economy)	Other *(Specify)*	*Provide example:*
i Village head's office					
ii Dusun Head					
iii RW/RTHead					
iv Pondok Pesantren					
v Village clinic					
vi Micro-credit office					
vii Community group *(Specify)*					
viii Extension worker					
ix Small trader					
x Tader					
xi Customer					
xii Supplier					

xiii Friend/ Family					
xiv Media *(Specify)*					
xv Other *(Specify)*					

Comment:

_____
_____
_____
_____
_____

H1.2 Whether you receive information from the following or not, how trustworthy do you consider these sources of information?

	Highly trust	Trust	Trust partially	Do not trust
i Governmnet (National)				
ii Village head's office				
Iii Dusun head				
iv RW/RThead				
v Pesantren				
vi Extension worker*				
vii Small trader*				
viii Trader*				
ix Pelanggan*				
x Supplier*				
xi Friend				
xii Family				
xiii Media *(Specify)*				
xiv Other *(Specify)*				

* Ignore if not relevant
.

Comment:

_____
_____
_____
_____
_____

H2.1 Do you receive information form the following?

	Often	Sometimes	Never
A Television			
B Radio			
C Newspaper			
D Magazine			
E Public notice boards			
E Other *(Specify: books etc)*			

Comment:

_____
_____
_____
_____
_____

H2.2 Do you receive information form the following?

	Often	Sometimes	Never
A *Ruang Petani* (Radio)			
B *Bangun Desa* (Radio or TV- *Specify*)			
C *Trubus* (Magazine)			
E Other *(Specify: books etc)*			

Comment:

_____
_____

H3.1 Have you searched for information on any of the following topics during the last two years (specify)?

	M	FW		Example	Source?
i Helath*					

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ii Education*					
iii Work* (Economy)					
iv Other					

*Example:

i Mother and child health, sanitation, immunisation, nutrition etc

ii Education for children, adult, trainings, courses, workshops etc*.*

iii Work: new ideas, new markets, inputs, credit, market prices etc

H4.1 Do you think you receive enough information on the following?

	Enough	Not enough
i Health		
ii Education		
iii Work*(Economy)		
iv Other (Specify*)*		

Comment:
_____
_____

The aim of the telecentre project is to provide the community with useful and relevant information.

H4.2 Can you give an example of information that you have previously received or sought that has been useful to you or your family?

Yes / No

[Received / Searched]

Example:
_____
_____
_____

Source?
_____
_____
_____

When?

_____
_____—
_____

How was this helpfu?

_____
_____
_____

H4.3 Can you give an example of information that might help your family?

i Health

_____
_____
_____
_____
_____

ii Education

_____
_____
_____
_____
_____

iii Work/Economy

_____
_____
_____
_____
_____

I Income

I1.1 What is your household's approximate monthly income?   Rupiah (approx)

I1.2 Does this income vary throughout the year?   **Yes / No**

Why/not?

_____
_____
_____
_____

I1.3 According to you is this income sufficient for your family or not?

	Wet season	Dry season
Enough		
Not enough		

I2.1 Does your household receive subsidised rice?   **Yes** / **No**

Comment :
_____
_____
_____
_____
_____
_____
_____
_____
___

J1.1 Participation of respondent: Cooperative / Less cooperative / Not cooperative

Appendix H: Farmer interview Stage 1 questionnaire

NOMOR SAMPLE_____   **DUSUN** _____   **NAMA RESPONDEN**_____

1. Tanggal: _____

2. Nama Responden: _____

3. Jenis Kelamin: LL / P

4. Umur: _____

5. Tingkat pendidikan sudah selasai: SD / SMP / SMA / Diploma III / S1 / S2

6. Anggota kelompok?   Ya / Tidak   Kalau Ya kelompok apa? _____

7. Mendapat beras raskin?   Ya / Tidak

8. Mendapat kartu sehat?   Ya / Tidak

9. Mendapat bantuanlain?   Ya / Tidak

10. Punya sawah?   Ya / Tidak   Kalau Ya berapa besar? _____ ha

                                  Kalau Tidak, apakah anda menyewa? Ya / Tidak   atau bagi hasil?   Ya / Tidak

----

11. Tahukah Anda tentang Telecentre: Sudah / Belum

    a. Kalau sudah, bagaimana Anda tahu? _____

    b. Sudah pernah ke sana, berapa kali? _____

c. Memakai Telecentre untuk apa? _____

d. Menurut anda, apakah kekurangan Telecentre itu?

_____

e. Menurut anda, apakah kelebihan Telecentre itu?

_____

f. Apakah Anda pernah memakai komputer? Ya / Tidak

Kalau Ya, Pertama kali, kapan? _____ Dimana? _____

g. Apakah Anda pernah memakai Internet? Ya / Tidak

Kalau Ya, Pertama kali, kapan? _____ Dimana? _____

----

14. Apakah anda, atau orang yang lain di rumah anda, ada alat-alat informasi dan komunikasi ini?

i. HP	
ii. Telepon rumah	
iii. Radio	
iv. Televisi	
v. Fax	
vi. Komputer	
vii. Internet	

15. Biasanya anda *mencari* (C) atau *menerima* (T) (sebutkan) informasi di bawah ini dari mana?

	Keluarga	Teman	Konsumen	Pedagang	Suplier	Penyuluh	Kelompok	Radio	Televisi	Koran	Majalah	Yang lain sebutkan
i. Harga jual pasar												
ii. Harga pasar membeli barang2												

iii. Pestisida atau pupuk										
iv. Bibit										
v. Penyakit										
vi. Informasi yang lain tentang pertanian Sebutkan										

16. Menanam apa?   Tolong sebutkan jenis tanaman

Padi	Ya / Tidak	
Sayur-sayuran	Ya / Tidak	
Palawidja	Ya / Tidak	
Yang lain (ikan, peternakan, dll)	Ya / Tidak	

17.

i. Jenis tanaman?	A	B	C
ii. Berapa hasil panen?	quintal	quintal	quintal

iii. (pengalaman) Berapa lama anda menaman tanaman tersebut?	tahun	tahun	tahun
iv Bagaimana cara menjual?	Langsung konsumen Pedagang Pengumpul/tukang tebas Lain (sebutkan)	Langsung konsumen Pedagang Pengumpul/tukang tebas Lain (sebutkan)	Langsung konsumen Pedagang Pengumpul/tukang tebas Lain (sebutkan)
v. Dijual dimana?	Dari sawah	Dari sawah	Dari sawah

	Pasar (yang mana) Yang lain (sebutkan)	Pasar (yang mana) Yang lain (sebutkan)	Pasar (yang mana) Yang lain (sebutkan)
vi. Dijual kapan?			
vii. Menyetujui harga kapan?	Sebelum panen? Ya / Tidak Kalau ya berapa hari? Sesudah panen? Ya / Tidak Kalau ya berapa hari?	Sebelum panen? Ya / Tidak Kalau ya berapa hari? Sesudah panen? Ya / Tidak Kalau ya berapa hari?	Sebelum panen? Ya / Tidak Kalau ya berapa hari? Sesudah panen? Ya / Tidak Kalau ya berapa hari?

viii. Menyetujui harga di mana?	Di sawah Rumah anda Rumah dia (sebutkan) Yang lain (sebutkan)	Di sawah Rumah anda Rumah dia Yang lain (sebutkan)	Di sawah Rumah anda Rumah dia Yang lain (sebutkan)
ix. Apakah anda bisa mempengaruhi harga?	Ya / Tidak	Ya / Tidak	Ya / Tidak

	Kalau ya bagaimana dan berapa?	Kalau ya bagaimana dan berapa?	Kalau ya bagaimana dan berapa?
	Kalau tidak mengapa?	Kalau tidak mengapa?	Kalau tidak mengapa?
x. Menjual semua panen ke satu pedagang? Mengapa?	Ya / Tidak	Ya / Tidak	Ya / Tidak
xi. Sebelum menjual apakah anda cek harga pasar?	Ya / Tidak	Ya / Tidak	Ya / Tidak

Kalau ya dimana? Kalau tidak, mengapa?			
xii. Harga pasaran berapa sekarang?	Rp per kilo	Rp per kilo	Rp per kilo
xiii. Apakah harga produk ini stabil atau naik turun? Tolong mejelaskan	stabil / fluctuatif	stabil / fluktuatif	stabil / fluktuatif
xiv. Apakah anda menjual ke orang yang sama atau orang yang lain? Sebutkan	sama / lain	sama / lain	sama / lain

xv. Kalau orang yang sama sudah berapa lama menjual ke orang tersebut? Dan berapa sering?	tahun per tahun	tahun per tahun	tahun per tahun
xvi. Apakah anda bisa memilih pedagang atau pembeli? Tolong menjelaskan? Bisa pilih dari berapa pedagang?	Ya / Tidak	Ya / Tidak	Ya / Tidak

Tidak bisa pilih karena?			
xvii. Apakah anda dapat kredit atau keuntungan yang lain atau pakai sistem join dari orang tersebut? Tolong sebutkan, berapa dan untuk apa dan berapa kali?	Ya / Tidak	Ya / Tidak	Ya / Tidak
xviii. Bisa menyimpan atau menimbun produk?	Ya / Tidak Sendiri? Orang lain? (sebutkan)	Ya / Tidak Sendiri? Orang lain? (sebutkan)	Ya / Tidak Sendiri? Orang lain? (sebutkan)

	Berapa lama?	Berapa lama?	Berapa lama?
	Dimana?	Dimana?	Dimana?
	Kalau tidak, mengapa?	Kalau tidak, mengapa?	Kalau tidak, mengapa?
xix. Apakah anda menimbun produk tersebut? Kalau Ya tolong jelaskan:	Tdk pernah Kadang-kadang Sering	Tdk pernah Kadang-kadang Sering	Tdk pernah Kadang-kadang Sering

xx. Transportasi?	Siapa mengurus transportasi?	Siapa mengurus transportasi?	Siapa mengurus transportasi?
	Antara mana?	Antara mana?	Antara mana?
	Ongkos?	Ongkos?	Ongkos?
	Siapa membayar?	Siapa membayar?	Siapa membayar?
xxi. Informasi dan cara memelihara			

tentang tanaman tersebut anda dapat dari mana?			
xxii. Menurut anda, apa kelebihan tanaman ini?			
xxiii. Menurut anda, apa kekurangan/resiko tanaman ini?			

18. Menurut anda apakah kelebihan hubungan antara pedagang dengan pembeli tersebut? *(kalau beda untuk tanaman yang lain sebutkan)*

_____

_____

_____

19. Menurut anda apakah kekuragan antara pedagang dengan pembeli tersebut?

_____

_____

20. Menurut anda, apakah keterbatasan pertanian di Pabelan?

_____

_____

21. Menurut anda, apakah kebutuhan petani untuk maju ke depan?

_____

_____

22. Menurut anda, apakah kebutuhan informasi petani untuk maju ke depan?

_____

_____

23.   Menurut anda, apakah situasi keluarga anda sama, lebih baik atau kurang baik dari pada satu tahun yang lalu? Mengapa?

_____

Terima kasih banyak atas kerjasamanya!   Responden kooperatif?   Kooperatif / kurang / tidak

Sample Number_____   Address _____   Name of Respondent_____

1. Date: _____

2. Name of Respondent: _____

3. Gender: Male/Female

4. Age: _____

5. Highest education: Primary School/ Junior High School/ Senior High School / Diploma III / Bachelor Degree/ Master Degree

6. Member of community group?   Yes / No   If Yes, which group? _____

7. Receive subsidised rice?   Yes / No

8. Health card?   Yes / No

9. Other subsidy?   Yes / No

10. Own kand?   Yes / No   If Yes What size? _____ hectare

                               If not , do you rent? Yes/ not   or sharecrop? Yes / NO

----

11. Have you heard about the telecentre: Yes / No

a. If Yes How do you know about it?_____

b. Have you ever been there, how many times?

   _____

c. If yes, what did you use the telecentre for? _____

d. In your opinion, what are the pros of the telecentre?

   _____

e. In your opinion, what are the cons of the telecentre?

   _____

f. Have you ever used a computer before? Yes / No

   If Yes, when? _____ Where? _____

g. Have you ever used the Internet? Yes / No

   If Yes, when ? _____ Where? _____

----

12. Do you access any of these devices in your house or at another person's house?

i. Mobile phone	
ii. Home phone	
iii. Radio	
iv. Television	
v. Fax	
vi. Computer	
vii. Internet	

13. Do you look for (S) or receive (R) (specify) information relating to the following and if so from where?

	Family	Friend	Consumer	Trader	Supplier	Extension Agent	Group	Radio	Television	Newspaper	Magazine	Other Mention
i.Market price for sales												
ii. Market price for inputs												
iii. Pesticide or Fertilizer												
iv. Seeds												
v.Pests												
vi. Other information about agriculture												

Specify												

14. What do you plant/grow?   Specify crop and type

Rice	Yes/ No	
Vegetables	Yes / No	
Secondary Crops	Yes / No	
Other (fish, livestock, etc)	Yes / No	

15.

i. Type of crop?	A	B	C
ii. How many harvests per year?	quintal	quintal	quintal
iii. (Experience) How long have been growing this crop?	year	Year	Year
iv. Method of selling?	Directly to the consumer Trader	Directly to the consumer Trader	Directly to the consumer Trader

	Collector / *tukang tebas*	Collector / *tukang tebas*	Collector / *tukang tebas*
	Other (specify)	Other (specify)	other (specify)
v. Sell where?	From rice field	From rice field	From rice field
	Market (specify)	Market (specify)	Market (specify)
	Other (specify)	Other (specify)	Other (specify)
vi. Sell when?			

vii. Agree price when?	Before harvest? Yes / No If yes, how many days After harvest? Yes / No If yes, how many day?	Before harvest? Yes / No If yes, how many day? After harvest? Yes / No If yes, how many day?	Before harvest? Yes / No If yes, how many day? After harvest? Yes / No If yes, how many day?
viii. Agree price where?	In rice field Seller's house	In rice field Seller's house	In rice field Seller's house

	Buyer's house (specify location)	Buyer's house (specify location)	Buyer's house (specify location)
	Other (specify)	Other (specify)	Other (specify)
ix. Are you able to influence the price you sell at?	Yes / No	Yes / No	Yes / No
	If yes how and how much?	If yes how and how much?	If yes how and how much?
	If not, why?	If not, why?	If not, why?
x. Do you sell all your	Yes / No	Yes / No	Yes / No

produce to one buyer? Why/why not?			
xi. Before selling do you check the market price? If yes, where? If not, why?	Yes / No	Yes / No	Yes / No
xii. How much is the market price now?	IDR per kilo	IDR per kilo	IDR per kilo
xiii. Is the price stable or fluctuative?	Stable/ Fluctuate	Stable/ Fluctuate	Stable/ Fluctuate

Please explain			
xiv. Do you sell to the same person or to different persons? Specify	Same / Different	Same / Different	Same / Different
xv. If you sell to the same person, how long have you sold to this person? And how often?	year per year	year per year	Year per year

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xvi. Can you choose the buyer or the trader you deal with? Please explain How many traders/buyers can you choose from? If cannot choose, why?	Yes / No	Yes / No	Yes / No
xvii. Have you ever received credit or other benefit from the trader/buyer you mentioned?	Yes / No	Yes / No	Yes / No

Please specify, how much and how many times and use?			
xviii. Are you able keep or store this produce?	Yes/No By yourself? Through others? (specify) How long?	Yes/No By yourself? Through others? (specify) How long?	Yes/No By yourself? Through others? (specify) How long?

	Where?	Where?	Where?
	If not, why?	If not, why?	If not, why?
xix. Do you ever store this produce? If yes explain:	Never Sometimes Often	Never Sometimes Often	Never Sometimes Often

xx. Transportation of produce?	Who arranges transportation? From where to where? Cost? Who pays?	Who arranges the transportation? From where to where? Cost? Who pays?	Who arranges the transportation? From where to where? Cost? Who pays?
xxi. Where and how have you received information about this crop?			

xxii. In your opinion, what are the advantages of this crop?		
xxiii. In your opinion, what are the disadvantages/risks of this crop?		

16. In your opinion what are the advantages of the trading relationships you mentioned above? (specify by crop)

_____

_____

_____

17.   In your opinion what are the disadvantages of the trading relationships you mentioned above?

_____

_____

18. In your opinion what are the major constraints farmers face in Pabelan?

_____

_____

19. In your opinion, what do farmers in Pabelan need to progress (*maju*)?

_____

_____

20. In your opinion, what information do farmers need to assist them?

_____

_____

21. n your opinion, is the situation of your family the same, better or worse than one year ago? Why?

_____

_____

Thank you very much for your cooperation!   Cooperation of correspondent?   Cooperative / OK / No

Appendix I: Matrix question prompt instrument for farmers' survey (scaled to 75% of original size)

Data Pribadi		Telecenter			Produk Hasil Pertanian Dan Pemasaran										Lain-lain
1 Nomor Sample		14 Tahu		Ya	23 Menanmam apa? Produksi per tahun?				vii	Swh	Swh	Swh	xv	Ya	Ya	Ya	24 Kelibihan Pdg
				Tdk	a.Padi	Ya	……………		Setuju	Rumah	Rumah	Rumah	Kredit atau	Tdk	Tdk	Tdk	……………
2 Dusun		15 Mengunjung		Ya		Tdk			Harga	Rumah Pdg	Rumah Pdg	Rumah Pdg	Ijon	Rp	Rp	Rp	
		…………	kali	Tdk	b.Sayur	Ya	……………							………	………	……...	……………
3 Tanggal:		Untuk:				Tdk			viii	Ya	Ya	Ya	xvi	Ya	Ya	Ya	25 Kekurangan
		………………………………			c. Plwj	Ya	……………		Mempegrh	…….	…….	…….					
4 Nama:		16 Kekurangan:				Tdk			Harga	Tdk	Tdk	Tdk		Sendiri	Sendiri	Sendiri	
		………………………………			Lain2	Ya	……………			…….	…….		Bisa Menimbun Produk				
5 Laki2/Wnt:		17 Kelebihan:				Tdk			ix	Rp	Rp	Rp		Org lain	Org lain	Org lain	26 Keterbatasan
		………………………………			i				Harga?	…….	…….	…….					………………
6 Umur:		18 Komputer?		Ya	Jenis	A	B	C	Sekarang	Per	Per	Per		Tidak	Tidak	Tidak	………………
………………	tahun	Kapan		Tdk	Tanaman					…….	…….	…….					………………
7		Dimana				…….	…….	…….	x	Ya	Ya	Ya	xvii	Tdk	Tdk	Tdk	27 Keb. Petani
SD	SMP	SMA	19 Internet?		Ya	ii				Cek	…….			Anda	Kd	Kd	Kd	………………
			Kapan		Tdk	Berapa	………	………	………	Harga?	Tdk	Tdk	Tdk	Menimbun	Srg	Srg	Srg	………………
D3	S1	S2	Dimana				Tahun	Tahun	Tahun		…….	…….	…….	Produk				………………
8 Anggota Kelompok?		20 Alat Tel-In			Lama?				xi	Stbl	Stbl	Stbl	xviii				28 Keb. Informasi
Ya/Tdk		HP	TU	TR	RD	iii	Kons	Kons	Kons	Harga				Transport di bayar oleh	dr ……	dr ……	dr ……	………………
		TV	FAX	KOM	INT	Cara	Pgd	Pdg	Pdg	Stabil?					ke ……	ke ……	ke ……	………………
……………		21 C/T	Jl	Bl	PP	Bbt	Py	In	Menjual	Pgpl	Pgpl	Pgpl		………	………	………	Rp ……	Rp ……	Rp ……	………………
9 Raskin?	Ya	22							…….	………	……...	xii	Ya	Ya	Ya	xix				29 Lain
	Tdk	Teman				iv	Swh	Swh	Swh	Pembeli	…….	…….	…….	Info & Cara Tanaman Komoditas				………………
10 Kar Sehat?	Ya	Konsm				Jual	Psr	Psr	Psr	Sama?	Tdk	Tdk	Tdk					………………
	Tdk	Pdg				Di mana	………	………	…..……		…….	…….	…….					………………
11 Lain?	Ya	Splyr					…………	…………	…………	xiii	………	………	………	xx				………………
	Tdk	Pnylh				v				Kalua Sama	tahun	tahun	tahun					………………
		Klmp				Jual					……………	……………	…………	Kelebihan Komoditas				………………
		Radio				Kapan	………	………	………		kali	kali	kali					………………
12 Sawah?	Ya	TV				vi	Sebelum	Sebelum	Sebelum	xiv	Ya	Ya	Ya	xxi				30 Kooperatif?
	Tdk	Koran				Setuju	………	……………	…………	Bisa	………	………	…………					Ya / Tdk
……………hektar		Mjlh				Harga	Sesudah	Sesudah	Sesudah	Pilih	Tdk	Tdk	Tdk	Kekurangan Komoditas				
13 Sewa / milik sendiri		Lain2					………	………	…………	Pedagang?	………	………	………					………………
							A	B	C		A	B	C		A	B	C	

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English Translation

Farmers' survey instrument matrix question prompts

Personal data	Telecentre (TC)	Products and marketing	Other
1 Sample number	14 Knowledge of TC	23 Goods grown and yearly production	24 Strengths of trading relationships
2 Sub-unit	15 Visited TC	A Rice, B Vegetables, C Secondary crops, D Other	25 Weaknesses of trading relationships
3 Date	16 Positive points of TC	i Type (*genus*) of good	26 Constraints faced by farmers
4 Name	17 Negative points of TC	ii How long crops grown	27 General unmet needs of farmers
5 Gender	18 Used computer	iii Method of sale by good	28 Information needs farmers
6 Age	19 Used Internet	iv Place of sale by good	29 Other
7 Educational attainment	20 Ownership/Access to ICTs: Mobile phone; Fixed phone; Public phone; Radio; TV; Fax; Computer; Internet	v Time of sale by good	30 Cooperation of respondent
8 Community group attendance	21 Search/receive information on: Sales price; Input price; Fertiliser; Seeds; Pests; Other	vi Time agree price: Days before (or after) harvest by good	
9 Subsidised rice	22 Search/receive information on above from: Family; Friends; Trader; Supplier; Extension Worker; Community group; Radio; TV; Newspaper; Magazine; Other	vii Place agree price by good	
10 Health card		viii Ability to negotiate price by good/trader	
11 Other		ix Current market price by good	
12 Land (ha)		x Method of checking price	
13 Land ownership		xi Variations in price by good	
		xii Change traders or not	
		xiii Length of relationship with trader	
		xiv Ability to choose traders	
		xv Credit or *ijon*	
		xvi Ability to store by good	
		xvii Frequency farmer stores by good	
		xviii Transport by good: Who; where; cost.	
		xix How originally learnt about planting each good	
		xx Advantage of each good	
		xxi Disadvantage of each good	

**Appendix J: Primary agricultural occupation per household by sub-unit**

| Dusun (village sub-unit)	Validity	Primary occupation type by household within agriculture	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Pabelan 4	Valid	Non farming	36	69.2	69.2	69.2
		Sell agricultural produce	3	5.8	5.8	75
		Own consumption only	6	11.5	11.5	86.5
		Sell produce and own consumption	7	13.5	13.5	100
		Total	52	100	100	
Pabelan3	Valid	Non farming	22	55	56.4	56.4
		Own consumption only	4	10	10.3	66.7
		Sell and own consumption	13	32.5	33.3	100
		Sub-Total	39	97.5	100	
	Missing	System	1	2.5		
		Total	40	100		
Jagalan	Valid	Non farming	33	66	66	66
		Sell agricultural produce	4	8	8	74
		Own consumption only	1	2	2	76
		Sell and own consumption	12	24	24	100
		Total	50	100	100	
Batikan	Valid	Non farming	17	48.6	48.6	48.6
		Sell agricultural produce	10	28.6	28.6	77.1
		Own consumption only	2	5.7	5.7	82.9
		Sell and own consumption	6	17.1	17.1	100
		Total	35	100	100	
Selak	Valid	Non farming	15	38.5	38.5	38.5
		Sell agricultural produce	6	15.4	15.4	53.8
		Own consumption only	5	12.8	12.8	66.7
		Sell and own consumption	13	33.3	33.3	100
		Total	39	100	100	

Source: Author, Pabelan Household survey 2005.

Appendix K: PRA output mapping of farmers' information sources

Source: Author, PRA output. Santan, 15.12.04 (15 male).

Sumber informasi petanian:

Government

World Bank project (DAFEP)

National

Media

Radio:

- Ruang Petani (Local; PEMDA)
- Bangun Desa (RRI)

Local government (Pemda)

Extension

'Orchid'

TV

News paper

Magazine

Micro credit office

Village heads office

Farmer

BPPM

Expert

Trader

'Field Trip'

Provincial

Pondok Pesantren

Friend

Telecentre

Local
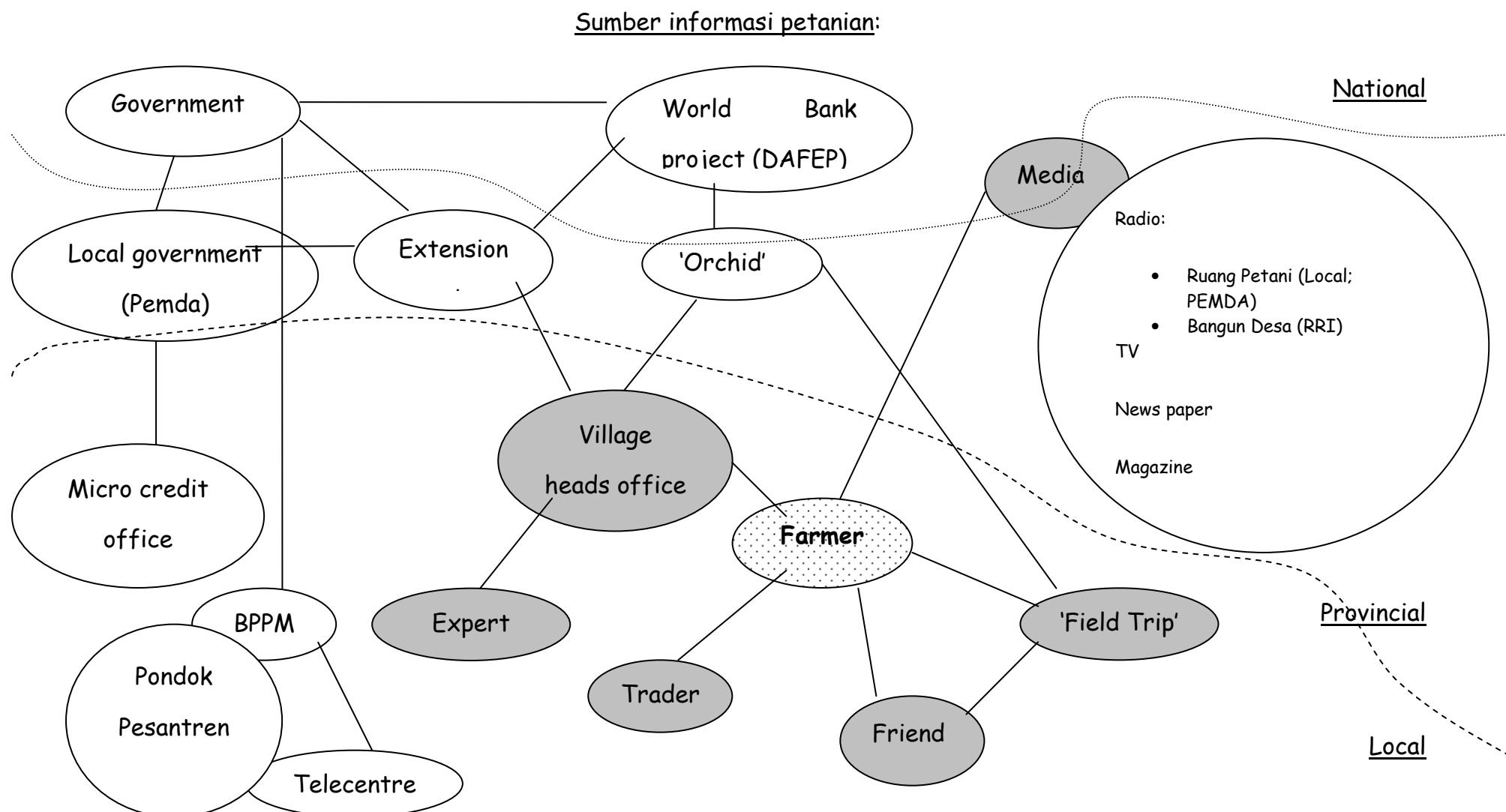
Appendix L: Impromptu PRA output example used to explore access to information and perceived closeness of key village institutions

Tidak pernah (Never)
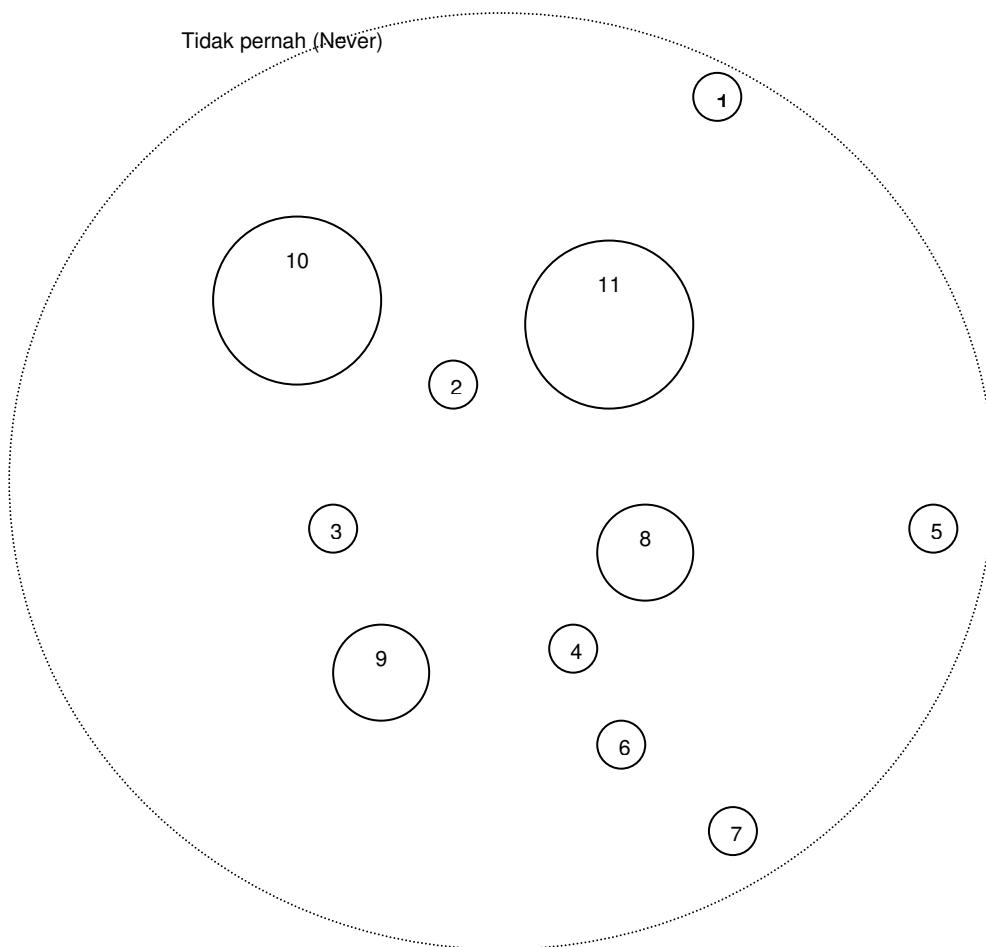
Key:

1) Village heads office
2) Posyandu- Health Post (because of children)
3) Musholla (Head sub-unit holds meeting there)
4) Head RT
5) KKN (Recently came- once a year, not usually to Pab 1)
6) Head RW
7) Friends (teman)
8) Children (anak)
9) Pondok Pesantren (Religious info)
10) BIDAN- midwife
11) Head sub-unit
[Above in no particular order]

Source: Author, PRA output, Pabelan I, 21.6.05 (2 female, both occasional labourers)

Appendix M: Informal interview topics by respondent

Respondent	Research Topic
Village head	Access ICTs
	Access information
	Existing socio-economic relations
	Capital resources
	Poverty
Current and former pesantren heads	Access ICTs
	Access information
	Existing socio-economic relations
	Capital resources
	Poverty
Pesantren teachers	Access ICTs
	Access information
	Poverty
BPPM officials/Telecentre management team	Access ICTs
	Access information
	Existing socio-economic relations
	Capital resources
	Poverty
Village administration	Access ICTs
	Access information
	Existing socio-economic relations
	Capital resources
	Poverty
Village health worker	Access ICTs
	Access information
	Capital resources
	Poverty
Microcredit officials	Access information
	Capital resources
	Poverty
Local seed supplier	Access information
	Existing socio-economic relations
	Capital resources
	Poverty
Sub-district agricultural extension workers	Access information
	Existing socio-economic relations
	Capital resources
	Poverty
Local entrepreneurs	Access ICTs
	Access information
	Existing socio-economic relations
	Capital resources
	Poverty

Source: Author.

**Appendix N: 12-month statistics on participation at e-Pabelan**

The following data is based on the only recorded official documentation of participation at the e-Pabelan telecentre. The data is kept by the local management team in the form of a log-book. Although initial concerns regarding the accuracy of record keeping were voiced and there remains a margin of error, the data kept in the log-book is considered representative of the profile of users. This is supported by ongoing observations at the telecentre.

Following a 'near-death' experience in September 2004 participation steadily increased to a peak in May largely due to a number of management interventions. Participation by target groups, however, has not. More recently figures have been boosted by an increase in visitors from neighbouring areas, often attracted by the free Internet service currently provided.

The typical user profile is male, educated and young. 'He' is likely to access the Internet for the purposes of e-mail, chat and browsing.

<u>Important note</u>: *The following data includes repeat users.*

**1. e-Pabelan overall participation, July 2004 to June 2005:**

MONTHS
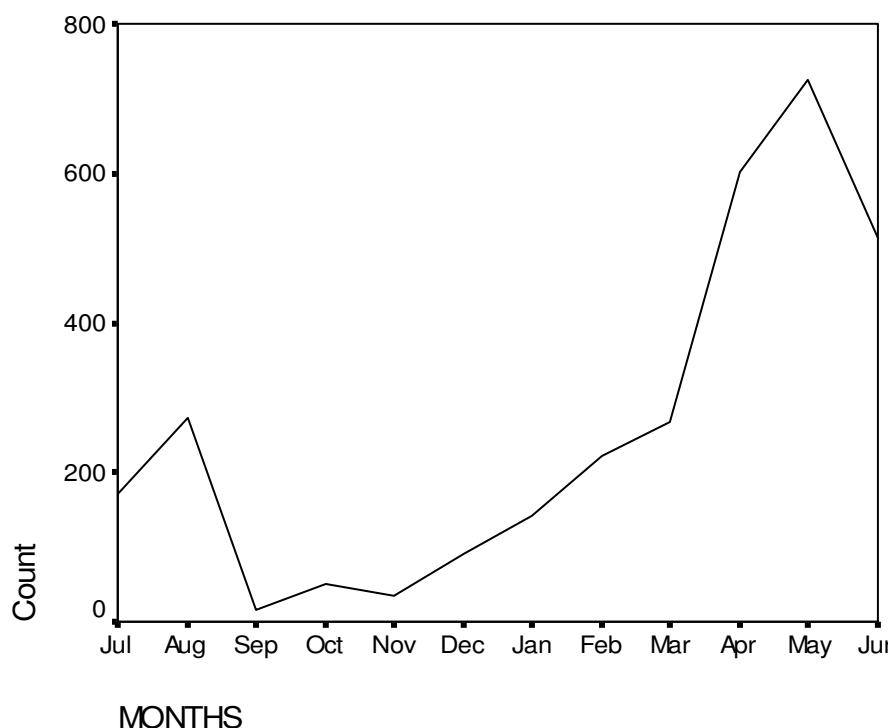
2. e-Pabelan participation by gender, July 2004 to June 2005:

Female 25.8%

Missing 23.8%

Male 50.4%
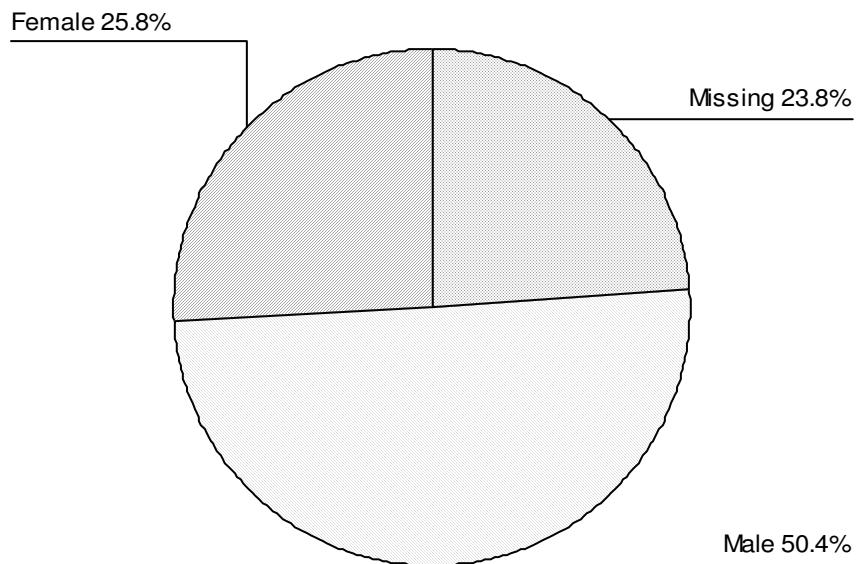
N.B. For a period gender figures were not documented at the Telecentre giving a higher percentage of missing data, below the missing data has been excluded giving only the valid percentages.

Female 33.8%

Male 66.2%
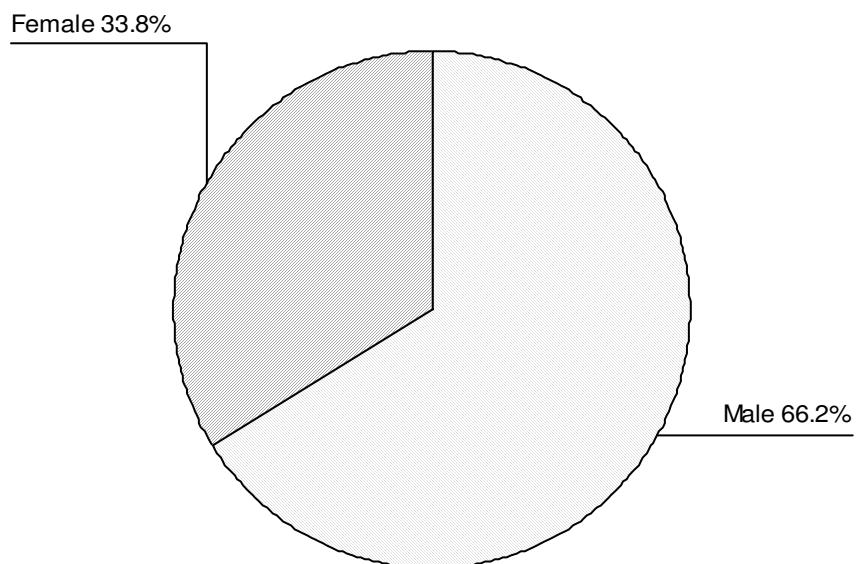
3. e-Pabelan participation by age, July 2004 to June 2005:
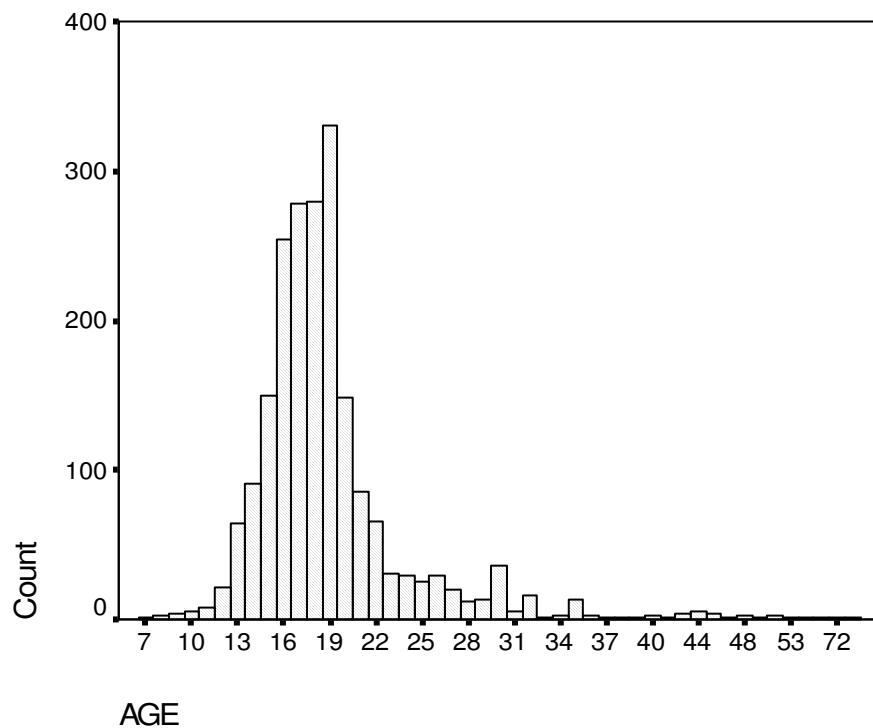
N.B. Similarly, and for clarity, the missing figures category has been excluded from the above

4. e-Pabelan participation by employment, July 2004 to June 2005:
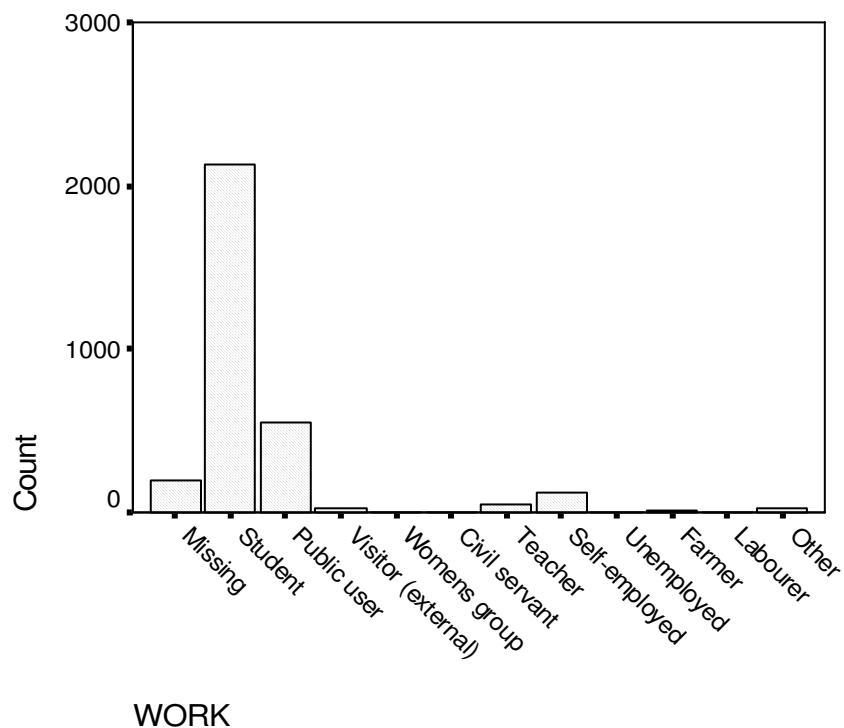
N.B. The terms 'public user' and 'self-employed' are problematical. The former is often used by individuals to identify that they are from outside of the Pesantren (i.e. many are students) and the latter (*wiraswasta*) is commonly used to describe someone who is not in government employment. The majority of the users are from the Pesantren rather than from the wider Pabelan community.

WORK

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Student	2128	68.5	72.9	72.9
	Public user	548	17.6	18.8	91.7
	Visitor (external)	21	.7	.7	92.4
	Womens group	3	.1	.1	92.5
	Civil servant	6	.2	.2	92.7
	Teacher	50	1.6	1.7	94.4
	Self-employed	120	3.9	4.1	98.6
	Unemployed	4	.1	.1	98.7
	Farmer	12	.4	.4	99.1
	Labourer	4	.1	.1	99.2
	Other	22	.7	.8	100.0
	Total	2918	93.9	100.0	
Missing	System	190	6.1		
Total		3108	100.0		

5. e-Pabelan participation frequencies by month, July 2004 (7) to June 2005 (18):

MONTHS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	7	170	5.5	5.5	5.5
	8	273	8.8	8.8	14.3
	9	16	.5	.5	14.8
	10	52	1.7	1.7	16.4
	11	36	1.2	1.2	17.6
	12	90	2.9	2.9	20.5
	13	141	4.5	4.5	25.0
	14	223	7.2	7.2	32.2
	15	267	8.6	8.6	40.8
	16	601	19.3	19.3	60.1
	17	726	23.4	23.4	83.5
	18	513	16.5	16.5	100.0
	Total	3108	100.0	100.0	

Sources: Author. Telecenter log-book data 2005.

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