



INDIVIDUAL DEPRIVATION MEASURE METHODOLOGY UPDATE 2017

A report edited by Janet Hunt, with chapters contributed by Sharon Bessell, Joanne Crawford, Kylie Fisk, Janet Hunt, Hieu Nguyen, Trang Pham, Helen Suich, and Mandy Yap.

The IDM Program is a partnership between the Australian National University, the International Women's Development Agency (IWDA), and the Australian Government through the Department of Foreign Affairs and Trade. The original research that developed the IDM was a four-year, international, interdisciplinary research collaboration, led by the Australian National University, in partnership with the International Women's Development Agency and the Philippine Health and Social Science Association, University of Colorado at Boulder, and Oxfam Great Britain (Southern Africa), with additional support from Oxfam America and Oslo University. It was funded by the Australian Research Council and partner organisations. Subsequent IDM research undertaken in Fiji was led by IWDA in partnership with the Fiji Bureau of Statistics. It was funded by the Australian Government's Pacific Women Shaping Pacific Development program.

For further information about the IDM please see: www.individualdeprivationmeasure.org

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1. INTRODUCTION

Janet Hunt¹

The Individual Deprivation Measure (IDM) is an individual-level, gender-sensitive measure of multidimensional poverty; the measure was initially developed during a four-year, three-phase multidisciplinary international research collaboration (2009–13), which involved thousands of participants across 18 sites in six countries. The first phase of research to develop the IDM was hosted by the Australian National University (ANU) and conducted in partnership with the International Women's Development Agency (IWDA), Oxfam Great Britain, Oxfam America, the Philippines Health Social Science Association and the University of Boulder Colorado. This work was funded by the Australian Research Council (ARC)² and partner organisations, with significant additional support from the University of Oslo.

The IDM is now undergoing further development to ready it for global use, through a partnership between ANU and IWDA, with funding and strategic support from the Australian Government's Department of Foreign Affairs and Trade (DFAT). This Methodology Update reports on research undertaken over the first eighteen months of this program to further develop the IDM, to ensure its technical robustness and to test its use in a range of different contexts.

1.1 The initial ARC research

The initial ARC research was undertaken in Angola, Fiji, Indonesia, Malawi, Mozambique and the Philippines, over three phases. Our methodology was informed by recognition that existing measures are insensitive to gender differences and reflect the values and priorities of experts rather than those of women and men experiencing poverty (Bessell 2015a; Wisor et al. 2014). It was also underpinned by feminist principles in that we aimed to illuminate the ways in which the gendered division of labour, gendered power hierarchies, and social values interact to shape women's and men's experiences of poverty. Our starting point was that any just and justifiable measure of poverty must be able to reveal the ways in which poverty impacts differently on women and men (Jaggar and Wisor 2013). Project staff worked with local research teams in each country in the first two phases, prioritising contextual knowledge and experience. Phase one involved qualitative research in three sites in each country, covering urban, rural and highly marginalised contexts.³ The research design aimed for approximately one-hundred participants per site, three sites per country, and 1,800 in total. Six participatory research methods were used with separate groups of women and men, further divided into three age groups (youth and young adults, middle aged people, and older people) – this enabled participants to contribute; it also allowed for gender and age disaggregation. Key informant interviews provided special insight into the nature of poverty within a particular research site. Group discussions explored what constitutes poverty, how poverty is experienced by different individuals within a household, whether this varies by age and/or sex, and whether participants recognise different levels of poverty (Crawford et al. 2014).

This first phase subsequently involved workshops with academics, project staff, and researchers from all six countries in order to review results and identify commonalities and differences; from this process 25 candidate dimensions of poverty were identified.

Phase Two saw research teams return to all sites to clarify participants' priorities among these 25 dimensions of impoverished living, and from this to identify a subset that would preserve representative accuracy while operating in combination as elements of a multidimensional measure. Participants ranked their top 15 priorities and identified any important dimensions they thought were missing from the list of twenty-five. Again, research participant groups were divided by sex and age. Researchers also reviewed potential dimensions in view of insights from gender and development literature.

¹ This chapter draws substantially on earlier documentation concerning the IDM produced by myself, Sharon Bessell, and Joanne Crawford, as well as the original ARC report authored by Wisor and colleagues (2014), and on material prepared by Bessell, Crawford and Hunt for the 2016 proposal to DFAT for this phase of IDM development.

² Linkage Project LP0989385 'Assessing Development: Designing Better Indices of Poverty and Gender Equity'.

³ We recognise that many communities will not easily fit into one of these three categories. All communities have multiple distinguishing features, and some will fall on a continuum between urban and rural. All marginalised communities will also be shaped by their urban–rural status, and identifying a marginalised community can be difficult in countries where most communities face systematic deprivation.

Some dimensions were included because of their capacity to reveal gender disparity; some were inter-related and could be captured in a single dimension; others were assessed as less relevant to policy intervention or not adequately supported by the data collected. Weight was given to whether indicators for a specific dimension could be populated from existing data collection efforts, but the team determined not to perpetuate current data limitations. The research team also reviewed recent poverty measurement innovations, assessing the requirements and capacity of a new measure to improve on existing approaches.

Fifteen areas of life were identified for inclusion in the IDM. The IDM tracks an individual's status in dimensions of material and social importance, measuring sufficiency in both quantity and quality, covering the following dimensions: food, water, shelter, health, education, energy/fuel, sanitation, relationships, clothing, violence, family planning, environment, voice, time use, and work. For each dimension, suitable indicators were selected based on their validity, reliability, specificity, feasibility, and comparability.⁴ In each case we were interested in a participant's access to, use of and achievement or outcome in the dimension, whether water, health, education or other dimension. Many of the survey questions were drawn from existing or recently developed multi-topic surveys but, where necessary, we developed new questions.

For more details about the rationale for the IDM, the participatory phases of the research, and further detail about the steps involved in defining dimensions, determining indicator questions, and constructing the overall IDM scores, please see Wisor et al. (2014) Chapters 1–5. As will be outlined in this report, work currently underway is in the process of refining the dimensions and indicators, as well as the approach to scoring and index construction.

1.2 Concept-testing the Individual Deprivation Measure

Phase three of the ARC research involved a nationally representative trial of the measure in the Philippines. In each of 750 randomly selected households, enumerators were asked to interview all household members 18 years of age and over, to enable analysis of intra-household differences. While inclusion of all adult household members was not possible in all cases, multiple household members were interviewed: 1,806 respondents completed the questionnaire (983 females and 823 males). Data was collected using a multi-topic survey that included household and individual modules, recognising that some information (for example, shelter) is better collected at household level.

An overall IDM score was calculated for each participant based on their scores in each of the 15 dimensions. Answers to survey questions were initially scored on a one-to-five scale (the lower the score the greater the deprivation, with five representing no deprivation and any score lower than five representing some deprivation). Within each dimension, weighting was used to give greater significance to more severe deprivations. Greater weight was also given to the dimensions ranked more highly by participants in Phase Two. Participants ranked the dimensions food, water, shelter, health, and education as most important, so they receive 50% of the total weighting. They ranked the dimensions energy/fuel, sanitation, relationships, clothing, and violence next in importance and these receive 33% of the weighting; the remaining dimensions, still important but relatively less so than other dimensions, were family planning, environment, voice, time use, and work, and these receive the remaining 17% of the weighting. Although the rankings emerged from the participatory work, and the initial weightings reflected those priorities, they were acknowledged to be somewhat arbitrary. The maximum potential sum of the weighted scores was 150, which, when converted to a percentage, is the IDM score. While this phase revealed challenges associated with measurement of some dimensions, (freedom from violence, family planning, voice and respect in relation to paid and unpaid work) where further work would be necessary, the trial established the feasibility of individual-level, multidimensional measurement, and demonstrated the potential of the IDM to provide valuable individual-level data on poverty across multiple dimensions in a cost-effective way (Wisor et al. 2014).

Chapter 6 of Wisor and co-researchers (2014) reports on the Philippines survey. Work undertaken as part of the current phase of IDM development has identified some technical shortcomings in the earlier scoring approach and construction of IDM scores for the Philippines, which are detailed in Chapter 3 of this Report.

⁴ For more information on the selection of indicators and the questions see Wisor et al. 2014.

1.3 The IDM study in Fiji

The first IDM study beyond the proof-of-concept trial was subsequently carried out in Fiji (2014–17) by IWDA working with Fiji Bureau of Statistics, with funding support from the Australian Government through the Department of Foreign Affairs and Trade in Fiji. The study, with 2966 respondents, focused in areas previously identified by a World Bank Poverty Mapping study as poverty hot spots, to maximise the value of the sample (given the IDM is a deprivation-focused measure) and to explore the additional insights that could be offered by gender-sensitive, individual-level measurement. The IDM Fiji study (Fisk and Crawford 2017a) enabled the first full analysis of data generated by this new measure; the process of analysis was essentially one of revealing and discovering the power of the IDM. The study also identified areas of uncertainty, highlighting the need for further conceptual and technical work on the basis of data derived from a wider range of contexts. It further highlighted the challenge of effectively presenting the very large quantity of data the IDM generates (Fisk and Crawford, 2017a).

1.4 Preparing the IDM for Global Use

Following the IDM Fiji study, the Australian Government made a further investment in the IDM in 2016 through a four-year partnership with the ANU and IWDA to prepare the IDM for global use by 2020. In the first year of the new program, IWDA undertook an IDM study in Nepal, and the ANU focused on revising the survey and undertaking statistical analyses of the data to date – this allowed for identification of areas for strengthening the IDM and overcoming some of the initial challenges these studies had revealed.

This Methodology Update briefly summarises the initial development of the IDM and then outlines the results of the work undertaken since May 2016 to revise and strengthen the measure.

The rest of this Chapter explains why an IDM improves on and can complement existing income- or consumption-based and household-level measures of poverty. It then outlines briefly the goals of the current phase of research and provides an overview of the Report.

1.5 Why an IDM?

The Individual Deprivation Measure (IDM) improves on existing approaches to measuring poverty and gender equity in important ways.

It assesses poverty at the individual level. Data are collected from individuals, rather than households, enabling analysis by sex, age, and other characteristics including disability, ethnicity, religion, and geographic location. This makes it possible to assess the impact of intersecting deprivations on individuals, and the situation of specific groups, for instance, older women living with a disability in a specific geographic location.

The IDM considers a wider range of factors than previous measures relevant to defining and measuring poverty, assessing 15 key economic and social dimensions, including some that are especially important for revealing gender disparity: voice in the community, time-use, family planning, and relationships.

It is the first poverty measure that is grounded in the views of those with lived experience of poverty – its development involved research into how deprivation should be defined and measured, and what is most important for not being poor, while remaining comparable across contexts and over time.

The IDM is a scalar rather than a binary measure; assessing deprivation on a scale overcomes the loss of important detail concerning the extent of deprivation, or vulnerability to falling into poverty, and perverse incentives associated with categorising people as either ‘poor’ or ‘not poor’. Knowing how poor individuals are, and in what dimensions, matters for policy and programming and assessing the effectiveness of action.

The IDM uses an innovative sampling approach, randomly selecting households and then seeking to interview all adult members of the household. It can therefore reveal differences in poverty within households. As discussed in Chapter 6, various sampling strategies are being tested to determine which is most appropriate for the aims of the IDM, including cost-effectiveness. However, the fundamental principle of better illuminating the gendered nature of poverty remains the prevailing concern.

Because the IDM can be sex-disaggregated across 15 dimensions of life relevant to poor women and men, it enables construction of a gender equity measure more relevant to poor people than existing composite measures.

Because the IDM collects data on 15 dimensions from each individual, with an adequate sample size it can reveal the impact of intersecting deprivations. As a result, the IDM has the potential to assist policy makers to target key economic and social deprivations impacting particular populations. Other multidimensional measures that draw on existing cross-sectional data sets cannot discern whether multiple deprivations are experienced by a single individual or distributed among multiple individuals.

1.6 The Program Goals 2016–20

The overall goal of the current program is that by 2020 the IDM is ready for global use as an individual-level measure of deprivation and a tool for tracking how development is changing the lives of the most deprived.

This goal seeks to capture that the intent of developing and promoting the use of the measure is to improve understanding of how development is impacting individuals, particularly the most deprived, and foster change in development priorities and programs that will favour those individuals and improve their lives.

Thus the program is to further develop and promote the IDM as a gender-sensitive means of measuring multidimensional poverty at the individual level, addressing implicit gender bias in measurement and bringing visibility to the nature and extent of poverty experienced by different social groups.

The current program (2016–20) is intended to:

- revise and refine the IDM so that it is a robust measure of individual-level multidimensional poverty – one that is sensitive to gender, and which can be disaggregated by age, disability, geography, socio-cultural background, and minority status;
- use the IDM in a broader range of countries and contexts, and for different purposes (e.g., population-level national studies, monitoring and evaluation), to identify how it is best used, its limitations, and how it can contribute to policy and program effectiveness in tracking the impact of development on individual lives;
- create a technological platform for collection, analysis and display of IDM data, including enumerator training materials, that enables technical capacity to use the IDM and facilitates easy and wide uptake of the IDM; and
- contribute to enhanced and informed global debate about individual-level, gender-sensitive data for poverty measurement, the relationship between gender (and other social factors) and poverty; and the increasing demand for gender-sensitive data for policy and program purposes.

This Methodology Update draws predominantly from work undertaken to date on the first two of the above objectives, the survey revision and the use of the IDM in one further country. In particular, a significant amount of work has gone into major revision of the IDM survey tool following its early use in the Philippines and Fiji and, as part of this project, in Nepal (See Chapter 4), and feedback from an international peer-review process. There has also been lengthy and deep consideration of how to refine scoring of the survey, as well as issues of weighting within and between dimensions and in overall IDM index construction. Furthermore, we have reconsidered the IDM sampling approach and plan to test a range of sampling options in future studies.

We have been assisted in this by numerous experts from around Australia and the world, and we acknowledge the enormous contribution they have made to our thinking (for a full list, see Acknowledgements). In particular, a specialist workshop held in May brought together statistics experts to help us understand more about and consider the difficult issues of dimension comparability, sampling, and index construction. The work undertaken to date has strengthened the technical robustness of the measure, but there remains more work to do over the remainder of the program to ready it for global use.

1.7 The structure of this report

The rest of this report is structured as follows:

Chapter 2 discusses some of the ethical issues that the research team is cognisant of as we progress this work.

Chapter 3 summarises the measurement challenges that emerged from the early IDM studies in the Philippines and Fiji.

Chapter 4 describes the development of the survey and the administration of the IDM in Nepal using tablet devices, and how some of the challenges identified earlier were addressed, while others remained.

Chapter 5 explains the major revision of the IDM survey tool to apply understanding gained during its early use, and to strengthen and update measurement indicators for the dimensions.

Chapter 6 discusses the challenges of sampling and the definition of the household.

Chapter 7 concerns the construction of the IDM index, and discusses scoring, weighting and the challenges of devising the composite measure.

Chapter 8 sets out the next steps for the project and briefly discusses other considerations as we continue this work over the next three years.

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2. ETHICAL ISSUES IN IDM RESEARCH

Sharon Bessell

The current Individual Deprivation Measure (IDM) Program is undertaking studies in up to five countries and across different cultural and social contexts, so conducting this research continues to raise important ethical issues of which we need to be cognisant. This Chapter discusses the most significant issues framing our thinking as we take this research forward.

The IDM surveys ask a number of sensitive questions, including on respondents' experiences of violence, control over their lives (the voice dimension), and use of contraception. A clear ethical framework is therefore essential. The aim of an ethical framework is to inform and support decision-making in the field should ethical challenges arise. It is also important to recognise that it is not possible to provide clear instruction on how to respond to every situation; it is not possible to predict every ethical dilemma that may occur during fieldwork. Moreover, it is necessary to take account of the specific context, which may not be fully known in advance.

Consideration of ethical issues and management of ethical risks are fundamental requirements in all research, including survey-based research (Tourangeau and Yan 2007). The IDM studies are underpinned by a rights-based approach to research (Bessell 2015b) that aims to ensure the dignity and human rights of all participants are respected throughout the research process. As well as putting in place all necessary formal processes for ethical research, we are also conscious of the importance of understanding and respecting local cultural practices and values (see Abebe and Bessell 2014; Guillemin and Gillam 2004; Costello and Zumla 2000). Indeed, this is particularly important in understanding the ways in which local practices may conflict with expectations of ethical research, and in finding ways of ensuring ethical practice within difficult contexts. Informed consent and volunteerism are at the heart of ethical research, and cannot be considered genuine unless local context and practice are understood, particularly because individual-level consent is not an accepted principle in all cultural contexts.

2.1 Identification of research sites/countries

When determining the countries or subnational regions in which to undertake IDM studies, it has been important to take account of the extent of previous studies of poverty in candidate sites. The principles of research merit and integrity require that research be justified by potential benefit, while the principle of justice requires that there is no unfair burden of participation in research on particular groups. These principles draw attention to the potential of over-researching some communities. Sukarieh and Tannock (2013) highlight the ethical shortcomings of frequently researching the same issues in the same communities. This does raise challenges for the IDM, given that one aim of the current phase of the program is to test the use of the measure in different contexts, including some relatively data-rich contexts, in order to compare IDM results with the results of other surveys. Here it is important to consider carefully the sites in which the IDM is best used, and to ensure transparency when explaining the reasons for undertaking the survey to potential respondents. Sukarieh and Tannock (2013) also emphasise the unethical nature of extractive research, which often takes data from communities without engagement or feedback. Central to the principles underpinning the use of the IDM is deep engagement with local stakeholders to ensure an understanding of the aims and potential research – and ideally to establish some level of ownership. Equally important is dissemination of the IDM findings in ways that will potentially benefit local communities through policy and services.

2.2 Recruitment of participants

Households to be included in IDM studies will generally be randomly selected. In specific contexts, purposive sampling may be used, for example, to ensure the sample includes a sufficiently large social group such as people living with a disability.

The typical approach of the IDM is to administer two surveys: the household survey, which is to be completed by an individual over a specified age, with sufficient knowledge of household issues, and will often be the 'head of household' – however, it is not necessary that this respondent be the formal head of the household; and the individual survey, which is given to each household member over a specified age.

The original, qualitative research that underpins the IDM included young people from mid-teens (15 to 16 years), but did not include younger children. As the IDM is an individual-level measure, where respondents are asked questions about their own lives, it is not appropriate to interview adults as

proxies for children. Moreover, it is not clear that it would be ethical to ask certain questions of children, nor is it clear that the questions address issues most appropriate for measuring childhood poverty. Thus, the IDM is not a measure of childhood poverty. Separate research is currently underway exploring the relevance of the IDM for assessing childhood poverty and developing a child-centred measure of childhood poverty. There are, however, questions as to the minimum age for IDM respondents. In the studies conducted in the Philippines, Fiji and Nepal (see Chapters 3 and 4), a minimum age of 18 years was adopted, conforming to Australian ethical and legal frameworks and international law (i.e., the United Nations Convention on the Rights of the Child).

However, 18 years does not necessarily accord with local cultural and social practices or values. During the study in Nepal, local stakeholders (civil society organisations, in particular) questioned the appropriateness of 18 years as the minimum age for participation in the survey. Concern was expressed that 18 is an arbitrary and Western-influenced (as well as globally influenced) age of adulthood. It was argued by local stakeholders that in Nepal, as in many countries, young people often begin to engage in adult tasks (including work, marriage, and child bearing) before the age of 18 years. This is particularly the case for girls. Concern was expressed that the minimum age of 18 years prevents an understanding of the pressing issues facing young people, particularly young women, who perform many adult tasks and face severe poverty. This may, in turn, have deleterious consequences for young people if policies are developed based on data that exclude them.

The revision of the IDM survey included an extensive peer review process, with 40 internationally recognised experts reviewing the overall survey, and an additional 40 topic specialists reviewing specific modules of the IDM (see Chapter 5). While only a small number of reviewers commented on the minimum age for survey respondents, those who did suggested that 18 is an arbitrary cut-off, and too high in most developing countries, where young people begin adult tasks before the age of 18 years.

Based on the feedback from the Nepal study and the peer review of the survey, and consultation in Indonesia in the lead-up to a country study there, the decision was taken to adopt a minimum age of 16 years, which is socially and culturally appropriate to the local context. This variation was sought from and approved by the Australian National University Human Ethics Committee in August 2017.

A minimum age of 16 years will be adopted for the IDM study to be undertaken in Indonesia (in the province of South Sulawesi) in early 2018. Marriage age in Indonesia is 16 years for girls and 19 years for boys; in South Sulawesi and other parts of the country a significant proportion of young people – particularly young women – marry before the age of 18 years. UNICEF analysis of SUSENAS (the National Socio-economic Household Survey) for the period 2008–2012 found that among ever-married women aged 20–24 in South Sulawesi, 31.3% were married before the age of 18. Moreover, entry to work and other activities associated with adulthood begin well before the age of 18 years for both boys and girls.

In adopting a lower minimum age of 16 years in Indonesia and extending this to other comparable countries, the IDM aligns with other relevant surveys, including PMA2020, and population studies undertaken by UNFPA and other UN agencies.

2.3 Informed consent

Informed consent will be sought from every individual invited to participate in the IDM survey, regardless of age. While it may be culturally appropriate in some contexts to seek permission from the household head to invite other household members to complete the survey, consent will also be obtained from each individual. When seeking permission from the household head, where it is appropriate, it will be made clear that individuals may still decide not to participate without negative consequences, either for the individual or for the household. Active, informed consent, rather than assent, will be sought from young people, even when their parent or guardian has already provided their permission. While Australian research ethics requires parental or guardian consent for young people under the age of 18 years who are in dependent relationships to participate in research, parental consent is not a proxy for informed consent on the part of the individual young person.

Ethical issues are most acute in regard to people who are living with a cognitive disability, severe learning difficulties, or mental health issues, who may not be able to understand the questions fully or to provide informed consent. There are practical challenges that can be overcome, but which should not be ignored in surveying people who are deaf and may need sign interpreters. In all of these cases, there are ethical questions of whether other family members should be relied on to translate or answer on behalf of people living with a disability. Having family members translate is ethically problematic if there are situations of violence and control – and this may place individuals living with a disability at risk. Having family members answer on behalf of others is ethically problematic, and undermines a

fundamental principle of the IDM that individuals provide their own information and assessment. While these issues are not insurmountable, they pose serious challenges to a multidimensional poverty index such as the IDM; as we proceed we intend to conduct further research around the ethics of working with respondents who have a disability.

All respondents will be informed of their right to withdraw from the survey interview at any time. In addition to informed consent to participate in the surveys, permission is sought specifically for questions that are sensitive, such as those concerning violence, and respondents are reminded that they can skip any questions they do not wish to answer.

2.4 Privacy and confidentiality

Privacy and confidentiality are essential principles in the IDM methodology. All data will have all names and identifying information removed prior to analysis, and potentially identifying material will not be published.

In some contexts, participants will be asked if they are prepared to have their contact details kept in secure storage by the research team in order to enable repeat surveys in the future or follow-up, qualitative studies designed to understand and assess participants' experience of completing the survey. In such cases, contact details will be retained separately from survey data, and it will not be possible to re-identify data.

Privacy and confidentiality are also essential during the survey interviews. In many communities it is often difficult to find interview spaces that are private; nevertheless, it is important that interviews are undertaken away from other family and community members. The exception here is if an individual respondent feels more comfortable having a trusted person with him/her during the survey interview. Ensuring privacy is difficult in some relationships – for example, ensuring the privacy of wives in patriarchal societies, or the privacy of young people in hierarchical societies. One strategy to be employed where possible is to have multiple interviews occurring simultaneously within one household in order to occupy several household members. A second important strategy is for enumerators to shift the focus away from sensitive questions if anyone approaches the place where the interview is being conducted.

2.5 Asking sensitive questions

In their review of the survey literature, Tourangeau and colleagues (2000) identify three types of 'sensitive' question: those that address taboo subjects and are inappropriate for everyday discussion; questions that may lead to negative consequences if the respondent answers honestly and that answer is disclosed to a third party; and questions that ask about behaviour that is considered to transgress social norms and risk social disapproval. The sensitivity of topics and questions is likely to vary across social, cultural, and economic contexts; indeed, within the same country, different social groups may conceptualise sensitive topics differently. Tourangeau and Yan (2007) found that asking sensitive questions increased misreporting, with socially desirable behaviours over-reported and socially undesirable behaviours under-reported. There are also significant ethical questions raised when a survey includes sensitive questions. Asking about taboo subjects may make respondents feel deeply uncomfortable; the wording of questions is critically important as the level of sensitivity may be reduced – if not eliminated – by the way in which a question is framed and the words/terms used. Thus, when translating the IDM survey into local languages, linguistic and cultural meaning must be considered.

Of particular concern for the IDM is the possibility that asking respondents about violence or control over decisions about their lives and behaviours may create risks to safety. This concern is particularly acute for women who are in situations of domestic or family violence or in strongly patriarchal social contexts. As discussed in Chapter 5 of this Methodology Update, which addresses the survey revision, including of the violence and voice modules, particular care has been taken to minimise any risk to safety. For example, in relation to violence and based on advice from experts in violence prevalence studies, questions are not asked about the location of the violence or about the perpetrator. Asking about location or perpetrator is considered to pose too high a risk to women (or men) who experience violence in the home. This is a trade-off in terms of the scope of the data, but the principle of beneficence indicates that the benefits to the individual respondent outweigh the potential benefits of the research.

The revision of the IDM survey tools paid particular attention to reducing and managing the sensitivity of questions; however, follow-up, qualitative studies will be undertaken – these will ensure there have been no unforeseen or unintended consequences, and that we understand the ways in which respondents have experienced answering survey questions.

The shift from paper-based IDM surveys to computer-assisted personal interviewing (CAPI) may mitigate the sensitivity of some questions, as respondents can interact directly with the tablet when responding to some questions, rather than responding verbally to the survey enumerators (Tourangeau and Yan 2007).

2.6 Enumerator training

The IDM survey will be carried out in each country by local survey organisations, with local enumerators and high-level supervision from researchers from the IDM Program. The nature of the IDM questions requires that enumerator training address research ethics in detail, including discussion of scenarios that present ethical challenges. Enumerator training also addresses the principles that underpin the Australian National Statement of Ethical Conduct in Human Research 2007 (NHMRC 2015).

As discussed, informed consent is essential to this research, and all potential participants will have the right to choose not to participate, to withdraw, or to choose not to answer particular questions. Discussion of informed consent will continue to be a key aspect of the training provided to local research teams. This also allows for discussion with local research teams, who will have deep local knowledge, of the most culturally and socially appropriate ways of explaining informed consent to participants.

Enumerator training also includes issues of privacy and confidentiality, including strategies designed to protect privacy and confidentiality in situations where other household or community members may wish to listen to the respondent's answers.

The National Statement (p. 11) makes the important point that:

Research, like everyday life, often generates ethical dilemmas in which it may be impossible to find agreement on what is right or wrong. In such circumstances, it is important that all those involved in research and its review bring a heightened ethical awareness to their thinking and decision-making.

Like all research, the IDM will raise ethical challenges. Our aim is not to provide prescriptive responses to those challenges that may have little relevance to – or indeed be unethical in – a particular local context. Rather, the aim is to continue to build a framework for thinking about and sharing potential and actual ethical dilemmas in an effort to create ethical awareness and ensure that ethical practice is fundamental to the IDM.

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3. EARLY USE OF THE IDM

3.1 IDM Philippines

Sharon Bessell, Kylie Fisk, Hieu Nguyen and Helen Suich

As discussed in Chapter 1, the IDM was developed through an Australian Research Council Linkage Grant, using a three phase design. Phase three involved a nationally representative trial of the measure in the Philippines, involving 1806 respondents from 750 households. As the first use of the IDM, the Philippines trial provided important insights into its potential to measure multidimensional poverty at the individual level and its gender-sensitivity, as well as indicating areas in need of further development. The IDM study in Fiji – conducted by IWDA working with the Fiji Bureau of Statistics (FBoS), and discussed in the second part of this chapter – also highlighted the contribution of the IDM and areas for further research.

The IDM is both complex and innovative. It is the first mainstream measure of multidimensional poverty to use the individual as the unit of analysis, and the first to be grounded in participatory research with women and men who have experienced poverty. The original research project from which the IDM was developed concluded by trialling the individual and household surveys in the Philippines as a means of testing proof-of-concept. The Philippines trial was undertaken by Pulse Asia, a Philippines-based research and monitoring organisation. Using the 2000 National Census as the sampling frame, Pulse Asia randomly selected 750 households within five sub-national regions: the National Capital Region, North and Central Luzon, South Luzon, the Visayas, and Mindanao. One hundred and fifty households were randomly selected within each of these five areas, with every adult member of each household invited to be part of the survey interview. The following section provides an overview of lessons learned from the early use of the IDM in the Philippines, focusing on the implications for future consideration of sampling strategies and survey design. The findings of the IDM study in the Philippines, which are included in the report from the original ARC project, are not discussed here.

3.1.1 Sampling strategy and survey completion rates

The sampling approach used in the Philippines, and in subsequent IDM studies in Fiji and Nepal, involved interviewing all adults (defined for the Philippines study as 18 years and over) in a selected household. In doing so, we sought to reveal whether the extent and nature of deprivation varies among members of the same household. In the Philippines, enumeration teams faced some challenges in attempting to interview all adult members of each household. Return visits were often necessary in order to reach all adult members, extending the time that enumerators needed to remain in enumeration areas. In a small number of cases, not all household members could be reached.

The report from the original research notes that the ratio of completed interviews to attempted interviews was high (Wisor et al. 2014: 52). Approximately 5.4 percent of attempted interviews could not be completed, which is well within acceptable limits. This finding was important in providing evidence for the feasibility of the IDM as a measure of multidimensional poverty and its utility to development actors. In terms of underestimating or overestimating IDM scores for either women or men, the impact of the missing cases was not clearly discernible. Information from survey enumerators was insufficient to determine the reasons for missing cases, and this is something to be considered in future studies to determine patterns of missing data.

Completion rates for each of the survey modules were also high (Wisor et al. 2014: 54). The following excerpt from the report of the original research provides a useful summary of the response rates for various modules:

In the case of four dimensions – (i) freedom from violence, (ii) family planning, (iii) voice and (iv) respect in relation to paid and unpaid work – not all respondents received a score. In the case of violence, respondents were given an explicit choice whether they wished to answer the module, and 163 (just over 9%) declined to do so. In the case of family planning, some respondents were not asked to answer questions in the module (females 50 years and over), while others said that family planning was not relevant to their life circumstances (a total of 775 respondents or 43% of the sample received no score for this dimension). In relation to voice, some said they did not know to what extent they could raise issues or affect outcomes (17 respondents or under 1%), while in the dimension dealing with respect in relation to paid and/or unpaid work, 78 respondents (4.3%) said they performed neither paid nor unpaid work. (Wisor et al. 2014: 54).

The analysis of the response rates to dimensions provided important information on which to base the review of the survey instrument. In subsequent studies in Fiji and Nepal the violence and family planning dimensions had lower response rates overall than other modules, as in the Philippines. The early experience of using the IDM individual survey indicated a clear need to revise the family planning module (discussed further in Chapter 5), and some modification was undertaken prior to the Nepal study (see Chapter 4). The sensitivities associated with the violence module, which were well recognised during the original research project, have been the subject of careful consideration during the current IDM Program.

3.1.2 Lessons from re-analysis of the Philippines data

Initial analysis of the data from the Philippines trial was undertaken in the final stages of the original ARC-funded project. That analysis, reported in Wisor et al.(2014), demonstrated the feasibility of the IDM and its potential to reveal differences in the level and nature of deprivation among members of a household, and among particular social groups (e.g., women, older women).

The SPSS syntax – and thus analysis and methods – was developed at the time of the original research, and subsequently refined by IWDA for the analysis of the Fiji data. In 2016, as part of the revision and refinement of the IDM, the Philippines data were re-analysed, and the syntax was subject to another round of corrections, adaptations and refinements. In particular, this revision attempted to maximise the volume of primary data included in the individuals' score calculations (and therefore reflected in the overall IDM score). The other main feature of the revision was to improve the consistency of analysis across individual dimensions, that is, ensuring the analysis was as similar as possible for each dimension, all dimension scores had five values from 1 to 5 and no blanks, and the information from interviewees' answers was used optimally. Notably, although some issues were found in relation to the substance of the analysis syntax, corrections were few and minor.

The initial analysis of the Philippines data, undertaken at the time of the original project, identified several areas requiring further interrogation and consideration, notably: the weightings used in calculating scores and the meaning that should be assigned to specific scores. The re-analysis provided an important opportunity to revisit some of these issues, with the following insight and recommendations arising:

1. The weightings used in the calculations of dimension and overall IDM scores are somewhat arbitrary. At present, each question is weighted equally, with very few exceptions (e.g., water quality and distance from household).

It was **recommended** that future iterations of the survey and analysis design should attempt to avoid the use of arbitrary weightings, but rather, where the use of weights is necessary, the current weights be improved based on theory and the use of expert opinion. Revisions of weightings should also incorporate a sensitivity analysis to determine the impact they have on the scores for individual dimensions as well as for the overall IDM score.

2. Other than scores for violence and the environment in the original survey, for most of the scores individual dimensions do not have a straightforward interpretation. Naturally, all calculations and adjustments reflect that a score closer to 5 reflects less deprivation and a score closer to 1 reflects greater deprivation. However, even with a complete understanding of the variables from which the score is calculated, it is difficult to assign a precise meaning to each score.

It was **recommended** that in revising the survey tools it is important, as far as possible, to assign an interpretation to each of the dimension scores.

3. In a related, but separate issue, the cut-off points between one score and the next within each dimension and within the overall IDM score are also somewhat arbitrary at present. The original cut-offs reflected initial participatory work informing the IDM and consideration of the profile of deprivation of respondents in the Philippines at different IDM scores. The selection of the cut-off levels between these scores, both for the dimension and overall IDM score, will need further work to elaborate a theoretical basis and/or expert opinion in future.

It was **recommended** that these divisions need to be given consideration in the design of future analyses, maintaining the original principle of recognising the impact on individuals of the most severe forms of poverty, while incorporating statistically sound principles.

4. A number of questions in the original survey tool reflected two concepts, which proved difficult to untangle during the analysis; e.g., E.01 in the survey tool used in the Philippines asks about both the accessibility and the quality of food.
It was **recommended** the survey tool be revised to ensure each question asks about only one concept or element of measurement.
5. In some cases, primary data was collected, but not included in the analysis. There was a decision taken in the original research not to exclude questions prematurely that could provide valuable data.
It was **recommended** that assessments be made of the relevance of these data, with the aims of ensuring the length of the survey is manageable and survey respondents are not asked questions that are unnecessary to the intent of the IDM.
6. In some cases, data from survey questions used in the Philippines – such as types of paid and unpaid work – were difficult to use in ranking the deprivation of an individual.
It was **recommended** that existing survey questions that are difficult to analyse or rank be carefully considered during the revision process.

These recommendations contributed to the revision of the survey discussed in Chapter 5 and index construction discussed in Chapter 7. It is significant that the original research gave careful consideration to issues of weighting, from a philosophical stance, based on what is morally justifiable. For example, a prioritarian approach was adopted in determining weighting, whereby more severe deprivations are considered as morally worse than those that are less severe (Wisor et al. 2014: 64). Shortfalls in some dimensions, such as food, were determined as reflecting deeper deprivation than others, such as participation in community life (Wisor et al. 2014: 63). There was also an important acknowledgement that weighting schemes should be at least partly reflective of the collective preferences of the individuals whose lives are being measured. The innovation and strength of the IDM comes from the rigorous philosophical basis on which it has been developed. In future work, the challenge is to deepen the interdisciplinary aspect of the IDM, combining the critically important philosophical foundations with statistical robustness.

The re-analysis of the Philippines data did reveal some important considerations for the IDM as a **gender-sensitive** measure of multidimensional poverty. When dimension scores were recalculated, many heavily weighted dimensions revealed no gender differences, including water, shelter, sanitation, and energy (see Chapter 1). Dimensions in which women were more deprived, such as time use and voice, were assigned the lowest weighting based on the priorities identified in the participatory phase of the original research (see Wisor et al. 2014). This raises some important normative issues. The IDM is designed to be sensitive to the gendered nature of both material and non-material deprivation. In this, the IDM stands out amongst other measures of multidimensional poverty, which are largely insensitive to gender. In reviewing weights, it is important to understand which dimensions reveal gender differences, and which do not. It is also important to analyse how weighting may highlight or mask gender differences. Ultimately, decisions about weighting must make normative judgements as to the extent to which gender differences should be illuminated. Various systems of weighting are currently being explored (see Chapter 7 on index construction).

The Philippines re-analysis also used inequality measures such as percentile ratios, measures of generalised entropy, Atkinson Index, and Gini coefficients to explore the nature of inequality in IDM scores. Decomposition allows further insight: for example, decomposing Thiel's index enables analysis of whether inequality in IDM scores is more pronounced between or within groups. Using unique household identifiers, we can compare the estimated inequality in IDM scores within and between households. However, the reliability of underlying dimension and index scores needs to be assured in future studies prior to publication of results.

The IDM study in the Philippines was undertaken very early in the life of the IDM, essentially as proof-of-concept. That study revealed the power of the IDM to reveal the nature and depth of multidimensional poverty at the individual level and demonstrated the gender-sensitivity of the measure. Importantly, the Philippines study also identified areas for further work, which have shaped the research program during the first eighteen months of the current IDM Program.

3.2 IDM Fiji⁵

Kylie Fisk

In 2014, the Australian Government funded the first IDM study beyond the initial proof of concept trial in the Philippines. The IDM study in Fiji (Fisk and Crawford 2017a) was undertaken by the IWDA working with the Fiji Bureau of Statistics (FBoS). FBoS designed the study sample, conducted enumerator training, piloted the survey, and collected and cleaned the data. Preparatory work and implementation of the survey was undertaken between February and September 2015. Data was analysed by IWDA.⁶

Background: Household Income and Expenditure Surveys (HIES) are conducted by FBoS approximately every five years, measuring household income and consumption. The estimation of Fiji's poverty line is largely determined from data derived from HIES surveys. From 2002–2009 the incidence of poverty in Fiji had decreased from 35% to 31% (Narsey et al. 2010: vi). However, the overall estimates concealed a sharp difference in the pattern of urban and rural poverty, with urban poverty in the same period falling from 24% to 15%, and rural poverty rising from 35% to 37%. Narsey (2012: 4) has identified rural poverty and development as 'the biggest and most intractable challenge facing Fiji'.

The most recent HIES (2013–2014) indicated a further overall change in the national poverty rate from the 2008/9 HIES, decreasing from 31% to 28.1%. This also included a decrease in the incidence of rural poverty from 43% to 36.7% and, unlike the pattern detected between 2002 and 2009, an increase in urban poverty from 18% to 19.8% (Slatter 2017). Still, 62.6% of Fiji's poor population were in rural areas, despite less than half the population residing in rural areas (Slatter 2017: 21-22).

In terms of gender, Claire Slatter (2017: 23) speaks to trends in the 'hardship differential' for female-headed households, pointing to Adelman and Ivaschenko's (2014) report for the World Bank, which shows that poverty rates of female-headed households were 18.6% higher than the national average in 2003, and 6.2% higher in 2009. This may reflect increased economic opportunity for women during the course of the two HIES data collection periods.

This brief review of poverty research in Fiji indicates the importance of disaggregation by urban/rural and gender when looking for patterns in poverty rates, since such differences are often obscured by national estimates. As the IDM measures multidimensional poverty at the individual level, the IDM Fiji study (Fisk and Crawford 2017a) provided an opportunity to explore what additional insight could be gained by individual-level measurement and assessing a wider range of dimensions than income and expenditure.

3.2.1 Method

It was agreed with FBoS and DFAT that to complement recent poverty studies and maximise the potential value of the IDM in revealing new information about poverty in Fiji, the study would focus on areas already identified as having a higher incidence of poverty. Consequently, the sampling frame included a selection of Enumeration Areas (EAs) from the poverty 'hot spots' identified in the World Bank Poverty Mapping study (World Bank 2011). Developing a national poverty estimate is not possible from this IDM study as the sample was not nationally representative.

In the first stage of sampling, high poverty incidence and prevalence tikina (areas) were identified from the World Bank (2011) Poverty Mapping study in Fiji. The Poverty Mapping study provides a detailed description of the spatial distribution of income and expenditure poverty, at the national level and over smaller geographic areas beyond districts/divisions, such as tikina. The World Bank used a methodology that estimates poverty for each province and tikina, with a further level of disaggregation at a small area level. The poverty maps provide a visual depiction of poverty in highly disaggregated geographical units revealing pockets of poverty, even within relatively well-off divisions.

Based on the poverty maps provided by the World Bank study (World Bank 2011), tikina with the highest number of poor people were selected from each of the Provinces in Fiji. Some adjustments were made to this selection, taking into account geographical features and transportation difficulties. We ensured a fair geographical spread and representation of households from different sociocultural backgrounds, including areas which were part of the original IDM participatory research (Phase 1 in 2010 and Phase 2 in 2012).

⁵ This section draws substantially on the report of the IDM Fiji study (Fisk and Crawford 2017a)

⁶ Due to capacity constraints, FBoS decided to contain its involvement in the project to collection and cleaning of data.

Next, a two-stage sampling strategy was used. In the first stage, the sampling frame was divided into seven strata. Representative samples of Urban and Rural EAs were then selected from these strata. Within each stratum, the EAs or Primary Sampling Units (PSUs) were first selected, with probability of selection at the first being proportional to the size of the EA, measured in terms of total households in the frame. Within each EA, a fixed number of fifteen households (HH) were selected using systematic random sampling. Within all selected tikina, five EAs were selected with a random selection of fifteen households in each, and this generated the sample size of 1125 households across 75 EAs.

The total fieldwork period was ten weeks. This time frame was based on the number of households per enumerator by enumeration area. An average time of one hour per individual interview was assumed, with additional time allowed for the household member answering the household questionnaire. Enumerators were experienced FBoS survey administration staff.

Enumerators scheduled interviews with as many household members as possible on their first visit to the pre-selected households. The first interview of the household was with the primary respondent, who provided household-level information as well as their own individual-level information. Male and female field supervisors and enumerators conducted surveys with participants individually at the household, men interviewing male participants, women interviewing female participants. Ethnic congruency between participants and enumerators was sought where possible. Respondents were interviewed separately, away from other household members, in a quiet place where interviews would not be disrupted.

The IDM Fiji survey consisted of demographic questions, including sex, age, disability status, geographic location, and sociocultural background. A simple assets index was used to estimate financial deprivation. The survey then moved to the dimensions of deprivation assessed by the IDM, including food/nutrition, water, shelter, sanitation, health care, education, energy/cooking fuel, sanitation, family relationships, clothing/personal care, violence, family planning, the environment, voice in the community, time-use, and respect and freedom from risk at work. Other than adjusting items to reflect local context, the survey instrument used in Fiji was the same as that used in the Philippines.

Participants were first presented with an information sheet describing the project and its aims, as well as eliciting informed consent from participants. Modules (i.e., dimensions) were introduced separately before asking questions (e.g., 'Now I'm going to ask you some questions about hunger'). For the module on freedom from violence, a longer introduction was used, which requested specific consent for the module. At the conclusion of the interview, the respondent was thanked for their time, asked if they had any questions about the interview or survey, and reassured of confidentiality.

A local research consultant conducted field monitoring and evaluation from the second week of interviews until the completion of fieldwork. The consultant raised minor concerns regarding coding errors by enumerators, such as failure to adhere to skip instructions in the questionnaires, meaning some questions were being answered unnecessarily. There were also some errors with coding in the Time Use dimension, wherein the total number of time-use hours per day summed to more or less than 24. These problems were adjusted in the field through discussions with supervisors and re-training enumerators.

Four experienced data entry operators within the FBoS office in Suva handled the IDM data entry and verification. They also took part in enumeration and supervisory work on the IDM survey to contextualise the data entry and verification. It took 12 days to enter the data and 11 days for data verification, which involved re-entering the data and checking for disparities.

Table 3 below summarises the response rates to the IDM fieldwork survey according to the selected households for the final sample of 2966 participants. Response rates per tikina and overall are presented, including the total number of identified households (HH), the total number of identified participants in the EAs (EA HH column), the number of identified appropriate participants (Scratch List column), the identified appropriate participants following checks in the field (Final List column), and the number of participants actually interviewed (18+ years interviewed).

Non-responses were largely attributed to entire household relocation (e.g., due to lease expiry), household member relocation due to seasonal work or cultural commitments, along with difficulties in locating households from the pre-listed sample.

Participants: The sample consisted of 2966 individuals from 1125 households, consisting of 1481 men and 1485 women. The age range of the sample was 18–97, with an average age of 42.91. There were 1543 *iTaukei* participants, 1380 Fijians of Indian descent, 23 part-European, 5 European, 5 Rotuman, and 10 who identified as 'other'.⁷ Three sectors, or settlement types, were sampled (rural = 2054; urban = 757; informal settlement = 155), and an average of 2.63 individuals were interviewed in each household.

⁷ These are categories used by FBoS in reporting.

Table 3-1: Response rates by Tikina

Tikina/Area	HH	EA HH	Scratch List	Final List	18 + yrs interviewed	Response Rate %
1. Labasa	75	534	329	215	209	97.2
2. Naitasiri (Nausori Urban)	75	1,027	349	213	212	99.5
3. Suva	75	717	339	196	189	96.4
4. Vuda	75	698	323	202	201	99.5
5. Ba	75	543	332	221	221	10.0
6. Cakaudrove	75	601	329	176	171	97.2
7. Macuata	75	489	346	204	204	100.0
8. Savusavu	75	573	346	211	208	98.6
9. Tavua	75	607	358	200	193	96.5
10. Rakiraki	75	563	349	210	203	96.7
11. Saivou	75	634	340	191	175	91.6
12. Nadi	75	669	273	192	190	99.0
13. Malomalo	75	515	325	210	203	96.7
14. Serua	75	756	342	214	207	96.7
15. Bau	75	670	313	184	181	98.4
Total	1125	9596	4993	3039	2967	97.6

3.2.2 Learning from Fiji

Learning and reflections detailed here are drawn from experiences during fieldwork, a stakeholder consultation workshop, contributions from local experts who reviewed the IDM Fiji study report, and a panel discussion of the results with representatives from the Government of Fiji, civil society, DFAT Suva, international non-government organisations (INGOs), and multilateral organisations.⁸ This section

⁸ Feedback on initial analysis was sought from the IDM team involved in the initial ARC research grant, including Scott Wisor, Keiran Donahue, Sharon Bessell, Janet Hunt, and Thomas Pogge. Fijian individuals and organisations who participated in the local consultation process included (from the stakeholder workshop): FBoS (Fiji Bureau of Statistics); Joanne Choe (DFAT; Counsellor for Fiji and Tuvalu); Leaine Robinson (DFAT; Senior Program Manager, Gender and Social Inclusion); Nilesh Goundar (DFAT; Evaluation Specialist); Fiji Government Ministry of Women, Children and Poverty Alleviation; Glenn Davies (Gender Advisor, Ministry of Women); Jennifer Poole (MSP; Executive Director Medical Services Pacific); Claire Slatter (USP/DAWN; Research Fellow/ Development Expert); Lanietia Vakadewabuka (researcher and consultant); House of Sarah (NGO/violence Against Women service); Oxfam; Alisia Evans (femLINKpacific); Menka Goundan (FWRM; Fiji Women's Rights Movement); Tara Chetty (Program Director, Fiji Women's Rights Movement); FDPF (Fiji Disabled People's Federation); UN Women; Luse (Women in Fisheries); UNDP (United Nations Development Program); FCDP (Fiji Community Development Program); Empower Pacific; Bianaca Murray (AQEP; Access to Quality Education); Priscilla Puamau (AQEP); ADB (Asian Development Bank); MDF (Market Development Facility). From the final panel: Claire Slatter, Vanisha Mishra Vakaoti, Ministry of Women, Children, and Poverty Alleviation, Pacific Women Shaping Pacific Development Unit, Noelene Naboullivou (Diverse Voices for Action and Equality), UNICEF, UNDP, Fijian Ministry of Health, Save the Children, Fijian Women in Fisheries. Thanks to all participants for their time and valuable contributions.

reflects the feedback provided at various stages of analysis and local stakeholder consultation (full list in footnote 8).

The two-day stakeholder workshop conducted in Suva in 2016 involved systematic presentation of IDM index results and dimension results by gender, age, settlement type, ethnicity, and tikina. All possible results and comparisons were presented to the workshop participants. Participants engaged in small group work to raise questions and potential issues, contextualise results, and outline policy implications arising from the presentation of the data. An IDM team member sat in each small group to guide discussions and take notes. Following the small group work, whole group discussions were held in which each small group discussed their findings with the room. Notes were taken on a screen at the front of the workshop room visible to all participants, so that key points and findings would be recorded transparently. The observations discussed below were based on multiple IDM team members summarising the publicly recorded notes following the workshop and identifying key themes, concepts, issues, and patterns of engagement with the data by stakeholders.

Key strengths of the IDM were identified as its ability to move beyond income measures of poverty and illuminate lived realities via dimensions experienced at the individual level. Workshop and panel participants felt that because of this, IDM results acknowledged the *drivers* of poverty in a way that income-based measures did not. Stakeholders also appreciated that collecting simultaneous information about asset wealth allowed exploration of the relationship between monetary and non-monetary poverty.

Importantly, many stakeholders suggested a focus on the IDM's ability to reveal how deprivation varies – within households, by sex, across social groups and settlement type, and by tikina – rather than a systematic approach to presenting results. Stakeholders considered that the process of aggregating dimension data into an overall IDM score hid the differences that were of most interest and policy relevance. In terms of the IDM data, stakeholders generally felt they were reflective of the purposive sample employed for the IDM Fiji, but that as subject matter experts they considered that the results became more interpretable as they increased in granularity. This overall observation reflects two important strengths of the IDM when sample sizes are sufficiently large: 1) the ability to disaggregate and analyse intersectionally (e.g., by sex; by sex/age); and 2) the ability to decompose (e.g., break data down to investigate dimensions, indicators within dimensions, and items within indicators).

In terms of the first strength of the IDM, capacity for disaggregation and seeing intersectionality, people to whom we presented the findings were especially interested in seeing the results disaggregated by age and gender simultaneously. It was noted that the general patterns reflected the changing socioeconomic circumstances of women and men in Fiji in a way that aligned with participants' professional experience and personal observation. They underlined the need to break down results further to enable targeted investigation and analysis – for example, to focus on the circumstances of older women in rural areas. The ability to investigate deprivation by disability was another area that participants saw as a strength of the IDM, but the limitations of a random sample for drawing conclusions about disability were noted by local experts and detailed in the IDM Fiji Report (Fisk and Crawford 2017a) and the final chapter of this Methodology Update.

In terms of the second strength of the IDM, decomposability, experts noted that often the higher-level aggregate information made it difficult to anticipate the relevant policy or other intervention required: aggregation masked detail that was informative. This observation – that for people who work in policy and programming, more granulated information is most useful – led to an emphasis on dimension, indicator, and item-level data in reporting study results. Some observed that sequential dimension-by-dimension presentation overlooked some of the most obvious and interesting relationships *between* dimensions, such as water, sanitation, and hygiene.

Feedback from local knowledge holders also helped to flag where methodological issues may have emerged during data collection and analysis. For example, during the stakeholder workshop some issues relating to the measurement of time use were initially highlighted, with the IDM data contradicting existing statistics on time use and work in Fiji (Fisk and Crawford 2017a). Aside from improving the method of administration of the time dimension (i.e., by not having enumerators calculate 24-hour time-use diaries in the field), participants suggested that this may also be an issue of reporting, with men potentially more likely to overestimate the hours of work they perform per day and women more likely to underestimate. Initial checks of the time-use data supported this suggestion (Fisk and Crawford 2017a).

The IDM violence module seeks to measure violence as a *dimension of multidimensional poverty*, for women and men. There are no existing data available against which to compare the IDM Fiji study

results for the violence dimension. However, subject matter experts cautioned that the IDM violence findings were at odds with available data on violence against women collected by the Fiji Women's Crisis Centre (FWCC).⁹ They suggested that this may reflect under-reporting, drawing a parallel to the absence of reporting on sexual harassment in the workplace relating to fear of identification. They also noted political risks associated with misinterpretation and misuse of results. This feedback prompted caveats around the violence module and interpretation of results in the IDM Fiji report. In terms of improving measurement, subject matter experts suggested linking violence and male coercive control. The revised IDM survey discussed in Chapter 5 includes questions measuring coercive control in the household.

With regards to the family planning dimension and results, stakeholders suggested that different screening questions and additional items may be needed, to reflect the fact that the responsibility for family planning disproportionately falls to women, as well as the burden of pregnancy. The family planning module in a subsequent IDM study in Nepal attempted to distinguish between use, need and responsibility, with initial analysis suggesting these changes increased the sensitivity of this dimension (see Chapter 4).

Suggestions for future analyses included emphasising the individual level of analysis and the IDM's ability to draw out de-identified information about individuals, including profiling individual case scenarios and undertaking more in-depth analysis to inform poverty alleviation programs. Participants urged further inclusive data collection based on minority status such as gender identity and disability, which would allow dimension-by-dimension analysis of deprivation and provide valuable information for advocates working in these areas (see Chapter 8 of this Methodology Update). Finally, climate change and land access were identified as important dimensions of poverty in Fiji, with participants also noting the sociocultural aspects of these issues in Fiji. These suggestions have been noted for future IDM studies.

Stakeholders, particularly those working in government, questioned the length of the survey, in terms of time required to administer it and the overall intrusiveness of the questions. This may be particularly salient for more personal dimensions administered in the latter parts of the survey (such as family planning, time use, and violence) where participant fatigue and discomfort could interact to produce high levels of item non-response. Many suggested a shorter survey tool, which could increase the reliability of results and decrease participant burden, as well as the burden on enumerators, who were conducting multiple complex interviews in a single household. It was also suggested that the sample size be increased to improve representativeness, and that further efforts be undertaken to make diverse groups such as gender and sexual minorities and people with disabilities more visible in IDM studies in future.

At a technical level there was some interest in seeing more explanation of aggregation and weighting, along with explanation of the methods and thresholds chosen (explored in Chapter Seven of this report). Subject matter experts argued for higher weighting for dimensions such as health and sanitation, informing reflection on the options for weighting under consideration.

Participants at the stakeholder workshop expressed their desire to see all item-level data, so they could check how questions were worded and explore descriptive statistics independently. Finally, participants said they would like to see more emphasis on inequality in the results, as well as relationships inside the household, which they felt provided more policy-relevant information than overall and mean results, and which made the most of the within-household methodology of the IDM Fiji.

The initial scaling, weighting and aggregation of data in Fiji revealed some reliability issues. For this reason, overall IDM scores were not reported in the initial IDM Fiji Study Report (Fisk and Crawford 2017a). When the aggregation process is finalised we will calculate and report overall IDM scores for Fiji. This will include analysis of overall results by factors including sex, age, settlement type, tikina, sociocultural background, disability, and their intersections where sample size is large enough to make this possible.

A key contribution of the Fiji study was generating learnings about the IDM as a *measure*, including the survey tools, dimensions, index, and analysis, and seeing the potential of the data it generates, and exploring how to analyse, use and present IDM data most effectively. The IDM Fiji study, in collaboration with FBoS, and with valuable inputs from stakeholders, informed understanding of the IDM as a tool, including confirming where further conceptual and technical work is needed to improve the performance and reliability of the measure. In particular, by providing a second data set and using a survey instrument similar to that used in the Philippines trial, the Fiji study confirmed that some of the issues identified in the Philippines trial and data analysis were associated with the survey instrument and measure rather than the country context. Such issues and uncertainties are a feature of the point in

⁹ <http://www.fijiwomen.com/research/statistics/fiji-womens-crisis-centre-statistics/>.

time at which this study was undertaken. The learning this study made possible, particularly regarding technical aspects of the measure and methodology, is informing the work to refine and strengthen the IDM documented in this Methodology Update.

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4. USE OF THE IDM IN NEPAL

Kylie Fisk

In 2016 an IDM study was undertaken in Nepal to assess the suitability of the IDM survey, sampling, and analysis methods in a low-income country. As the IDM is a deprivation-focused measure, it was particularly important to test the use of the IDM in a much lower income context than the Philippines and Fiji to understand more about the effect of the weighting system on IDM scores in this context. We also tested computer tablet usage for enumeration of the IDM survey for the first time.

4.1 Background

Nepal is a landlocked country bordering India and China with a population of nearly 29 million in 2016. In the Foreword to Nepal's 2017 *National Review of Sustainable Development Goals* the Vice-Chairman of the National Planning Commission (NPC), Dr Min Bahadur Shrestha, notes that 'Nepal has made significant progress in poverty reduction and human development in the last two decades. The percentage of people living below the national poverty line in Nepal dropped from 38 percent in 2000 to 21.6 percent in 2015' (NPC 2017: ii). In 2015, 16.4 percent of the population was living on less than US\$1 per day (NPC 2017: 14). However, the World Bank estimates that the devastating 2015 earthquakes and aftershocks pushed an additional 2.5–3.5 percent of the country's population, potentially up to 700,000 additional people, into poverty (World Bank 2015). Many more will be living above the poverty line, but highly vulnerable to adverse life events. UNDP's 2015 Human Development Index places Nepal 144 out of 187 countries, at the lower end of the medium human development category (UNDP 2016: 2016). The percentage of multidimensionally poor as measured by the Multidimensional Poverty Index (MPI) in Nepal was 28.6 percent (OPHI 2017), with an average intensity of poverty (the proportion of MPI indicators in which people are deprived) across the poor of 44.2 percent. This produces an MPI for Nepal of 0.126, based on the 2014 Multiple Indicators Cluster Survey. The indicators in which most of the MPI multidimensionally poor are deprived are within the living standards dimension, particularly cooking fuel, flooring, and sanitation.

Laws and sociocultural norms in Nepal function to produce greater poverty and inequality among women and socially excluded groups than others (Asia Development Bank 2010). The Gender Development Index, which adjusts the Human Development Index (HDI) to reflect the extent of gender disparity, shows that gender disparity is high overall, but highest in rural areas, the mountains, and the mid-western development region (UNDP 2009). The 2015 Gender Inequality Index (GII) places Nepal 115 out of 159 countries,¹⁰ and the 2015 Gender Development Index (GDI) of 0.925 classifies Nepal as a country with medium-low equality in HDI achievements between women and men.¹¹ In terms of asset ownership, fewer than one percent of households report female ownership of three types of assets: house, land and livestock. According to the 2011 Demographic and Health Survey (DHS) in Nepal, just over six percent of women own a house compared to almost 23 percent of men. Less than 10 percent of women own land in their own right while almost 25 percent of men do, and joint ownership of land is not particularly common among men or women in Nepal (MOHP Nepal et al. 2011). In relation to work, women are largely engaged in unpaid, home-based labour (approximately 80 percent of domestic work is undertaken by women), and these responsibilities also transfer down to young women and girls. Despite progress – especially in the realms of health and education – the subjugation of women in Nepal continues (NPC 2017), including violence against women, domestic violence, sexual harassment in public spaces, child marriage, trafficking, and harmful traditional practices.¹²

¹⁰ The GII assessment for Nepal is based on the maternal mortality ratio (258 deaths per 100,000 live births), the adolescent birth rate (71.9 births per 1,000 women ages 15–19), the share of women's representation in parliament (29.5%), female population with at least some secondary school education (24.1% of ages 25 and older), and female labour force participation (79.7% ages 15 and over).

¹¹ The GDI assessment is based on women's life expectancy at birth (71.5 years), women's mean years of schooling (3.2), expected years of schooling (12.2), and estimated gross national income per capita (USD 1,979 2011 PPP).

¹² Although *chaupati*, or menstrual huts, were criminalised by the Nepalese Parliament in August 2017, awareness of the new law is still limited.

4.2 IDM Nepal

The IDM study in Nepal introduced several innovations. First, the Nepal study was the first time tablet-based (rather than paper-based) surveys were used to administer the IDM. Second, additional demographic information was solicited, including caste group, migration status, and mental distress, measured through the standard Kessler Psychological Distress Scale or K10 (Kessler et al. 2002). Third, refinements were made to the questions in the violence, time use, and family planning modules, based on learning from the implementation of the IDM in Fiji. Research was conducted in partnership with Interdisciplinary Analysts (IDA), a Kathmandu-based research consultancy firm with extensive experience in quantitative social science research.

The IDM Nepal survey had a sample size of 800 households (HHs), which were selected through a random (probability) sampling technique. These 800 HHs were spread across 16 districts. This number of HHs was estimated to produce results within +/- 3.4 percent error margin at 95 percent confidence level at the national level (see Fisk and Crawford 2017b for full details of sampling).

4.3 Enumerator training

Enumerators deployed to the field had regularly worked on larger-scale social research projects. Besides experience in undertaking surveys, the primary qualifications for the enumerators was language competency – they needed to be able to converse in local languages spoken in the sampled Terai and Hill districts. Therefore, the caste and ethnic background of the enumerators also mattered. Supervisors and monitors were chosen based on their experience in conducting previous surveys, and familiarity with research methodology. An approximately equal number of men and women were hired as enumerators, to enable male and female enumerators to work with respondents of the same sex. IDM training was aimed at fostering knowledge of the IDM questionnaire among enumerators, supervisors and monitors so that enumerators would be able to undertake effective interviews with respondents.

The training took eight days, with a total of 41 enumerators (including 10 supervisors) and two monitors to conduct the training. The training schedule encompassed a general introduction to the IDM and the specific project in Nepal, sampling design of the survey, household definition and listing, protocol (detailed in the next section), research ethics and informed consent, and household and individual questionnaires, including types of questions, variations, and skip patterns. One day was devoted to research ethics, including enumerators discussing and signing confidentiality agreements, child-protection and counter-terrorism protocols, followed by a feedback session. A considerable amount of time was spent specifically training enumerators on android tablet use, including instruction, practice, mock administration, and a pilot. The pilot involved enumerators and field monitors travelling to Jaisithok VDC of Kavrepalanchowk district, followed by a feedback session in Kathmandu, and troubleshooting issues that arose, including reprogramming tablets where necessary. On the final day, another round of mock interviews was undertaken, and detailed field planning conducted prior to deployment.

4.4 Lessons from pilot testing

The following valuable lessons emerged from the pilot testing process.

Consent. People willingly provided verbal consent, but became more reluctant when asked to sign their names. This was discussed as a potential problem across many cultures. It was decided that participants could indicate consent by pressing a Yes/No consent button on the tablet.

Including all household members. Interviewing all members of the household could be difficult. A common experience was that after the household was approached and people within the household understood what the survey was about, members of the household tried to evade the enumerators. We could only ask people to participate voluntarily, therefore chasing down participants was discouraged. We did, however, ask if there was a better time to return to the household.

K10 questions. The Kessler Psychological distress scale (G.15 to G.24 in the individual IDM questionnaire) asks different versions of a similar question to ensure scale reliability. Pilot respondents indicated that they could not distinguish the difference between the questions and tended to answer the same response to each question. The K10 was kept for the IDM Nepal survey, but has been replaced by the Washington Group extended set of questions of psychosocial distress for subsequent use (Washington Group 2017).

4.5 Tablet administration of the IDM

IDA outsourced the development and management of the electronic survey process to a Nepal-based IT company, Syntegrate,¹³ which brought to the study a sophisticated IT survey environment and experience in the development of infrastructure to support survey collection and code development. An IDM Program researcher and IT specialist engaged with Syntegrate and the IDA team in the initial stages of coding to discuss specific questions and general issues regarding development/coding of the survey. Broadly, these could be classified as either practical/fieldwork related matters, or data security related matters.

Huawei android tablets were programmed with the Open Data Kit (ODK) application, and unique IDs were assigned to each device and recorded. Additional batteries were taken into the field, with supervisors responsible for ensuring tablets were recharged every night. It is possible but not easy to include audio/video-based questions in the survey, and it was decided not to include audio in the IDM Nepal survey.

ODK also allows for the creation of usernames and passwords, so unique logons were created for enumerators and supervisors. Household and individual surveys needed to be linked, ensuring there was a relationship between individuals within a household. The team decided that this was best achieved through unique household and individual identifiers that would link individuals to households through a single code. Unique IDs were created by allocating 2–3 digits for district, VDC, ward, household and individual. Tips were provided within the app for each questionnaire where required, and instructions were provided to the enumerators within the app where applicable, but generally it was noted that in most cases trained enumerators would not require a help system within the app.

Although mobile communication is available in many places in Nepal, ODK includes tablet storage of data as an option for when mobile communication is not available. In these cases, data input is saved as XML files on the tablet. Once the tablet has internet connection, the ODK application can send the data automatically or manually. These settings can be configured, with an option to erase sent data from the tablet or leave it stored on the tablet. Decisions on these factors are determined by workflow. If the data is mandated to be verified by a supervisor, it will first be saved to the tablet and sent following verification by the supervisor. This was the option used for the Nepal fieldwork. Data was backed up every three hours to a failover site, and also to a disaster recovery site, with data transferred in encrypted form.

4.5.1 Overall reflections on tablet use

Administering the IDM by tablet required greater investment, training, and monitoring in the earlier stages of project planning than paper-based administration, although it reduced time for design and printing. Appropriate consultants had to be contracted, then several days were spent briefing them on the purpose of the IDM and reviewing skip codes. The programming itself took ten days, and needed to be completed before training on tablets could begin. Each time a change was made to the survey, the code needed to be edited by specialists, meaning that with several rounds of feedback (e.g., during training, after pre-testing, after piloting), extra specialist days were required each time. However, this front-loading of work relieved supervisors and enumerators during fieldwork, and compared to paper administration, eased the workload towards the end of the project, as no data entry was required.

Although there are risks involved in tablet administration, particularly in less-developed contexts, no issues were experienced with tablets during fieldwork in Nepal, and enumerators reported that they were easy to use. Average survey administration times were faster compared to pre-testing with paper surveys and, most importantly, tablets can reduce measurement error arising during enumeration and data entry.¹⁴ Tablets increase privacy, both from people around the participant and from enumerators, as each question and response is hidden on moving to the next question. Lastly, data are transmitted to the server as soon as the enumerator has Wi-Fi access, meaning that surveys cannot be lost, destroyed, or damaged, regardless of subsequent events in the field. In a reliable data security environment, this also protects the privacy of participants' data to an extra degree.

On the basis of this trial in Nepal, the IDM will continue to use tablets for administering IDM surveys. However, additional time for programming and troubleshooting is recommended in the future. In Nepal, tablets were tested by senior research staff, in role-play during enumerator training, during pre-testing,

¹³ <http://syntegrate.asia/>. For further details, see Fisk and Crawford (2017b).

¹⁴ For example, the tablets can be programmed with internal logic that does not allow a woman who has previously given her age as 50 to answer family planning questions (several women over 49 were administered the family planning module unnecessarily in Fiji).

and during the pilot. This amount of engagement prior to fieldwork is the minimum necessary to ensure smooth administration in the field. Close examination of pilot data is recommended to ensure skip patterns and limits are represented in the data. Integrating audio and visual options may make the surveys more engaging for participants. The planned investment in developing an IDM IT system that minimises the effort required at the beginning of a project will support future administration and reduce the time required for survey preparation.

4.6 Refinements to some modules

Learning from the previous uses of the IDM in the Philippines and Fiji led to some important changes in the survey itself.

4.6.1 Family Planning module

Analysis of the data from the IDM study in Fiji revealed that the family planning modules conflated use, access, and unmet need for contraception (see Fisk and Crawford 2017a). The IDM Nepal family planning module included additional questions aimed at assessing the specifics of use, access and need. In Nepal, items distinguished between use by the respondent and by a sexual partner. Preliminary questions were introduced to determine whether respondents use, want or have sought contraception: 'Have you ever used contraception?', 'Do you want to?', and 'Have you sought to?' Initial analysis indicates that these changes increased the gender sensitivity of this module in terms of adding more items that discriminated between men and women. Further analysis will be necessary to determine if the changes accurately capture deprivation in family planning (for example, sample weights will need to be applied to account for the women over 49 years of age, who do not answer this module). As discussed in Chapter 5 of this Update, the family planning module was further adjusted during the survey review process.

4.6.2 Violence module

The violence module is particularly sensitive, and the safety of respondents has been a priority in the development of this module. Research partners in Nepal, IDA, had previous experience with administering questions about violence, and advised that enumerators were aware of the sensitivity and significance of these questions. This was also a focus of enumerator training on this module. In Nepal, five main changes were made to the violence module used in Fiji. First, a more detailed informed consent process emphasised to participants that they were not obligated to respond, and that not every member in the household would necessarily answer the questions, since responding was optional. The second change involved reordering the questions so that the module was introduced by questions referencing less severe violence (e.g., 'Have you been humiliated?'), and working up to questions about more severe violence (e.g., 'Have you been stabbed?'). The third change involved asking about repeated incidents of every type of violence. The IDM Fiji study had asked a single question about repeated violence, and response to this question was one of the main points of discrimination between men and women. In Nepal it was decided to ask about repeat occurrence for each question in the violence module.

As discussed, the Nepal IDM study was the first time survey instruments were administered using a tablet. The violence module is designed to be completed by survey participants rather than enumerators; tablet administration allowed participants to indicate their response to questions on violence directly onto the tablet without enumerator involvement. The tablet version of the violence module involved showcards with gender-neutral images depicting the form of violence referred to in the question. After demonstrating to participants how to self-administer the module, enumerators would display the showcard and verbalise the relevant question. Tablets also displayed the image in the showcard. Participants indicated on the tablet whether they had either: a) experienced this type of violence (a green tick); b) not experienced this type of violence (a red cross); or c) did not wish to answer the questions (a grey arrow that would move straight to the next module). Feedback from IDA, and their past experience in implementing surveys relating to violence, indicated that confidentiality was easier to assure on tablets, especially with participant self-administration of the module. Generally, the self-administration method helped to ensure participants were not stating answers to questions in the violence module aloud inside households. However, there were two potential issues arising from this method. First, older participants, particularly women, found touch-screen tablet self-administration unfamiliar, and additional time was required to ensure they understood the exercise. Second, self-administration of tablets was often a novelty, and drew comments from participants, or interest from those in the vicinity, including children.

Initial analysis of data revealed higher average levels of reporting of violent incidents compared to the enumerator-administered paper version of the surveys in the Philippines and Fiji. Whether this is due to the tablet method, cultural differences in norms around discussing violence or actual higher incidence of violence in Nepal, or some combination of the three, requires further investigation.

One final change to the violence module was a question about sexual assault and rape. After consultation with IDA, the wording of this question was changed in accordance with local context and sensitivities. During the translation workshop, the question about rape and sexual assault was identified as too direct and inappropriate to ask women in Nepal, especially older women. The option that IDA suggested was a colloquial Nepali phrase that everyone would understand, but which would have enough plausible deniability that if a participant did not want to answer they could pretend not to know what the word meant. This was found in piloting to be effective in maintaining the integrity of the question while protecting the dignity of participants and ensuring local values were respected.

4.6.3 Time Use module

This module seeks to assess not just hours per day of paid and unpaid work, but also multitasking and labour burden relating to domestic and productive time use. In previous iterations of the IDM survey (Philippines and Fiji), time use was measured by asking respondents to recall what they were doing in the previous 24 hours, recording the results in prepared tables in paper survey booklets, which listed types of activities and times organised in half-hour blocks. Enumerators would then devise daily totals for the times respondents spent on work and leisure activities. This process produced errors, as enumerators were making calculations in the field, and sometimes activities would sum to more than 24 hours in the previous day.

Research partners in Nepal, IDA, had recently been involved in a project that examined four different ways of measuring time use. Two methods were found to be the most effective. One was similar to the method used during IDM studies in the Philippines and Fiji, that is, an hour-by-hour accounting of the previous day ('What were you doing at midnight?', 'Were you doing anything else?', 'What were you doing at 1am?', 'Were you doing anything else?'). Using the hour-by-hour method was found to be difficult for participants in terms of recall, and also would not work in areas where the exact hour (3pm, 4pm, etc.) was not a commonly used way of measuring time.

The second – and superior – method, in terms of ease of enumeration, participant recall, and accuracy was found to be narrative-based. That is, setting a baseline for participants' wake-up time ('About what time did you wake up?'), followed by a series of questions recounting the day's activities, e.g., 'What did you do?', 'How long did you do it for?', 'Were you doing anything else?', 'What did you do next?', until the 24 hours was accounted for. Activity options were also altered based on culturally relevant activities in Nepal – categories were again based on previous IDA experience.

Although the narrative-based and tablet administration of the time-use module in Nepal was found to be easier, analysis was not as straightforward. Time-use activity classifications had to be categorised post-hoc, away from the field. Following discussion with IDM team members, the Australian Bureau of Statistics time-use classification categories were used: *committed* time (largely domestic and caring work such as home maintenance, cooking, weaving/sewing, domestic work such as collecting wood, caring for children or infirm adults), *contracted* time (productive activities outside the home, such as employment, own business work, and fieldwork away from the house), *free* time (including various forms of entertainment such as TV/radio/movies/concerts, travelling, exercise, social activities or hobbies, and doing nothing), and *necessary* time (activities essential to basic functioning, such as sleeping, eating, and personal care).

Next, the total time spent on each activity had to be calculated from the raw time-use data generated from the tablets, which meant enumerators were not available to advise on the reasons for discrepancies (e.g., fewer than 24 hours of activities in each day). Most crucially, initial analysis indicated lower than expected levels of certain types of time use, based on previous research on time use and labour burden in Nepal. For example, average hours of committed time were 1.79 for men and 4.92 for women. As this category includes home maintenance, gardening, commuting, shopping, weaving, cooking, domestic work, caring work, and religious activities, this figure seems very low. The category that both men and women spent the most time on was found to be necessary time – sleeping, eating, resting, personal care, and personal services. Men reported 12.91 hours of this form of time use and women 12.90, which seems particularly high. The issue of how to analyse secondary activities is also unresolved. Several systems of weighting were applied to the data, but the rationale for one method over another was still undecided at the time of writing.

Before further interpretation, these data need to be re-examined. This will include analysis by *each type of activity*, rather than pre-classifying the time-use activities and analysing by category. Further analysis should be conducted to check that each participant has a total of 24 hours per day of activities, and a decision made whether to exclude participants from the analysis where this is not the case. Finally, further analysis should be conducted beyond gender. For example, participants in urban and rural areas will have different forms of time use. Older and younger participants will have different profiles of time use, and people with disabilities will expend time differently. It is possible that the current lack of intersectional analysis of time-use data is reducing the overall averages for men and women, and that time use should only be considered at a granular level. Cross-checks should also be performed with relevant items from other modules (e.g., are people who report doing paid work in the work module also reporting paid work in the time-use module?).

In terms of typicality of time use, more women (84.7%) responded that the reported activity schedule reflected their usual amount of paid/unpaid work than men (77.8%). Men said the reported amount of paid/unpaid work was more than usual (13.4%), compared to those who regarded the reported amount as less than usual (6.9%). In comparison, only 7.9% of women said the diary reflected more work than usual, with 6.1% reporting less work than usual. This item highlighted the importance of asking about typicality when recording 24-hour time use; however, how such information can be used in scoring and analysis remains unresolved.

4.7 Disability

In Nepal, oversampling of people with disabilities was attempted, alongside identifying disability via the Washington Group Short Set (WG-SS) in the national sample. A primary aim of the Nepal study was to collect early data to inform concurrent review of the measure being used. However, tight timing, reinforced by local weather considerations, meant that it was not possible to develop the approach to oversampling with individuals and local organisations representing people with disabilities. This is acknowledged as an important limitation and will be addressed in subsequent studies.

Two potential sampling options were considered with the Nepal research partner, Interdisciplinary Analysts (IDA). The first was to conduct additional household listings beyond the frame required for the national sample to identify households in which people with disabilities lived, with the intention of seeking consent from those individuals for an individual survey (see Chapter 6 for summary details of the sampling approach). However, this would have required considerable additional resources in each ward to list additional households and identify people with disabilities within the household. It also relied on the head of household being willing and able to identify people with disability living in the household. In addition, it would involve seeking the personal information of many people who would ultimately not be interviewed within this study, which was viewed by collaborators as unnecessary and potentially disruptive.

The second option was to follow the same sampling strategy as the national sample down to the ward level. While the national sample households would be selected according to the criteria outlined above, for people with disabilities there would not be a full household listing, but instead, the advice of the ward representative would be sought about households in which people with disabilities live, and these households would then be approached and informed consent sought from the individuals. In the event that there were no people with disabilities in a particular ward, or consent could not or would not be given, enumerators would move to the next ward as dictated by the national sampling strategy. This second option was viewed as imperfect, but more effective, and was the sampling strategy selected for the IDM Nepal study.

The Washington Group on Disability Statistics recommends that responses to the six short questions (which are each scored from 1–4) are organised into categories of severity using the following coding: scores of 6 = ‘no disabilities’, scores of 7–10 = ‘some disabilities’, scores of 11–13 = ‘high disabilities’, and scores of 14–24 = ‘extreme disabilities’. Using this coding for initial analysis of the IDM data collected in Nepal produces the following distribution of disability from the national sample. The majority of the sample (52.7%) experienced no disabilities in any categories of functioning; 36.9% of the sample fell into the category of ‘some disabilities’; 8.9% into the category of ‘high disabilities’, and 1.6% were in the category of ‘extreme disabilities’.

As an alternative categorisation, individuals with ‘some difficulties’ in more than three domains (i.e., summed scores above 9) were assigned a dichotomous cut-off for ‘without disability’ and ‘with disability’, which produced the frequencies represented in Table 4.1 below.

Table 4-1: Frequencies for dichotomously coded ‘disability’ variable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	without disability	1899	85.3	85.3	85.3
	with disability	326	14.7	14.7	100.0
	Total	2225	100.0	100.0	

Further work has identified alternative ways of coding disability dichotomously (e.g., Washington Group 2017), and these options will also be explored with the Nepal data. Following agreement on the future approach to dimension scores and index construction (see Chapter 7), the dimension and index scores for the national Nepal sample will be analysed by gender, age, area, caste/ethnicity, and disability, with intersectional analyses of dimensions and the overall IDM index to the extent possible.

As the analytical strategy for the concurrent oversample of 300 people with disability is still being developed, it is too early to address the data here.

4.8 Fieldwork

Through collaborating research partners IDA, a total of 41 enumerators (including 10 supervisors) were deployed nationwide in Nepal from 10–30 September 2016. A post-fieldwork workshop with the research team was conducted in Kathmandu following fieldwork on 3 October 2016.

Given the goal of interviewing all members of participating households 18 years of age and over, enumerators used their first household visits to schedule interviews with as many household residents as possible. They also sought advice on the best way of contacting adult household members with whom interviews could not be arranged on the first visit.

Ideally the first interview in each household was with the primary respondent (i.e., the respondent completing the household questionnaire as well as the individual questionnaire). Enumerators only began with a respondent other than the primary respondent when sure that a subsequent interview with the primary respondent could be completed. If the primary respondent was not the first household member interviewed, particular care needed to be taken with the respondent identification number, since this would normally be taken from the household list in Module B in the household section of the questionnaire.

Individual respondents were, to the extent possible, interviewed separately, without other household members or outsiders present. It was not acceptable for other household members to assist with recall for questions on the survey. Interviews were ideally conducted in a quiet place, away from distractions, where the interview could not be overheard, and if possible where there was a place nearby for children to play. Gender matching of enumerators and participants was ensured to the best of the team’s ability.

When an enumerator could not interview a specific resident of the selected household for some reason, the interviewer would pay at least three further visits. However, when the respondent was still absent after the third visit, basic information about the absentee was entered on the tablet.

A follow-up survey was conducted in all the 16 sampled districts of Nepal. This was conducted because in the first survey many men on the household listing were not present at the household,¹⁵ therefore the final number of men answering the individual questionnaire was comparatively lower than the number of women respondents who answered. Additionally, some men completed the household survey but not the individual survey – the follow-up survey sought to capture them when they had more time. At this stage, 793 interviews were taken, including 632 men and 161 women, with 27 recorded as missing. The missing data could be due to death or migration. A team of 19 enumerators and eight supervisors were

¹⁵ The late monsoon season meant that often household members were away from the house planting in the fields, which generally would not be typical at this time of year. Consequently, not everyone in the household could be captured during the enumeration period.

divided into eight groups (one supervisor per group) and were deployed to collect the booster sample, which was collected in one week. The total sample size for the follow-up interview was 905 individuals.

The final sample comprised 2225 individuals from 1125 households, consisting of 971 men and 1254 women. The age range of the sample was 18–97, with an average age of 42.91. Most were married (2087), but others in the sample were single (543), widowed (247), divorced (44), separated (27) and defacto (18). Migration status was self-assessed, and the majority were non-migrants (82%); however, 17.5 percent of those sampled were internal migrants (separate from the question of absentees), and eight participants declared their status as external migrants.

4.9 Impact of survey changes

This section outlines observations from the fieldwork period, following the main themes reported by enumerators and monitors.

Survey. Enumerators noted relatively few responses of Don't Know/Can't Say, perhaps due to the concrete nature of the IDM questions.

Violence module. With regards to the Violence module, experiences varied by region. Enumerators in the Terai observed that in their previous experience with violence surveys, higher rates of violence than those reported would be expected, but they were unsure of whether this was an issue of sampling or wording. In the Western districts, enumerators sensed a reluctance by women to answer questions about violence, and often they noticed participants checking for the presence of a mother-in-law before answering. Response rates in these districts were lower than other areas. A general observation from many enumerators was that it was a cultural norm that 'it isn't violence if your husband is doing it'. However, in the Far West (Darchula and Kailali), no issues or reluctance were noted with any part of the violence module. In Solu and Sindupalchowk, enumerators remarked that the self-administration was the most difficult element of the violence module, suggesting additional practice questions for participants. Overall, it was perceived that the greater the number of additional procedures associated with the violence module – informed consent, self-administration, provision of images – the more we risked drawing excessive attention to the module and leaving participants with the lasting impression that the survey was really about violence, which could be considered a risk in itself. Future work will explore the implications of alternative sampling options other than interviewing everyone in the household, and possibly modify the procedure for administering the violence module.

Consent. Lack of education was raised as the biggest reason for not being able to obtain consent, such that enumerators felt that some participants did not properly understand the aims and risks of the survey. Specifically, the mandatory phrasing required by the ANU Human Research Ethics Committee was beyond the comprehension level of less literate participants, despite enumerators' best efforts to explain the meaning in lay language. In cases where individuals did not understand the aims, format, or implications of the IDM survey, they were not interviewed. In the disability oversampling, some participants were screened out despite verbal consent, because the enumerator was not comfortable with their capacity to consent. Other issues relating to consent included individuals who had been drinking – returning at another time was the best option for these participants.

Disability. People with disabilities were more common in the 18 years and below age group, although they were not eligible for interviews in this study, which specified 18 years as the minimum. The disability oversampling raised the question of what 'disability' means, and the importance of extra questions for these participants. That is, although the Washington Group questions are effective at screening for disability through an accounting of functional difficulties, enumerators and participants did not feel that they enabled a nuanced picture of the person's life, history, or context. For example, a 30-year-old woman who was blind from birth comes with a different set of experiences, strengths, and vulnerabilities compared to an 80-year-old man whose eyesight has recently deteriorated. For this reason, more consultation, collaboration, data collection, and careful interpretation is necessary to draw conclusions about the relationship between multidimensional deprivation, gender, and disability (see Chapter 8).

4.10 Data analysis and index construction

The first phase of data analysis involved producing and interpreting descriptive statistics of the Nepal data, including items from each IDM dimension module and additional modules such as the assets index and quality of life questions. These items were disaggregated by gender, age, area, disability, and

caste/ethnicity. Intersectional analyses at the item level was then conducted (e.g., gender by age). Each of these item-level statistics can be compared to the IDM Fiji results to observe the variables that most discriminate between a middle and low-income country. This item analysis was then grouped and presented by dimension (e.g., health) and thematic area (e.g., WASH; Women's Economic Empowerment). Household and individual assets analyses were conducted and compared to the IDM dimension statistics. Finally, further analysis of the effects of within-household measurement were documented, that is, examining variation among particular items within and between households. The IDM Nepal Study Report Part I (Fisk and Crawford 2017b) describes the results of this exercise.

Work occurring at the end of 2017 includes coding 15 IDM dimensions from the Nepal data, and conducting sensitivity and robustness testing around weighting, aggregation, and identification of the composite index. The dimension and index scores can then be analysed by gender, age, area, caste/ethnicity, disability, along with intersectional analyses of dimensions and the overall IDM index (see Chapter 7 on composite index construction).

4.11 Summary

The purpose of the 2016 IDM Nepal study was to assess the suitability of the IDM survey, sampling, and analysis methods in a low-income country. Changes were made from the previous IDM study (IDM Fiji) to the method of survey administration, sampling strategy, and survey design. This section has documented these changes and initial evidence of their impact. This places the IDM Nepal materials and procedures in the context of previous iterations (Fiji) and future iterations (Indonesia) of the IDM.

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5. THE IDM SURVEY REVISION

Helen Suich, with contributions from Janet Hunt, Trang Pham, and Mandy Yap

This section covers the objectives of the survey revision, and explains the updates made to the individual and household questionnaires, based on experience with the IDM instruments to date and updated literature reviews. This refinement process has been an essential stage of this phase of funding, in part because the end of the Australian Research Council (ARC) project did not allow for thorough analysis of the data, nor for the refinement, review and re-testing of the survey instruments based on the proof-of-concept results from the Philippines. Subsequent implementation of the IDM in Fiji and Nepal provided additional data from which to draw when refining the survey instruments, including in relation to a number of sensitive dimensions measured in the individual instrument. The 2016 study in Nepal, undertaken in the early stages of this phase of funding, integrated some initial revisions to the IDM instruments to address learning from the Philippines and Fiji (see Chapter 3). Experiences in the field, and the analysis of data from each of these country studies, have been essential to this review.

As described in Chapter 1, the 15 dimensions of the IDM were developed from both the participatory research undertaken during the ARC-funded project, and a wide-ranging literature review around multidimensional poverty, gender, and development. Several principles were followed in the design of the survey instruments. The household and individual instruments were developed, as far as possible, using questions in existing surveys, which had already been validated (see Wisor et al. 2014). In selecting questions, attention was given to questions that were able to measure as closely as possible the actual experience and activities of the respondent, rather than the potential to access a good or service; for example, while food may be generally available in a specific location, an individual may not be able to access it. A decision was also made not to elicit information about preferences, satisfaction and/or happiness relating to any specific dimension, as perceptions and other subjective measures may hide adaptive preferences (see for example Nussbaum 2001). These principles were consistent with findings from the participatory work, where participants focused on the present circumstances of people, not their happiness or unhappiness with it.

Experience in the field and in the data analysis phases highlighted a number of issues with the existing IDM instruments that required further investigation and refinement, including ensuring:

- that in framing questions, each addresses only one concept, and coheres in a logical sequence of questions;
- the relevance of each question to its dimension, while recognising that some questions can provide data that are relevant to more than one dimension;
- the specificity of each question – dealing with only one concept and asking about the underlying concept as specifically as possible
- that all data collected can – and will – be incorporated into analyses, primarily by their incorporation into the IDM score;
- a consistency of timeframes throughout the instruments, adjusting for seasonality where relevant/necessary;
- question design is clearly and appropriately linked to the methodology for analysis;
- the instruments meet peer expectations, by undertaking a comprehensive peer-review process.

A number of factors related to the analysis of data are affected by instrument design and also required refinement, including: the scales and scoring used for each question and for each dimension; aggregation issues within and across dimensions; and weighting. These latter issues relate to data analysis and are discussed in more detail in Chapter 7 on index construction.

As the initial questions were drawn from relevant existing surveys where possible, the nuanced findings of the Phase One participatory research were not always as fully incorporated into the original instrument design as they might have been. In undertaking the revision, and in keeping with the participatory principles that underlie the IDM, the results from the participatory phase of research were reviewed and were critical to the identification of the key themes that would be represented in each

dimension of the revised survey instruments. In addition to this consideration, answering the following questions was central to the initial development of the IDM and to the instrument revision:

- what are the key themes of each dimension, drawn from both the participatory work and the literature?
- what are the proposed/suggested questions that cover these themes?
- what is known about the previous use of these questions – where they have been implemented as part of a different survey?
- do the questions (themes and dimensions) address key gender sensitivities where relevant and necessary?
- how can each question be scored and coded for inclusion in the IDM score calculations?
- how does each theme and dimension interact or intersect with others?

In all phases of the survey revision, several criteria were also considered in the selection of indicators:

- validity – that the indicator measures what it is meant to;
- reliability – that the indicator produces the same result when used more than once in the same context;
- specificity – that the indicator measures only what it is intended to;
- feasibility – that the indicator can be measured cost-effectively and in a reasonable time;
- comparability – that the indicators can be used across different contexts and over time.

Given the purpose and design of the survey instruments – to collect information regarding deprivation across 15 dimensions – it is not possible to cover all facets of a dimension, as might be possible in a dimension-specific survey. The multidimensional design creates trade-offs between covering each dimension comprehensively and selecting the critical elements of each dimension that highlight both the extent of deprivation, and, where appropriate, the gendered nature of each dimension. Thus, in the outline of each of the dimensions in the text below, themes that are not included in the instruments have been identified.

Questions, themes and dimensions have been included because they are indicators of deprivation. Thus, the tool will be useful in terms of highlighting priorities, for example, in terms of severe deprivations in single dimensions, and patterns of multiple deprivation. However, in order to design an appropriate, context-specific policy response, it may be necessary to gain further information regarding specific aspects of deprivation in a particular location or for a specific social group.

5.1 Overview of the main themes of each dimension

Outlined below are the main themes now being measured with the revised IDM survey, listed in alphabetical order. Table 5-1 at the end of this chapter provides a summary of the major revisions that have been made to the IDM individual and household survey instruments used in the Philippines trial, as a result of experience in the Fiji and Nepal Studies and the survey review led by ANU.

5.1.1 Clothing and footwear

While clothing has received scant attention among researchers or among advocates of human rights, it is an issue of considerable importance to people living in poverty. The participatory phase of IDM development indicated that having adequate clothing and footwear is a priority for many people, and a lack of adequate clothing was repeatedly identified as a marker of poverty. In addition, a significant number of participants in the study also spoke of the importance of children having appropriate clothing for school, while the literature also highlights the importance of appropriate clothing for job seeking and engaging in employment.

The module covers whether respondents have two sets of clothing and footwear that are appropriate to meet local standards, and the degree to which these items protect them from the weather and environmental hazards (Sphere Project 2015). For women, problems associated with not having access to sanitary products and/or a private place to wash and change at home connects strongly to shame

and stigma, and often mobility – indicators of these issues are included in the reproductive health module, and discussed in more detail below. Lack of access to sanitary products and resultant non-participation in social, work, or education activities, and stigma associated with menstruation will be analysed in the module, constituting an important addition to the dimension of clothing and footwear. Having a private place to wash and change will be analysed within the sanitation dimension.

5.1.2 Education

The importance of education as a marker of deprivation was confirmed across all six sites during the participatory phase. While the issues around education raised in the participatory work tended to relate to children, it was also noted that the poor education of adults and parents was a factor contributing to deprivation.

The participatory work revealed three aspects of education – quantity, quality, and access. In terms of quantity, participants noted the importance of the level of schooling as a distinguishing factor between those who were deprived and those not deprived (i.e. the highest grade a person has achieved). Quality of education was also perceived to be important in terms of an individual's ability to access and comprehend information. Finally, the participatory research also revealed the significance of access, that is, the availability of schools in the locality, as well as having the resources – school fees, books, school uniforms, etc. – required to participate in education. In some sites, child labour, and children therefore not attending school, was cited as being associated with poverty and deprivation.

Although the structure of questions in this dimension has been simplified, there has been no change in the content of the questions. The module determines the highest grade of education attended, as well as assessing functional literacy (reading and writing) and numeracy. This module also aligns well with the focus of the Sustainable Development Goals (SDGs) on literacy, numeracy, and skills proficiency (UNESCO 2016).

Several issues are excluded from consideration in the current version of the survey instrument. Other than basic literacy and numeracy, attributes that might be gained through quality education, and the ways in which education diminishes deprivation are not captured. The issue of cost, issues around educational access, quality or appropriateness, and the educational attendance of children in the household are not dealt with in this module. Questions about access to schooling and educational quality are of primary relevance to school-aged children, and to date only adults over 18 years of age have been interviewed. However, this is a recognised gap in the instrument with the lowering of the age of interviewees to those aged 16 years and older.

5.1.3 Energy/fuel

This module distinguishes between fuel sources for cooking and those used for lighting, and will in future include heating in countries where it is necessary. Biomass fuel sources were identified in the participatory work as an important indicator of the level of deprivation. Access to electricity was identified as an indicator of less severe levels of deprivation in most countries, largely due to its potential to generate benefits by enabling the use of time-saving and/or leisure appliances – such as televisions, fridges, stoves, fans, air conditioning, and computers – and the potential development of small businesses, etc. In contrast, the use of biomass (e.g., firewood, charcoal) as a cooking fuel was an indicator of higher deprivation levels. The time and effort required to collect biomass sources of fuel often have gendered time burden implications, as well as potential for security risks for those collecting fuel. Restrictions on access to locations where wood fuel could be collected/harvested were also a cause of deprivation, because of the difficulties arising from the need to source alternative supplies, particularly if these alternative supplies had to be purchased.

Thus, the main themes explored in this module are the sources of fuel for cooking and lighting, the availability and reliability of these sources, and the adequacy of supply. These were broadly unchanged from earlier versions of the questionnaire. Several questions have been introduced into this dimension, but are analysed within other dimensions. The first relates to the trends in biomass fuel availability, reflecting the increasing scarcities faced particularly by rural residents, and the subsequent negative environmental impacts (Hosonuma et al. 2012; UNEP 2016), which will be analysed in the environment dimension. Questions about the security risks associated with the collection of fuel and water are also new, and will be analysed in the violence dimension. The time burden of fuel – and water – collection is now incorporated fully into the time-use module.

One further gendered aspect of fuel use is the issue of exposure to smoke, particularly from cooking, which may lead to respiratory health concerns. At this stage this aspect of the dimension has been excluded, as energy sources now comprise part of the household survey. While there are a number of considerations about lengthening the survey, this will be reconsidered prior to the Indonesia survey being implemented.

5.1.4 Environment

The most frequently raised environmental issues during the participatory work were problems associated with the lack of waste disposal, and the health issues associated with air, water, and soil pollution. Several themes are incorporated into this dimension, expanding the themes addressed beyond the initial focus on the quality of the surrounding environment in terms of the presence of waste and pollution. These questions are now included as part of the household rather than the individual survey.

In the individual survey, one theme deals with wild harvesting – the collection of non-cultivated plants or animals, including fish, honey, fodder, construction materials, etc., but excluding fuel sources. This theme also addresses the availability, security, and reliability of these resources, ensuring that their high rates of use, primarily by rural households, is reflected (World Bank 2008; Hickey et al. 2016). Questions investigating the level of perceived safety in the home, and in the local area, are two of the environment questions in the survey that rely on respondent perceptions.

Other important environmental issues, such as those considered within the SDGs, include climate change, biodiversity loss, soil/land degradation, and environmental health; although these issues may impact the individual, they are more appropriately measured at a regional, sub-national or national level, and are thus excluded.

5.1.5 Food

From the participatory work, several issues were identified as defining the lowest rung on the poverty ladder:

- not having enough food; e.g., eating only one meal per day, or sometimes none;
- relying on food to stave off hunger and fill the stomach, e.g., eating cassava instead of rice, maize husk flour, or perhaps relying on subsidised food;
- having no diversity in the diet, e.g., eating the same/repetitious food, food that is not nutritious, or having no meat, fish or dairy in the diet;
- poor quality of the available food, no basic cooking necessities or condiments (e.g., salt, oil).

Participants in the participatory phase of research indicated that as individuals and households move up the poverty ladder, these constraints are gradually reduced, initially by increasing the quantity of food available (although there may still be a reliance on starchy foods/carbohydrates), then gradually increasing the diversity and quality of food and its nutritional content, and the enjoyment derived from this.

It is generally accepted that there are four key elements of food security: availability, access, utilisation and stability of supply (FAO 1996 cited in Pinstруп-Andersen 2009). Both food access and acquisition are perhaps most relevant at the household level, as purchases are often, but not exclusively, made at the household level, while utilisation is particularly relevant at the individual level (i.e. reflecting actual consumption). Stability can be both a macro- and household-level variable (i.e. does the household have sufficient resources to maintain household food supply?).

In order to continue using state of the art survey questions (as had been the case with the previous use of questions from the survey of the Food and Nutrition Technical Assistance (FANTA) project), the IDM has now adopted the Food Insecurity Experience Scale Survey Module for Individuals (FIES SM-I), which was developed by the FAO, building on the FANTA survey and other instruments designed to measure food security (Leroy et al. 2015). The FIES has been designed as a global standard for inter-country comparison – it has been extensively validated, and currently functions as one of the measurement tools for Sustainable Development Goal Two.¹⁶ While the questions cover similar issues as the earlier module, the FIES is designed specifically to focus on individuals' 'food-related behaviours associated with difficulties in accessing food due to resource constraints' (Ballard et al. 2014: 38). The eight questions cover three of the four cross-cultural domains of: uncertainty and worry, inadequate quality, and insufficient quantity (Coates et al. 2006).

¹⁶ Available at <https://unstats.un.org/sdgs/metadata/?Text=&Goal=2&Target>.

The module does not consider food sharing and whether this may compromise food intake, or whether it might be a means to access food. Nor does it deal with any other means of obtaining food or the shame associated with obtaining food in socially unacceptable ways (Jones et al. 2013).

5.1.6 Health

The concept of health is complex and multidimensional, and an individual's health status impacts on other aspects of life, in particular his or her economic productivity (Bloom and Canning 2000). The health module incorporates themes derived from the earlier participatory work as well as established and validated questions on disability. The participatory research revealed that two aspects of particular importance were health status and health care utilisation. Health status reflects the conditions – short term or chronic illnesses and/or injuries – experienced; participants emphasised the impact of poor health on other life circumstances. The main issues identified in relation to health care utilisation were the accessibility of health care (seen as both a demand and a supply issue) and the quality of the health care utilised. These aspects of health care identified in the participatory work have also been highlighted in the literature as some of the ways in which access to health care could be defined (O'Donnell 2007).

The measurement of health status in the IDM is complicated by the need to understand the health status of the general population and also to identify people living with a disability. It is therefore not possible to use the same measures of health status for both purposes, as this would present issues of circularity in comparisons between the sub-population of people living with a disability and the general population of respondents.

Given that it is not feasible to determine an individual's health status through a complete health examination (Gertler et al. 2000), self-reported measures of health are commonly used. The Washington Group on Disability Statistics Short Set questions (WG-SS: see Washington Group 2017) are considered to be one of the international standards in measuring disability prevalence. These questions continue to be used in the IDM instrument to identify people living with a disability (Miller et al. 2011), and to measure health status through individuals' functional limitations. Although these questions are asked within the health module, they will not be incorporated within the health dimension score calculations, but rather used to identify people living with disabilities for comparisons with the wider population.

The focus of the health status theme has been on the impact of poor health on the ability to undertake usual paid and unpaid activities, caused by the occurrence of a significant injury or illness. This approach captures the consequence of poor health rather than just the presence and range of possible health conditions an individual may have. This focus on the impact of poor health on an individual's functioning remains the priority, albeit with greater clarity in the distinction between the impact of short-term illness and injury, and the impacts of living with a disability on various aspects of daily living (in order to avoid the problems of circularity discussed above). As such the time frame for assessing health is the previous four weeks.

The key aspects of health care utilisation are unmet health/medical care and barriers to receiving care. These two themes provide indicators of availability, accessibility, affordability, and acceptability of care – although this is assessed in terms of the quality of care, not its cultural appropriateness. Standard questions from the World Health Survey are used. In previous IDM studies, they were framed around the quality of health care received the last time an illness or injury had been treated. In order to prevent a censoring effect by assessing health care quality only for individuals who experienced a significant illness or injury which required health care, the revision has widened the scope of the question to any health care received in the previous 12 months. This allows capture of information regarding quality of care for routine as well as urgent or emergency health care.

The definition of health by the World Health Organization recognises the importance of mental and social wellbeing (WHO 1946).¹⁷ In the IDM Nepal survey, questions to elicit psycho-social distress were introduced, using the Kessler Psychological Distress Scale, known as the K10 (Kessler et al. 2002). In the revised survey, the questions from the WG-SS plus the extended set on psycho-social distress will be used, building on the WG-SS questions used in earlier versions of the IDM instrument. Although these questions are also asked within the health module, they will not be incorporated within the health dimension score calculations, but rather, used to identify people living with anxiety and depression. As with the WG-SS, this sub-population of interest will be compared across the 15 dimensions with the general population of respondents.

¹⁷ Constitution of the World Health Organization: Principles: <http://www.who.int/about/mission/en/>.

5.1.7 Relationships

Living in poverty can have negative social consequences, and the inability to participate in society on equal terms with others is an aspect of poverty (Sen 2000; Mood and Jonsson 2016). A strong theme that emerged from the participatory work was that heavy dependence on others equates to poverty, in particular, the dependence on others to meet basic needs. This dependence was especially acute for those who were living alone, widows and widowers, those abandoned by family and/or were living with a disability. In contrast, having social support from family, friends and the broader community was important for moving out of poverty.

Another characteristic of deprivation described in the participatory work was being unable to engage in community events, in terms of being able to make contributions to these events, whether in the form of gifts, labour, time, or other goods and services. Social isolation was also identified as an indicator of deprivation, particularly with respect to those who were not able to be involved in community and social events.

The relationship dimension initially reflected two broad themes of (1) control over personal decisions with major impacts on a person's life, and (2) the amount of support from family and friends that could be relied on during times of misfortune. Analysis of data from Fiji and Nepal revealed that these themes were pulling in opposite directions. While women were highly deprived in the aspect of control, men were more deprived in terms of support, and the gendered aspect of the two questions was obscured when the two items were combined in the one dimension.

In revising this module of the survey, the questions on control over personal decisions are now captured in the Voice dimension, as described below. The two themes of the dimension now reflect (1) the extent of an individual's reliance on others, including their ability to reciprocate, and (2) an individual's ability or inability to participate in community life and contribute to community activities and events. These two aspects capture the experience of social isolation from not being able to participate meaningfully in community life and also not having the critical support for basic needs.

5.1.8 Reproductive health/family planning

The literature on poverty, gender, and development realises the complex relationship between family size, reproductive health rights, and poverty (Greene and Merrick 2005). Reproductive health is an important aspect of deprivation but, importantly, it is an aspect of deprivation that disproportionately affects women and girls, given the physiological/biological differences between women and men. Reproductive health also impacts on the economic circumstances of girls and women through their education and employment opportunities (Joshi and Schultz 2007). During the participatory research, several aspects of hardship associated with reproductive health were raised including menstruation, and access to and affordability of family planning and prenatal services. These aspects lay the foundation of the questions in the survey covering past and current pregnancy, contraception use, and menstruation. Given all these aspects are interconnected and fall under the broad heading of reproductive health, all questions covering the four aspects will be administered together to ensure the logical flow of survey content. However, the data from some questions will be analysed in other dimensions and pregnancy itself will not be analysed as part of the IDM score. A more complete description of how the various aspects of reproductive health will be analysed occurs below. For the dimension analysis, the focus will be on family planning or the use of contraception to avoid having children. Thus, while the survey module collects information on various aspects of reproductive health, the dimension itself centres on family planning.

The physiological/biological aspect of this module complicates how this dimension is measured for both males and females, and how it was incorporated into the calculation of comparable IDM scores, given the earlier non-administration of this module to women over 50 years of age. More detailed discussion of the difficulties in interpreting this dimension is provided in Chapters 2 and 4 in relation to Nepal and Fiji. For the implications for analysis of missing responses due to this age cut-off, see Chapter 7 on index construction. Given the need for focus and brevity in each dimension, issues around sexual health, infertility, plans to have additional children, and abortion are not included in this module.

5.1.8.1 Past and current pregnancy

Questions on past and current pregnancy continue to be included in the survey instrument within the broader reproductive health modules. These questions will be administered only to female respondents and will not form part of the family planning index or the IDM score. However, the information from these questions is important and will contribute to the evidence base for policy making and for exploring

how the IDM scores for recently and currently pregnant women may differ from the rest of the population, in view of the impact that pregnancy often has on other dimensions of deprivation such as time use, work, water and sanitation needs, and access to health care.

5.1.8.2 Menstruation

Menstrual hygiene is included as a new theme in this module. The major aspects with regard to menstruation identified in the participatory work and literature concerned access to affordable and appropriate sanitary materials, private places for changing, and access to water for personal hygiene purposes. In the feminist social science literature, menstruation is understood within a broader sociocultural context (Johnston-Robledo and Chrisler 2013; Johnston-Robledo and Stubbs 2013). As such, many women and girls face stigma during menstruation, precluding them from participating in social life (UNRHCO 2011; Sommer et al. 2015).

The broader literature and the IDM participatory work suggest that consideration of indicators beyond access to appropriate sanitation materials and places to change is critical. Thus, questions that highlight non-participation in social, work, or education activities, or the stigma associated with menstruation or the lack of access to sanitary products have been included. As noted above, questions regarding menstruation are collected within the reproductive health module to ensure a logical flow from the respondents' perspective. However, data from some questions will be analysed in the sanitation dimension (e.g., whether the respondent had access to a private place to change, wash and dry and/or dispose of sanitary products) and others in the clothing dimension (e.g., whether the respondent had access to sanitary products, whether the respondent had missed any social, educational or work activities due to a lack of access to sanitary products, or because of the stigma associated with menstruation).

5.1.8.3 Contraception use

There are several approaches to measuring access to reproductive health and family planning coverage, including the prevalence of contraceptive use, unmet need for family planning, and satisfied demand for modern contraception. Contraceptive prevalence measures the percentage of women aged between 15 and 49 who are currently married or in a union and who are using any type of contraception (Barros et al. 2015). Calculating unmet need is a more elaborate exercise requiring information about intention, timing, and spacing of children alongside the type of contraception use. The proportion of women deemed to have an unmet need for contraception are of reproductive age, are sexually active, and intend to delay or avoid having children, that is, they need contraception, but are not using any method of contraception (Bradley et al. 2012). Building on the idea of unmet need is demand satisfied for modern contraception, which represents women aged 15 to 49 who want to avoid getting pregnant and are using modern contraception (Fabic et al. 2015).

Several revisions (including for the Nepal study) have been undertaken to improve the clarity around in measurement of use, access, and unmet need for contraception, and to determine differences between usage, intention or desire to use, and whether the individual sought to use contraception, all of which increase the gender sensitivity of this dimension.

In order to capture unmet need for family planning in its entirety a whole suite of questions have to be administered, including questions eliciting desire to delay or avoid having children (Bradley et al. 2012), the breadth of which is beyond what is possible for the IDM survey. For this reason the dimension covers unmet need, but is restricted to fewer, more narrowly focused questions than would normally be used to measure the concept, and the subsequent calculation of unmet need departs from the usual convention in two ways. First, unmet need is estimated for both men and women aged 16 years and over who are sexually active – not just those who are married or in a union. Second, there are questions to elicit whether the individual is personally using or whether their partner is using any methods to avoid or delay having children. This allows the construction of a score for all men and women aged 16 years and above, and also acknowledges the role of the partner in the reproductive health process.

5.1.9 Sanitation

In the participatory phase of the IDM, sanitation was often discussed in terms of access to different types of toilets or sanitation facilities being associated with different levels of poverty. Additionally, poor households were sometimes described as having poor hygiene levels, and their occupants identified as those who could not afford to buy soap for bathing and washing. Thus, the focus of the module is on access to sanitation facilities at the home only, excluding the workplace. All indicators related to sanitation are measured at the individual level, recognising that not all dwelling residents will have access to all sanitation facilities. Hygiene is examined in this module with specific relation to handwashing, i.e., the availability of water and soap. Access to sanitation facilities is gendered when it

is related to personal hygiene and menstruation. This includes having access to sanitary products as well as a private place to change, wash and dry and/or dispose of sanitary products. This aspect of access to sanitation products is included and analysed in the clothing module (see above), while access to a private place to change is included in the sanitation dimension.

While the sanitation module measures broadly conform to recommended harmonised survey questions (WHO and UNICEF 2006), several items are absent – the location of the facility, and whether sewage is disposed of safely (although this is partly covered in the environment module). It is recognised that a lack of access to sanitation facilities out of the home potentially acts as a constraint to mobility, participation, work, health etc. However the problem of selecting non-arbitrary weights for primary and secondary toilet facilities, when no information was available regarding their relative importance to individuals, precluded their further consideration.

5.1.10 Shelter

In the participatory work, poor housing conditions were frequently mentioned as a sign of poverty. Respondents reported a range of aspects: the lack of any housing; poor quality housing, such as a leaky roof and crumbling walls; the lack of basic household items; for example, a dearth of bedding, mats, basic furniture, and kitchen utensils; overcrowded accommodation and poor location, such as residing in a house in an illegal settlement or rubbish dump, or near a railway.

These issues align closely with the United Nations Habitat definition of the right to adequate housing, which must at the minimum meet the following criteria:

1. Security of tenure: legal protection from forced eviction, harassment and threat.
2. Availability of services and infrastructure: safe drinking water, adequate sanitation, energy for cooking, heating, lighting, food storage or refuse disposal.
3. Affordability: its cost threatens or compromises the occupants' enjoyment of other human rights.
4. Habitability: guarantee physical safety and provide adequate space, as well as protection against the cold, damp, heat, rain, wind, other threats to health, and structural hazards.
5. Accessibility: housing is not adequate if the specific needs of disadvantaged and marginalised groups are not taken into account.
6. Location: housing is not adequate if it is cut off from employment opportunities, health-care services, schools, childcare centres and other social facilities, or if located in polluted or dangerous areas.
7. Cultural adequacy: housing is not adequate 'if it does not respect and take into account the expression of cultural identity' (UN Habitat 2014: 4).

The IDM shelter dimension incorporates criteria one, three, and four above, whilst criterion two is covered by other dimensions such as water, sanitation, energy/fuel, and environment. The IDM could be supplemented by geographical information systems, where available, to analyse issues around location and physical access to services, economic opportunities, and natural hazards, for example.

Several themes have been incorporated into this dimension, reflecting both the participatory work and the UN Human Rights Commission's minimum criteria relating to security of tenure (adapted from the Living Standards Measurement Surveys). Questions about the ownership of certain basic assets – in particular bedding and blankets, food preparation and eating utensils – complement the existing indicators of habitability (see also Sphere Project 2015). In addition to standard questions regarding housing construction materials and quality, issues of crowdedness and lack of housing are also briefly covered in this dimension.

5.1.11 Time use

The participatory work in the first phase of the IDM recorded several issues around time use. The first of these was the time burden of gathering essential supplies of water and fuel, including the extensive distances travelled to collection/harvesting sites, and the physical exertion this necessitated. The time required for household chores such as caring, washing, cooking, and other household duties, was also identified as a burden, falling mostly on women. Depending on the family/household composition and relative wealth, these time burdens create trade-offs, with negative implications for other aspects of life, such as the inability to undertake paid work and/or the loss of time for rest, sleep, or leisure. The literature on time use also identifies the significance of work intensity and multitasking – that is,

undertaking numerous activities simultaneously as opposed to sequentially (Floro 1995; Offer and Schneider 2011). Thus, the time-use dimension will focus on the themes of:

- the time spent on paid and unpaid work, which includes collecting water, fuel, and other natural resources;
- the extent of multitasking undertaken; and
- the time available for rest, leisure, and personal care for each individual.

Until now, the IDM has relied on recall of the previous 24 hours' time-use to capture a predetermined set of activities undertaken by men and women over the course of a day. Information on primary, secondary, and tertiary activities was collected. The collection of such time-use information provides deep insight into the time burdens associated with different activities for women and men. However, our data-gathering experience thus far suggests that this method is time-consuming and difficult for enumerators and respondents: it captures information beyond the scope of what is necessary for the IDM, while determining deprivation thresholds based on primary, secondary, and tertiary activities is overly complex (see 0, above).

Given the resource intensity of alternative methods of data collection (Gershuny 2011), the IDM will test the use of an adapted participatory method using stylised questions to collect the relatively modest amount of time-use data required for the calculation of the dimension score. While there are likely to be some disadvantages in this method, such as recall bias, the rigidity of activity categorisation, and the possibilities for social desirability bias, trade-offs are necessary in designing a survey that is not too onerous for respondents.

Information regarding ten categories of time use are collected, based largely on the International classification for time-use statistics, the most widely agreed, and most current set of time-use categories (UNSD 2017b). They are:

- employment and related activities
- production of goods for own final use
- unpaid domestic work for household and family members
- unpaid household maintenance and repair
- community services, voluntary work or help other households for free
- unpaid caregiving services for household and family members
- socialising and communication, community participation and religious practice
- education
- culture, leisure, mass media and sport practices
- self-care and maintenance.

The difficulties of defining and thus measuring leisure are recognised (Aguiar and Hurst 2007; Ramey and Francis 2009), IDM will follow the ABS in classifying time spent on personal care and sleeping separately from leisure time (ABS 2008).

Although the module continues to ask about multitasking, these questions have been simplified. In addition, respondents are also asked about whether a child under 13 years of age was in their care, given that care of a child or others, such as sick or disabled adults, can impose significant constraints on the ability of the carer to undertake certain activities, such as work outside the home (Folbre, pers. comm.). This can be thought of as time 'on call', rather than as a secondary activity (Budig and Folbre 2004).

Within the survey instrument, the time-use module is now placed directly after the work module, as the process of completing that module may help respondents to think more clearly about the time allocations of their unpaid work.

5.1.12 Violence

Violence is a sensitive dimension to measure and great care and attention to ethics and the safety of respondents needs to be taken in doing so (Sethi et al. 2004, Ellsberg and Heise 2005). In the participatory phase of the study, violence as an aspect of deprivation did not arise frequently, perhaps due to under-reporting (Ellsberg and Heise 2005). However, where it was raised, it tended to be associated with the risk of violence women face when undertaking their unpaid work tasks such as going to/from their gardens, or collecting water. Other research has highlighted that poor people experience high levels of violence or the threat of violence in their lives, threats which can be powerful in limiting activities (Narayan et al. 2000a; Narayan et al. 2000b; Narayan and Petesch 2002).

While both men and women experience violence, the literature tends to focus on men as perpetrators and women as victims of violence (Kimmel 2002, Flood 2006, Garcia-Moreno et al. 2006, Hossain et al. 2014, Warner et al. 2014)). For gender-sensitivity it is important to identify gender-based violence as distinct from other forms of violence.

The literature on the measurement of gender-based violence is increasing, particularly with regard to intimate partner violence, often measured as an aspect of women's health (Garcia-Moreno et al. 2006). More recent research on men and violence has focused on men's violence against women and perpetration rather than on violence against men themselves (Fulu et al. 2013, Warner et al. 2014), although more general crime surveys do obtain data on violence perpetrated against men and women by other men and/or women (See the Australian Bureau of Statistics [ABS] crime victimisation questions which form part of the Multipurpose Household Survey [MPHS]; General Social Survey [GSS]; and the National Aboriginal and Torres Strait Islander Social Survey [NATSISS]).¹⁸

The prevailing challenge in the violence dimension of the IDM arises from our desire to incorporate violence as a dimension of poverty and measure it at the individual level. Research shows a strong association between violence and lower levels of economic development (World Bank 2000), but also that intimate partner violence occurs at all economic levels. There is evidence, however, that gender-based violence is mostly an expression of power imbalance and gender inequality, and for this reason violence is an important dimension in the IDM. From a gender and policy perspective, the dimension should ideally distinguish between public violence and intimate partner or family violence, and focus on:

- the severity of violence – which could involve questions on the severity of any injury, or distinguish more clearly between violence with or without a weapon (the latter being interpreted as more severe violence), and between sexual and other forms of violence (conceivably attributing heavier weighting for sexual violence), or simply experiencing all types of violence, as in the original analysis;
- the frequency of violence in the past, and possibly fear of violence in the future;
- the impact of violence, e.g., injury, ability to do one's work, engage with family and friends;
- the perpetrator of violence, or at least the gender of the perpetrator, which raises a major safety concern unless the dimension is split by sex by enumeration areas and can be administered in privacy, or the sampling approach is changed to interview only one adult in each household (see Chapter 6 for discussion of sampling options).

The original survey questions drew on Diprose (2007), and have been revised to accommodate elements from the World Health Organisation survey on women's health and life experiences survey (version 12.03), focusing on the severity of violence – low, moderate, severe, and sexual – and the frequency of violence.

Despite the ideal requirements outlined above, for ethical reasons, and in order not to jeopardise the safety of respondents – given that all household members aged 16 years and above will be interviewed – the survey will not include questions regarding the perpetrator, their gender, their relationship to the victim, or the location of the violence. This continues the approach taken in the initial IDM survey, for similar reasons. The significant drawback of this strategy is that an occasional male-on-male brawl in the street cannot be distinguished from ongoing intimate partner or family violence impacting seriously on a woman. The only clue to any difference in the violence experienced may be in its frequency. Intimate partner violence is often repeated rather than once-off and related to control (Warner et al. 2014, Stavrou et al. 2016). For this reason, questions about whether any violence has been experienced on more than one occasion are asked for each category of the severity of violence. Questions regarding control over personal decisions are included in the voice dimension (discussed below), and we anticipate exploring relationships between answers to this set of questions about control over personal decisions with the violence dimension.

The module does not contain questions on attitudes to violence or the perceived threat of violence in the future. The IDM experience to date indicates that a question in an earlier version of the survey about fear of violence in the future provided little valuable additional data, and given the need to keep dimensions concise it has been omitted.

In order to ensure that ethical and safe procedures are being followed, the next country studies will also include follow-up qualitative research with some survey respondents on the impact of the IDM study.

¹⁸ <http://www.abs.gov.au/ausstats/abs@.nsf/mf/4530.0>.

5.1.13 Voice

There are different definitions of voice. It can be understood as the ability of citizens to express their preferences and to be heard by states through either formal or informal channels (Rocha Menocal and Sharma 2008). In other contexts, voice is defined more broadly as ‘the capability to speak up and be heard, from homes to houses of parliament, and to shape and share in discussions, discourse and decisions that affect them’ (Klugman et al. 2014: 2). The exercise of voice is a manifestation of agency and empowerment. The World Bank highlights five aspects of women’s agency – access to and control over property, freedom from the risk of violence, freedom of movement, decision over family issues such as family planning, marriage, divorce or having children and, finally, the ability to have a voice in society and influence policy.¹⁹ Violence, asset ownership and access, and family planning are dealt with elsewhere in the survey, and are therefore not incorporated within this dimension. From the development and gender literature, as well as from the participatory studies, two main aspects of voice arose – voice in the public domain and voice within the household.

Voice in the public domain has been expanded to incorporate voting behaviour, incidence of voicing concerns and perceptions of individuals’ abilities to influence public decisions. This expansion was important because, first, for a majority of people voting is probably the most political behaviour they undertake to influence a political decision that is going to affect their life. Second, we need both incidence of voicing concerns and perception of influencing public decision-making to cross-validate each other. While many people do not voice their concerns, this does not mean they are incapable of influencing policy. On the other hand, the perception of one’s ability to voice concerns can be different from the actual capacity to do so and is vulnerable to social desirability bias. Social desirability bias is a type of response bias whereby respondents answer a question in a way that is viewed desirable in a certain social setting (Krumpal 2013). An implication of this type of bias is that when being asked about their ability to voice concerns or influence political decisions, respondents are more likely to report positively as they do not want to be adversely regarded by the enumerator. Hence, both perception-based and incidence-based questions are used.

The second aspect covered in this dimension is voice within the household. This focuses on two main themes, control over personal issues, and control over resources and work. Controlling behaviours are, for example, controlling someone’s whereabouts, preventing someone from contacting or meeting friends, family and community, preventing them from seeking education or work, damaging or destroying their productive assets and property (ABS 2006). These behaviours are a form of emotional abuse and are closely linked to intimate partner violence (Stavrou et al. 2016). The inability to retain individual control over one’s body and personal affairs erodes self-esteem and affects one’s autonomy. Furthermore, having access to and control over social and productive assets expands one’s agency and empowerment (Eerdewijk et al. 2017). The 2012 World Development Report on Gender Equality also emphasises that having access to education and work, and control of land and assets are imperative to increasing women’s voice and bargaining power within the household (World Bank 2012). The questions for this theme were developed based on the World Health Organization survey on women’s health and life experiences (WHO 2015), and the Personal Safety Survey designed by the Australian Bureau of Statistics (ABS 2012).

5.1.14 Water

The human right to water entitles everyone without discrimination to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic use (UNGA 2010). The main themes of the participatory work largely reflected these issues, relating to a lack of access to, or difficulty in accessing water sources, particularly for drinking water, but also for other household needs including cooking, bathing, and washing. For those on the lowest rungs of the poverty ladder, water sources were typically far from the home and required a significant amount of time collecting water. This time could otherwise have been used for household chores, other productive activities, or even for resting or leisure. The hard physical labour involved in water and fuel collection was also identified as a burden on those responsible for collection. With particular reference to piped water, the difficulties associated with supply were noted – that is, water frequently did not flow from the taps. Water quality was also identified as a problem because of the negative health impacts associated with relying on poor-quality water sources.

The lack of safety, because of theft, assault, problems with wildlife, etc., were also highlighted as problems associated with collecting water from sources far from the home or courtyard. Questions for

¹⁹ <http://blogs.worldbank.org/voices/enhancing-women-s-voice-empowerment>.

those responsible for collecting water about issues of safety are asked in the water module, but analysed within the safety theme of the environment dimension.

This dimension retains its original focus on water source and treatment, using the combination as a proxy for quality, and sufficient supplies/quantity as the key basic indicators. While questions about treatment of water are asked, no assumption is made about the quality of water following treatment, as determining the adequacy of water quality can only be done by scientifically testing water supplies. The questions included in the water dimension generally meet the harmonised survey questions set by WHO and UNICEF (2006). The time spent by the responsible individual to collect water has been fully incorporated into the time-use dimension, while the affordability of water is not covered in this dimension.

5.1.15 Work – paid and unpaid

Five main dimensions of paid work were identified in the participatory phase of the research and are evident in the literature: (i) whether the work is formal or informal; (ii) the security of the work, for those who are employed; (iii) underemployment, overemployment and unemployment; (iv) occupational hazards; and (v) having work that is respected (Hussmanns 2004; Fields 2012; Gregg and Gardiner 2015). However, the continuing focus of the module on both paid *and unpaid* work is particularly important to gender sensitivity.

The dimension requires several clear definitions in order to separate out the populations of interest – in particular, those individuals in informal and formal work, the unemployed, and those who are not in the labour force. Improving the clarity of these distinctions, and stronger alignment with internationally accepted definitions, was the focus of one aspect of the revision to the module. The definition of employment follows that of Statistics Canada,²⁰ and defines those who are employed as any household dweller 16 years and older who, during the reference week of the previous seven days:

- did any work at all at a job or business, whether paid work in the context of an employer–employee relationship, self-employment, and/or unpaid work in a family business (including agriculture/farming) or own-account work; or
- had a job but was not at work, whether because of own illness, personal or family responsibilities, vacation, labour dispute or other reasons. However, this excludes people on layoffs, those between casual jobs, and those with a job to start at a future date (see also ABS 2013).

While informal employment is described as a complex mix of employment status and type of sector (Hussmanns 2004), the IDM focuses only on whether a person is employed in the formal or informal economy, using whether a person is entitled to medical and social security benefit as a proxy for formal work. Several questions also address the new theme of job security (Nardone et al. 1997; Gregg and Gardiner 2015). The definition of unemployment also follows Statistics Canada: unemployed people are those who, during the reference week:

- were on temporary layoff during the reference week with an expectation of recall and were available for work; or
- were without work, had looked for work in the past four weeks, and were available for work; or
- had a new job to start within four weeks from reference week, and were available for work.

Those not in the labour force are defined as those people who, during the reference week, were unwilling or unable to offer or supply labour services under conditions existing in their labour markets. These people are considered as neither employed nor unemployed. Unpaid work is defined as household work (e.g., housework, yard work, maintenance and repair), other domestic duties such as shopping, and child care, as well as work assisting people or organisations that is done without pay, and volunteering.

Several themes continue to be addressed in the module including those relating to occupational hazards and respect in work – investigated for both paid and unpaid work. The theme of time-related overemployment was addressed in the original IDM survey, but has been expanded to include time-related underemployment or labour underutilisation (ILO 2013).

While gender also affects the division of labour (occupational segregation and wage differentials) and socio-cultural norms and stereotypes (rigid gender roles affecting the types of work women/men do, but also the amounts of work they do), the IDM is not able to address all of these issues.

²⁰ Available at http://www23.statcan.gc.ca/imdb/pIX.pl?Function=getThemeSub&PItem_Id=97413&PCE_Id=438&PCE_Start=01010001&cc=9.

5.2 Non-dimension aspects covered in the survey instrument

Some aspects of the survey instruments collect non-dimension information which is used to provide further information about poverty and vulnerability and people's own sense of subjective wellbeing.

Assets: The assets index remains similar to that used in the original survey, but in the course of several revisions has shifted from being included in the household survey questionnaire to being asked in the individual survey instrument, although it is not considered as one of the 15 dimensions of deprivation. This change is based on IDM experience in Nepal, recent research demonstrating the increased accuracy of collecting such information at the individual level rather than relying on a proxy (UNSD 2017b), and the ability to use asset ownership as a measure of gender inequality (Doss et al. 2014). The asset classes included have been amended, and are grouped into productive and consumption categories. They broadly align with those of the Evidence and Data for Gender Equality project and its recommendations to the United Nations Statistical Commission (UNSD 2017b). Particular attention has been given to ensuring the inclusion of assets identified as important during the participatory phase, such as mobile phones, bicycles and motorbikes, cars, gold jewellery, livestock, and land. Secure tenure of housing is already incorporated in the instrument in the shelter dimension.

Vulnerability: The literature on poverty points to the growing importance of vulnerability to poverty. While poverty provides a current or ex-post picture of an individual's deprivation, measuring an individual's vulnerability by accounting for future probability of falling into poverty adds a layer of necessary complexity to the concept of poverty (Dutta et al. 2011; Chaudhuri 2003; Calvo and Dercon 2007). Several questions have been included in the instrument to give an indication of the vulnerability of individuals. These questions relate to whether they have been exposed to major shocks or problems and whether they live in a location that is subject to natural hazards (such as earthquakes, landslides, fire, floods, drought, etc.), whether individuals have been forced to sell assets in order to purchase basic foods, trends in their health status. Thus we may be able to identify people at a certain level of poverty who are vulnerable to slipping into greater deprivation.

Subjective wellbeing: In the participatory research, respondents mentioned 'peace of mind' or the guilt of not being able to provide for their family, the feeling of guilt or desperation associated with not being able to send children to school or buy them uniforms. A question on subjective wellbeing has been added to the individual survey to assess the relationship between this and IDM score.

Disability and mental distress: As mentioned above, the health module in the IDM individual survey includes the WG-SS plus the extended set on psycho-social distress, but these are not analysed in the health dimension. The use of these questions aims to identify individuals living with a disability, to allow for analysis of how disability affects deprivation and intersects with other personal and social characteristics. The IDM has the potential to reveal the relationship between disability and deprivation in ways that most other measures of poverty cannot. There are, however, a number of challenges. The IDM Fiji study, undertaken by IWDA prior to the commencement of the current IDM Program, highlighted the challenges of collecting sufficient data about people with disability in a random sample of around 3000 people, given the relatively small numbers of respondents who reported functional disability.²¹ Furthermore, in order for analysis of disability alongside sex, age and geographic location, relatively large sample sizes are required, with implications for the cost of IDM studies. Second, in many societies, disability is heavily stigmatised and people living with a disability are hidden from public view, and certainly from strangers seeking information such as survey enumerators. Third, while the WG-SS provide a means of identifying some forms of disability, they are not comprehensive; in using the IDM as a poverty measure it is not feasible to ask a longer set of questions necessary to gain a comprehensive understanding of the nature of an individual's ability/disability status. Fourth, people living with disabilities that most seriously impact on their ability to engage with others or to answer questions are likely to be the most marginalised – and the individuals of greatest concern to the IDM. The ethics of interviewing people in this situation are discussed in Chapter 2. Thus, while these questions have been included, there are a number of factors which may affect the validity of findings and their analysis.

5.3 Conclusion

The revision of the survey and the associated work on carefully defining the new scoring has yet to be tested in the field. While we are confident of their conceptual robustness, the new survey instruments

²¹ The mean score on the WG-SS was 6.8, indicating low average levels of disability, making reliable analysis of higher levels of disability difficult (Fisk & Crawford 2017a).

now have to be piloted and trialled in Indonesia, the next study location, and the survey may be adjusted slightly after experience there. In particular, we know that some of the more sensitive or difficult-to-measure dimensions may need further refinement following more field testing. The next two chapters discuss a number of issues relating to the sampling strategy and index construction that are related to the survey instrument construction. In particular, change to the sampling strategy (e.g. to only a single person in the household) could resolve some of the challenges of the violence dimension discussed above. A key consideration in moving forward, and in any changes, will be maintaining the gender-sensitivity of the IDM.

Table 5-1: Major revisions to the IDM survey instruments

This table summarises the major revisions to the IDM individual and household survey instruments used in the Philippines trial, as a result of experience in the Fiji and Nepal Studies and the survey review led by ANU. In many cases some re-wording or re-formatting of the questions in the survey instruments was also undertaken to make questions as clear as possible, and for ease of administration and translation into other languages.

Individual Questionnaire Dimension	Change to Philippines trial version of Individual Survey	Reason
Clothing	One additional question on whether own two or more sets of clothing Addition of separate question on footwear.	A more objective measure than just perception of clothing adequacy. Footwear was included, but is deemed important enough in terms of protection to separate out from other clothing
Education	Deletes 2 questions about attending school and years of education, otherwise the same	Focus is on attainment rather than attendance
Energy/Fuel	Main sources now collected in Household, not Individual survey; focus in individual survey now on availability, reliability and adequacy of supply Additional questions about safety during collection	Key focus of the dimension is deprivation in relation to fuel supply, rather than smoke exposure; collection of biomass fuels often has gender implications.
Environment	Questions about waste disposal and pollution issues now included in Household survey. Focus is on availability of environmental resources and perceptions of safety/crime. Additional questions about natural resource utilisation, exposure to natural hazards	These items are more relevant to the individual and their roles and perceptions Availability of natural resources key to many rural livelihoods, and exposure to natural hazards an important indicator of vulnerability.
Food	Replaced original questions with Food Insecurity Experience Module for Individuals	FAO global standard and well validated
Health	Minor changes only to capture a broader experience of health care utilisation not just significant illnesses or injury Washington Group Short Series questions are administered here along with their questions on psycho-social distress, but these are not analysed as part of this dimension but as variables.	To improve data quality and ease of administration In Nepal the Kessler 10 Psychological Distress Scale was used but respondents had some difficulty with those questions.
Relationships	Questions about control over personal decisions moved to Voice dimension. The questions in this module now reflect two themes: extent of an individual's reliance on others including ability to reciprocate and an individual's ability to participate in community life and contribute to community events. Original survey only asked about support you could get from others, nothing about reciprocation, or ability to participate in/contribute to community life.	The two earlier sub-themes were pulling in opposite directions. Women were deprived in control, men in support; the gendered aspects were obscured when combined in one dimension. The two aspects now included capture deprivation in terms of social isolation.
Reproductive Health/Family Planning	Original survey had 3 questions on contraception and included questions about past & current pregnancy (which were not scored in dimension); Extended to include menstruation and sanitary products (latter	Pregnancy questions not scored in IDM, but provide supplementary information. Major revisions in contraception questions to identify differences around measurement of

	analysed in Clothing dimension); a number of revisions and additions to questions re contraception.	use, access and unmet need that provide greater gender sensitivity and improve data compared to original survey.
Sanitation	<p>Single question about toilet type was in the Household survey.</p> <p>Survey now includes questions in the Individual Survey about toilet used at home, whether shared/public and if flush, whether water is sufficient; also includes questions on hygiene - handwashing.</p> <p>Access to private place to change when menstruating asked in Reproductive Health but analysed in this dimension.</p>	Questions on secondary toilet removed due to limited value of the data, to make space for hygiene questions, to increase gender sensitivity.
Shelter	<p>Question added on whether an individual has bedding etc. to sleep comfortably, slight change in crowding question and question added to explore insecurity of housing.</p> <p>Additional questions about the ownership of minimum necessary household goods</p>	<p>Bedding and related issues arose in participatory work earlier but not in the questions selected. Also tried to reflect more of the UN Habitat criteria for the right to adequate housing (e.g. security of tenure).</p> <p>Household goods ownership important indicators/provide greater nuance of extreme deprivation</p>
Time Use	Changed from chronological based time-use diaries to a more participatory approach using discs to represent different time uses	Neither paper-based nor tablet- administered 24 hour diaries provided quality data
Violence	Changes in introductory wording; re-ordering of questions to reflect less severe to more severe violence; question to ask about frequency of a violent incident after each type of violence, rather than as a general question at the end; removal of question on expected future violence.	To increase emphasis on confidentiality of answers to these questions specifically and to remove the word violence from the introduction due to cultural understandings of that term which may lead to poor data; to build gradually to more severe forms of violence; to get better data on repeated violence (which is often an indicator of gender-based violence); future violence data added little to insights from previous questions so deleted.
Voice	<p>Voice in the public domain now includes voting behaviour, actual incidence of voicing concerns and maintains perception of ability to influence public decisions but with a simpler question.</p> <p>Also added are questions relating to voice within the household, specifically about whether anyone has prevented respondent from doing a range of activities (eg. seeing friends or family, seeking health care; accessing education/training, working) or spending money on household things such as food, healthcare.</p>	<p>Previous questions only focussed on voice in the community and were perception based questions, so were insufficient.</p> <p>Changes in Relationships dimension (see above) led to voice in household questions being placed here.</p> <p>Overall greater coherence and gender sensitivity in the concept of voice.</p>
Water	<p>Water source and treatment remain in the Household questionnaire, but added question on adequacy of water flow if piped.</p> <p>Individual questionnaire new questions added: separating adequacy of water for personal, cf domestic needs; Responsibility for collecting water; seasonality of quality and availability of water ; threats/ hazards when collecting water (latter analysed in safety theme of environment dimension)</p>	<p>Quality and quantity continue as basic indicators. Water source and treatment are proxy measures for quality.</p> <p>Questions generally meet harmonised survey questions of WHO/UNICEF.</p> <p>Threats to safety were raised in original participatory work.</p> <p>Time required to collect water included in Time Use dimension</p>
Work	<p>Inserted introductory text that explains what is included in work, whether paid, unpaid or production for own use.</p> <p>Improved distinctions between persons in formal/informal work; unemployed; not in labour force.</p> <p>Removed question on type of paid work,</p> <p>Added question on reasons for not working.</p>	<p>Clarity of conceptual design</p> <p>Under employment was not included in previous survey but emerged as a clear issue.</p> <p>Job insecurity a key issue in literature.</p> <p>Type of paid work was not used in dimension score so was removed.</p>

	Added questions as proxy for job security; also questions re under/over work/employment (paid & unpaid) Otherwise maintained questions on occupational hazards and respect in work, though some adjustments to wording.	
Assets	More comprehensive list of assets now asked individually in terms of access to or ownership	Previously only asked at Household level and so not gender-sensitive, nor as accurate as individuals being able to respond regarding personal ownership
Quality of Life	Questions reduced, and moved early in the survey; Questions related to vulnerability and change in living standards added	One question sufficient to assess satisfaction with life. Vulnerability to poverty significant in literature. These questions with others (e.g. in relation to natural hazard risk and forced sale of assets) to identify individuals vulnerable to deeper poverty.
Disability and Psycho-social Distress	See above re Health module. These questions, though asked in the health section of the survey are analysed separately, to identify persons with a disability.	In order to explore relationship between disability and deprivation as measured by IDM.
New Question	Dimension ranking by individuals	To enable participatory ranking of dimensions
Household Questionnaire		
Household roster	Changed to Dwelling roster, whereby individuals and household in the dwelling are identified. Removes subsequent questions about other households in the dwelling.	To be more inclusive (e.g. within a dwelling may be main household plus servants who were not previously included in individual surveys)
Characteristics	Questions on religion and language and any death of child under 5	Religion and language moved to individual questionnaire Death of under 5 year old removed as not used in dimension score and this question is a painful one for respondents if a child has died.
Assets	Moved to individual questionnaire and increased in type and value, notably into productive and consumption categories.	Greater gender sensitivity. Feedback from Nepal and recommendations from Evidence and Data for Gender Equality Project to UN Statistical Commission on asset measurement.
Dwelling Characteristics	Same but moved to end of HH Survey	Enumerator observation only; and best done at end.
Water	Water source and treatment remain in the Household questionnaire, but added question on adequacy of water flow if piped. Other questions added in Individual questionnaire	See Individual questionnaire above, and additional questions in individual questionnaire to achieve greater gender sensitivity.
Energy	Main sources now collected in Household, not Individual survey; focus in individual survey now on availability, reliability and adequacy of supply and safety of collection	See Individual survey above.
Seasonality	Removed and included in specific dimensions in Individual survey e.g. water, food.	Logic of administration and scoring within dimensions

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6. SAMPLING CONSIDERATIONS

Trang Pham

6.1 Introduction

While reviewing the survey, it has also been important to review the sampling approach used for the IDM to date. As explained in Chapter 1, in order to understand individual levels of deprivation, sampling of respondents has involved interviewing all eligible adults aged 18 and above within randomly selected households. This chapter will document recent developments in IDM thinking regarding the sampling issue. It first outlines this significant recent change regarding age and the target population for the IDM. It then briefly discusses the challenges of sampling individuals for the purpose of the IDM. Third, it documents the current IDM sampling strategy and evaluates its efficacy by reconsidering the Primary Sampling Unit (PSU) and how individuals should be sampled within the PSU. The chapter goes further to consider the advantages and disadvantages of each sampling method, namely cluster sampling and within-unit sampling.

6.2 The target population reconsidered

As discussed in detail in Chapter 2, the target population for the IDM will now be individuals aged 16 or over, rather than 18 or over. The target population excludes those living in institutions such as prisons, hospitals, and military barracks. In future studies, the minimum age of eligible respondents may vary depending on the minimum legal age and cultural practices in those countries.

This target population from which the sample is drawn may be a national adult population, or it may be the adult population of a region or sub-region of interest to the IDM user. If the IDM is to be used for policy and program purposes, authorities at different levels (e.g. national, provincial, district) will be interested in different populations. Similarly, civil society and other development agencies may be interested in a target population that reflects their program reach.

6.3 The IDM sampling challenges

Because many gendered aspects of deprivation occur *within* the household, it is not sufficient to survey a household head on behalf of the whole household. It is, therefore, important for the IDM to sample individuals. Given the IDM target population, arguably the ideal sampling design for the IDM is simple random sampling from a sampling frame of all eligible individuals living in provinces or countries where the IDM survey is undertaken. However, it is either impossible or very expensive to construct a complete, up-to-date sampling frame of all individuals for a district, let alone for a country. Furthermore, random sampling of individuals is too costly for face-to-face interviews across a large geographical area due to travel and other logistical costs. Finally, simple random sampling of individuals does not allow for analysis of within-household distribution of deprivation which is one of the interests of the IDM.

A desirable sampling method for the IDM should yield representative data for the target population, remain cost effective, and allow for within-household analysis of deprivation. Given the lack of a sampling frame of individuals, the main sampling challenge for the IDM is how to sample individuals effectively and representatively. This involves two questions: what is the most appropriate Primary Sampling Unit (PSU), and how can one sample individuals within the PSU effectively? The first question is important because the PSU serves as the sampling frame for the individuals to be sampled. An incomplete, inaccurate and out-of-date sampling frame results in coverage errors – a common source of non-sampling errors. The second question concerns the efficacy of the sampling strategy and data precision.

6.4 Current sampling strategy and the Primary Sampling Unit

Although each IDM study has applied slightly differing sampling strategies relevant to the context and purpose of the study, its sampling method has remained similar to other sampling designs for large-scale household surveys, that is, stratified, multi-staged sampling. The sample has been stratified by

urban and rural, and geographical divisions to ensure sufficient representation of particular sub-groups of interest. It is multi-staged because it involves different sampling stages for different geographical areas such as provinces, districts, villages or equivalent Enumeration Areas (EAs).

For example, in Nepal, the country is divided into 15 distinct strata based on geographical and ecological regions. For practical purposes, regions with very small populations were combined, bringing the total to 13 strata. In the first stage of sampling, 16 of Nepal's 75 districts were selected using a stratified random sampling technique to represent all 13 distinct strata. The number of districts from a particular stratum was determined by reference to the proportion of the national population that each stratum represented. In the second stage, proportional numbers of village development committees (VDCs) and/or municipalities were selected from every sample district through a simple random sampling technique. The number of sample VDCs varied according to the proportion of the national population in the sample district. Subsequently in the third stage, VDCs were further divided into wards, which were sampled using simple random sampling, the number selected depending on the district sample target. Within the sampled wards, there were various villages and settlements. These various villages or settlements were regarded as enumeration areas (EAs). In the fourth stage, various EAs within a ward were identified and listed once the survey teams reached those localities. From this list, one or more of the EAs were randomly selected using simple random sampling. In the fifth stage, the supervisors compiled a list of the households in the sampled EAs, and systematic random sampling was used to select an average of nine households per EA from the list. In this way, altogether 800 households were selected using a five-stage process of systematic random sampling (Interdisciplinary Analysts 2016).

Where the IDM sampling diverges from sampling in other household surveys is that it uses cluster sampling at the household level, with the household treated as the Primary Sampling Unit (PSU), and all eligible adult individuals within the PSU selected for IDM interviews. This is different from conventional household survey sampling, such as used by the Living Standards Household Survey or the Demographic and Health Survey. The former typically involves interviewing only one individual on behalf of the household, and then assigning relevant information to the remaining household members on the assumption that household members have equal access to resources. The latter involves interviewing one male and one female per household to identify sex-based differences in health and healthcare access.

6.5 The Primary Sampling Unit reconsidered

As the target population of the IDM is individuals rather than households, there is a need to evaluate the extent to which the IDM can use sampling strategies employed by other household surveys and whether the household is an appropriate PSU for the purpose of the IDM. This section argues that the household is not the optimal Primary Sampling Unit for the IDM target population, suggesting instead that the dwelling unit may serve as a better PSU.

One major reason for viewing the household as a suboptimal PSU lies in the IDM's focus on individuals rather than the household, and in the IDM's use of multi-stage sampling. In multi-stage sampling, a sampling frame is used to draw the relevant sampling units for each stage. Incomplete, inaccurate and outdated sampling frames are the main source of non-sampling error (United Nations Statistics Division 2005). One is unlikely to find an incomplete list of provinces, districts, or EAs. However, at the last stage, it is possible to have an incomplete list of individuals. The current sampling frame to select the individuals is the list of individuals nested in sample households. At this stage having a complete, accurate and up-to-date list of all individuals nested in households and all households within the EAs is essential to avoid coverage errors.

However, the problem with using the household as the PSU is that there is no standard definition of household used across surveys. In general, household definitions often include terms related to residency, common food consumption, pooling of resources or shared production decisions, and a common household head (Beaman and Dillon 2012). The absence of one standard household definition for household surveys means that the characteristics and composition of households vary according to the definition used. For example, the Demographic and Health Survey (ICF International 2012: 32) defines a household as consisting of a person or a group of related or unrelated persons, who live together in the same dwelling unit, who acknowledge one adult male or female 15 years old or older as the head of the household, who share the same housekeeping arrangements, and are considered as one unit.

The Indonesia Family and Life Survey defines a household as ‘a group of people whose members reside in the same dwelling and share food from the same cooking pot’ (Strauss et al. 2016: 10). When people live in the same dwelling but do not eat from the same pot, or do not acknowledge a household head – such as in a student dormitory – then they are classified as one-person households.

The IDM definition to date has included those who have lived in the household for at least six months, or at least half of the week in each week in those months; those who joined the family through marriage less than six months ago; and those who eat from the same pot even though they are not related by blood. Infants less than three months old; people who joined the household through marriage less than three months ago; and servants, lodgers, and agricultural labourers currently in the household who will be staying in the household for a longer period but arrived less than three months ago are also regarded as household members. Given this definition, servants and lodgers who do not eat from the same pot with the household head would be excluded, as would those who joined the household through marriage more than three months but less than six months prior to enumeration. This definition aims to be as comprehensive as possible to include non-traditional household members such as servants, but wants to maintain ‘the household’ for within-household analysis. As a result, the definition is lengthy and complicated, making it difficult for enumerators to list all eligible individuals correctly, and posing the risk of an incomplete sampling frame for the IDM.

To avoid under-coverage of eligible individuals living in sampled dwellings due to using the household as the sampling unit, the IDM now proposes to use the dwelling as the Primary Sampling Unit. For the IDM Indonesia study, dwelling members eligible for survey will be individuals aged 16 or over who have lived in the dwelling for six months. Dwelling members, however, are not coterminous with household members, as multiple households may reside in a single dwelling. To maintain the ability to reveal within-household differences, it is proposed that individuals will be grouped under their immediate household. The IDM will use the household definition similar to the definition that the DHS uses, i.e., a person or a group of related or unrelated persons, who have lived together in the sampled dwelling unit for the last six months (at least four nights a week, every week), who acknowledge one adult male or female 16 years old or older as the head of household, who eats from the same pot and shares the same housekeeping arrangements (ICF International 2012: 32). Under this definition, employees in a sampled dwelling who eat from the same pot but do not regard the head of household as their household head are regarded as a separate single-member household. This means that the IDM Indonesia will sample dwellings, and all households within sampled dwellings, and all individuals within sampled households. This sampling strategy treats the dwelling as the PSU and the cluster.

It is worth noting that the IDM Indonesia target population will be non-institutionalised people aged 16 years or above who have resided in the sampled dwellings for the last six months. Individuals living in non-institutional collective dwelling units such as dormitories or workers’ quarters are also part of the target population. Individuals living in institutions (whether prisons, hospitals, nursing homes or military barracks, etc.) are excluded from the target population. Individuals who are unable to participate in the survey due to cognitive incapacity will be recorded in the dwelling residents list, but will not be included in the response rate calculations.²² Individuals who are not willing to be part of the survey will be recorded in the dwelling residents list and will be included in the response rate calculation. The IDM target population currently excludes individuals who do not have a fixed residential address, such as homeless, itinerant, and nomadic people. The IDM also excludes child-headed households whose household heads are under 16 years old. To include these groups, either a supplementary sampling frame for missing groups must be developed or the target population needs to be redefined.

6.6 Cluster sampling versus within-unit sampling

As highlighted, the IDM is currently employing stratified multi-staged cluster sampling with the household as the PSU, and all eligible adult individuals within the PSU sampled. The previous section has argued that the dwelling should be used as the Primary Sampling Unit to avoid coverage errors in sampling individuals. This section will document the advantages and disadvantages of cluster sampling. It will then highlight an alternative sampling strategy, within-unit sampling, in which a single individual or a certain number of individuals per PSU are sampled. Factors to be considered when adopting within-unit sampling will also be documented.

²² This is based on the target population of the Programme for the International Assessment of Adult Competency (Mohadjer et al. 2013).

There are four potential disadvantages related to cluster sampling, namely the intra-cluster correlation and design effect, the response rate, measurement errors, and the complexity of analysis. The extent to which these factors affect the data and the analysis varies depending on the complexity of the sampling design, the nature of the questionnaires, and the characteristics of respondents.

The first disadvantage of cluster sampling is intra-cluster correlation and the consequent high design effect. In cluster sampling, individuals within the clusters are assumed to represent those who are not. It is therefore desirable to have an internally heterogeneous cluster. This means that individuals within a cluster have diverse characteristics reflecting the characteristics of those who are not in the cluster and not sampled. However, elements within a cluster tend to have similar characteristics. For example, people living within a dwelling are likely to share similar shelter, and water and sanitation characteristics. They may also be likely to have similar religion and ethnicity. Sampling an additional individual from within the same cluster adds less information than simple random sampling of another person not in the cluster. The similarity among individuals within a cluster is measured by the intra-cluster correlation. The higher the intra-cluster correlation, the less new information is gained from an extra person surveyed. The higher the intra-cluster correlation, the higher the design effect, which affects the precision of the estimates.

Using the intra-cluster correlation, the design effect is calculated as:

$$DEFF = 1 + \delta (n - 1)$$

where DEFF is the design effect;

δ is the intra-cluster correlation for the variable of interest; and

n is the cluster size.

The design effect increases when the intra-cluster correlation and/or the cluster size increases. Since the intra-cluster correlation is beyond the control of the survey designer, the only way to reduce the design effect is to reduce n, the cluster size. The rule of thumb in cluster sampling is maximising the number of sampled clusters and minimising the size of elements within the cluster where possible (Ahmed 2009).

The design effect can also be calculated as the ratio of the sampling variance of a variable of interest under a complex sampling design to the variance of the given variable obtained under simple random sampling. It can be understood as the loss of sampling effect on the precision of the survey estimates due to a complex sampling design. Therefore, a small design effect is desirable. For example, if the design effect of a variable is 3, it means that 'the sampling variance is three times bigger than it would be if the survey was based on the same sample size but selected randomly' (Department of Economic and Social Affairs 2001: 99).

In addition to the design effect, unit nonresponse and measurement errors are also factors to be considered in cluster sampling. Unit nonresponse occurs when eligible individuals cannot be sampled (e.g., due to their temporary absence from the dwelling, or incomplete answers) or they refuse to be sampled (Cohen 2008). Unit nonresponse is potentially higher in cluster sampling than within-unit sampling because of the need to sample every eligible respondent within a cluster. Unit nonresponse contributes to non-sampling errors, as those who are not part of the sample can be systematically different from those sampled. To ameliorate the effect of unit nonresponse, imputation, propensity score adjustment or sample weights need to be employed during analysis. Despite using cluster sampling, the IDM so far has experienced a relatively low unit non-response. The average response rate for Nepal was 95 percent (Fisk and Crawford 2017b). This high response rate is partially because the IDM provided for up to three 'call-backs' to interview those who were not available or absent in the first visit. Having multiple call-backs increased the response rate, but also increased fieldwork time and possibly survey costs.

Measurement errors also occur when sensitive questions are not answered accurately. Measurement error may be a problem as the IDM survey instruments have several sensitive questions, particularly in the violence and voice modules. In particular, victims of domestic violence may choose not to report a violent experience to avoid potential consequences, knowing that perpetrators are asked the same questions and may punish them if any violence is revealed. The potential threat to the safety of victims of domestic violence also poses an ethical question for the IDM: how to act ethically and responsibly when asking possible victims of domestic violence about violence and protect them during and after the survey administration.

The final disadvantage of cluster sampling is its impact on the complexity of the analysis. Clark and Steel (2007) suggest that when using cluster sampling, analysis should take into account the dependencies between estimates within a household, such as people in the same household tending to use the same type of toilet or working in similar kinds of job. The analysis of IDM data to date has not taken this requirement into account. This is an area of work that the IDM team needs to explore in the future.

The main advantage of using cluster sampling is the possibility of within-household analysis, such as whether people of similar characteristics tend to live together, or whether individuals within the household experience different levels of deprivation in certain dimensions (e.g., time use, voice, or food). The second possible advantage of cluster sampling is in the relative cost of sampling an extra person (Clark and Steel 2007).

There remains disagreement among sampling experts on the efficiency of using cluster sampling. Foreman argues that cluster sampling should be used for efficiency and cost calculation as long as doing so does not cause respondents discomfort or influence respondents' answers (Foreman 1991, p. 396). However, Clark and Steel argue that within-unit sampling is more efficient. Clark and Steel accept that if most of the cost is associated with getting to the sampled household or PSU, then cluster sampling is cheaper than within-unit sampling as by going to a single household, one can interview a few individuals. In contrast, using within-unit sampling, such as one person per household, one can only interview one individual per household. However, if most of the cost of cluster sampling is associated with repeated call-backs, then one person per household sampling may be more efficient. These operational and cost-based factors need to be considered along with the trade-offs relating to intra-cluster correlation and design effect discussed above.

An alternative to cluster sampling is within-unit sampling in which one or more individuals are sampled per PSU. In testing the efficiency of cluster sampling and within-unit sampling, the IDM contracted the Social Research Centre (SRC) to estimate the precision of cluster sampling and within-unit sampling. Using the IDM Nepal dataset (n=2225), SRC ran three simulations of within-unit sampling, namely one per household, a primary couple per household, and a primary couple and two others per household. As expected, the three simulations of within-unit sampling generated lower design effects than cluster sampling. Among these three within-unit sampling scenarios, the one per household sampling strategy has the lowest design effect. It is worth noting, however, that the design effect varies indicator by indicator. The simulation results are also intrinsic to the specific nature of the Nepal sampling strategy. Nonetheless, the result indicates that sampling one person per household is superior to other sampling strategies, all else being equal, in achieving data precision, although it also means that within-household inequality cannot be ascertained.

Although within-unit sampling is more precise than cluster sampling, it introduces complication in analysis, which is related to estimating the individual sampling weight. In cluster sampling, all individuals within a cluster stand an equal chance of being selected, and therefore there is no need to calculate the individual sampling weight. However, in within-unit sampling, the probability of an individual being sampled is dependent on the household size, the number of individuals sampled per household, and the gender of the sampled person. For example, if a person is randomly sampled, the weight is the number of eligible individuals per household. If one male and one female are randomly sampled per household, the weight for the female and male is respectively the number of females and males in the selected household. The probability of someone being sampled decreases if she lives in a large household, and vice versa. Without taking into account the variation in sampling weights due to the variation in household sizes, one runs the risk of generating a biased estimation. For example, in Fiji, poor households tend to be larger than non-poor households. An individual living in a one-person non-poor household would stand a higher chance of being selected than her disadvantaged counterpart living in a poor multi-member household if a sampling weight is not applied (Narsey 2008). Nonetheless, when applying a weight, the weight variance due to variation in household sizes may also inflate the sampling variance (Silva and Skinner 1997, cited in Clark and Steel 2007: 65).

Another issue to consider when employing within-unit sampling is how to sample individuals randomly. It is recommended that the Kish grid technique or one of its variations should be employed in selecting individuals within the unit to avoid biased sampling of individuals who are more cooperative or more often at home (Clark and Steel 2007). The Kish grid process uses a preassigned table of random numbers to find the person to be interviewed within a household.

In the next three years of the project, the IDM proposes to test three sampling strategies, namely (1) one person per dwelling unit, (2) one male and one female per household, and (3) all eligible individuals in a household and all households per dwelling unit, to estimate fully the efficiency and implications of different sampling techniques. One issue worth noting is that sampling one person per household will not allow for within-household analysis, but it may reduce measurement errors and partially address the ethical concern related to administering voice and violence dimensions to both men and women per household. On the other hand, interviewing two persons per household will allow for within-household analysis of deprivation, but will have some disadvantages associated with cluster sampling outlined above.

6.7 Conclusion

Sampling considerations are central to the conduct of the IDM, and there are costs and benefits of different options. The target population of the IDM will be changed from individuals aged 18 and over to those aged 16 and over in line with concepts of adulthood in the countries where it is administered. To improve assessment of sampling design trade-offs, the IDM is currently reviewing the theoretical and statistical benefits and disadvantages of different strategies, and is considering whether to test various sampling scenarios in the field over the next three years of the project, such as one person per dwelling unit; one household per sampled dwelling and one male and one female per sampled household; and all eligible individuals per sampled households and all households per sampled dwelling. The IDM will also arrange for follow-up studies in Indonesia and other countries in future to assess the impacts and implications for respondents' wellbeing and safety of asking sensitive questions in the voice and violence modules. Findings from these studies are vital for the team in determining which sampling strategy should be recommended on both technical and ethical grounds.

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7. CONSTRUCTING AN INDEX OF MULTIDIMENSIONAL POVERTY

Mandy Yap

7.1 Measuring multidimensional deprivation

For any poverty measurement there is a need to identify who is impoverished, and then to aggregate across the sub-population or populations (Sen 1976; Qizilbash 2004; Neff 2013). Alkire (2011: 1) has observed that while there is no dispute that poverty is multidimensional, an emerging question is how the multidimensionality of poverty should be reflected in its measurement. Alkire and colleagues (2015) provide a comprehensive overview of the various ways of measuring multidimensional poverty including Venn diagrams, the dominance approach, statistical methods, the axiomatic approach, and fuzzy sets. Dashboard indicators and composite indices to measure multidimensional poverty are also growing in popularity and prominence in the literature.

There is an established and growing body of literature aimed at describing the numerous ways in which indicators can be aggregated to form a composite index. Yang (2015) notes the existence of 101 composite measures of human wellbeing since the Human Development Index was first produced in 1990, including six composite measures relating to poverty. There are some benefits attributed to composite indices, namely their simplicity in providing a single number that summarises and conveys complex information, which is capable of garnering interest and mobilising actions by policy-makers and government (OECD 2008). However, Ravallion (2010) has raised the issue of whether it may be necessary and sensible to combine a multitude of information into a single index. Notwithstanding the broader argument for and against composite indices, critical to the construction of any composite measure is the rigour and transparency of the process and the conceptual soundness of the various dimensions and variables (OECD 2008: 23).

As with other multidimensional measures, evaluating multidimensional poverty using a composite measure is highly dependent on the two critical aspects of identification and aggregation. In the identification stage, there is the need to determine whether an individual is deprived, based on a set of dimensions, given a specified threshold for each dimension. An individual falling below that threshold would be classified as being deprived. In a multidimensional measure, this has to be assessed in more than one dimension of poverty. As such, attainments across these dimensions of poverty need to be aggregated for each individual and across all individuals in order to determine whether an individual is poor or deprived.

In order to assess if someone is deprived, a measure – in this case the IDM, a composite measure – has to be constructed. The IDM combines information from the 15 dimensions outlined in this report to produce an overall measure of individual deprivation. Each of these 15 dimensions is also constituted of themes and within those themes, indicators that represent the themes. The number of themes and indicators for each dimension varies.

There are numerous ways in which these indicators can be aggregated to form a composite measure, from a simple arithmetic aggregation with equal weighting of all dimensions to one informed by statistical or theoretical considerations including, for example, weights generated through participatory processes. There are, however, judgements and choices which have to be made at the various stages of building the composite index to enable us to measure multidimensional deprivation. This chapter outlines the process and challenges of constructing a composite measure such as the IDM with reference to two significant factors in poverty measurement – identification and aggregation. In doing this, commonly used approaches are presented, together with a summary of the initial approach taken with the IDM. Then the approach that will be undertaken to construct the IDM in future will be outlined, noting changes to the initial approach and the rationale for these.

7.2 Constructing a composite index to reflect multidimensional poverty

When one moves from a unidimensional to a multidimensional measure, a range of challenges arise (Alkire and Foster 2008: 4). The series of steps that have to be negotiated includes selecting which dimensions and indicators matter for identifying deprivation, applying deprivation cut-offs for the different dimensions, identifying whether the person is deprived in a particular dimension or across multiple dimensions according to the cut-offs and, finally, aggregating across dimensions and individuals to determine who is poor according to this definition (Alkire 2011). These steps are further complicated by factors such as interactions between the dimensions, the ordinal or cardinal nature of data, and the sensitivity of the final measure to the decisions made by the researcher at each of the various steps.

7.3 Identification

There are various ways of identifying who is deprived on a multidimensional measure, ranging from the most restrictive to the more inclusive (See Table 7-1). In the union approach, an individual is considered to be multidimensionally poor if the person is deprived in at least one dimension of all available dimensions. This approach provides the broadest definition of deprivation, and as such, may potentially identify a person who is not considered poor using other measures. For example, an elderly person who is now retired and has a good standard of living, but who reports poor health outcomes would be considered deprived despite their poor health being attributed to ageing, and deprivation not occurring in all other dimensions of their life.

Table 7-1: Identification approaches

Approach	Who is poor?
Union	A person is deprived in at least one dimension
Intermediate	A person is deprived in at least some of the dimensions
Intersection	A person is deprived in every dimension

The intersection approach identifies a person as being multidimensionally poor only if they are deprived in all available dimensions. This more stringent criterion means that only a narrower population will be considered poor. An intermediate approach is one in which individuals or households are classified as poor according to imposed criteria concerning how many and which dimensions must be considered (Qizilbash 2004). The Multidimensional Poverty Index (MPI) uses such an approach. The identification of the poor using the MPI occurs first at the indicator level, and secondly across dimensions, whereby a person must be considered deprived in at least the minimal number of deprivations identified, which for the MPI is one-third of its total number of indicators (Alkire and Foster 2008).

Irrespective of which approach one takes to identify individuals who are deprived, there are several issues to be taken into consideration that arise from the processes of selecting dimensions, constructing the indicators, and determining cut-offs. These steps, while interlinked, have distinct challenges and exhibit qualities of arbitrariness, which Qizilbash (2003) has termed 'horizontal vagueness' and 'vertical vagueness'. Horizontal vagueness concerns fuzziness around the dimensions of wellbeing that are relevant to the evaluation exercise, while vertical fuzziness relates to the setting of the 'critical level' in each dimension to ascertain the deprivation level of the individual. He argues that a possibility of arbitrariness inheres in all processes that attempt to address the two forms of vagueness (Qizilbash 2004).

7.3.1 Selecting dimensions of deprivation

In order to identify who might be deprived, it is first necessary to select the dimensions and indicators. There are five approaches to selecting dimensions to be included in a composite measure: 1) drawing on existing data or convention, 2) using assumptions or a normative framework, 3) public consensus, 4) ongoing deliberative participatory process, and 5) empirical evidence regarding people's values (Alkire 2007). More commonly, the selection of domains often defaults to what might be available using existing

data, or may be based on existing theory, or a combination of both. Deliberative participation processes have also been used to determine poverty dimensions (Clark 2003; Clark and Qizilbash 2008; Alkire 2002).

As multidimensional measures are concerned with the distribution of multiple deprivations, an important consideration is whether existing datasets allow for deprivations across multiple dimensions to be observed for the same household or individual. If not, researchers have to consider how different datasets might be brought together, or how missing dimensions might be accounted for in the measure (Datt 2017). While many of the existing poverty and deprivation measures rely on secondary datasets, the IDM is unique in that much of the information that will be used to construct the measure is collected simultaneously through the IDM survey instruments, the primary data collection tools. The questions and responses available to construct different variables and measure varying levels of deprivation are tailored to be used in the IDM construction and therefore embedded in the survey instrument at the design stage.

For the IDM, the dimensions of deprivation were identified through participatory approaches outlined earlier (see Chapter 1). Within each dimension, there are themes which represent different aspects of that dimension. For example, in the voice dimension, there are two themes – voice in the public domain, and voice in the household. Within each theme, there may be one or more indicators. The selection of themes and associated indicators to represent the underlying dimension were derived from the participatory work, and from surveying the established literature and reviewing existing measures (see Chapter 5).

7.3.2 Constructing indicators of deprivation and determining cut-offs

After establishing the dimensions and themes, the next step is to determine the level of deprivation across each of the 15 dimensions to identify who is deprived. The more common approach is to construct binary variables using one threshold – deprived or not deprived. The IDM moves beyond binary cut-offs to introduce levels of deprivation for each indicator. This means three or more cut-offs have to be determined representing the varying degrees of deprivation. This entails classifying and transforming the indicator to an ordinal value, which can be used to form a dimension score for analysis. It also involves ensuring there is comparability and consistency of deprivation across the dimensions and indicators.

The various levels of deprivation experienced by an individual are reflected in the construction of the indicator based on the category of responses. After the dimensions relevant to measuring individual deprivation are identified through the processes outlined earlier in this report, the next step is to construct indicators that could measure and represent the underlying concept of the respective dimensions. In some cases, the construction of the indicator is straightforward, and is derived from a single survey question/variable. In other cases, the construction of the indicator is more complex and involves multiple survey questions. Where indicators are constructed from multiple variables, the most appropriate method (e.g., adding or multiplying scores on those variables) will be chosen.

Below are examples of the three different ways that indicators will be constructed for the IDM. The first indicator, measuring clothing ownership, will be constructed based on one survey question or variable (see example 1 below). The second indicator, freedom and ability to vote, is constructed using three survey questions by explicitly categorising and ranking the various voting scenarios (see example 2 below). The third indicator, experience of violence, is constructed by multiplying two different variables, incidence frequency and severity (see example 3 below). Each of the three alternative methods of indicator construction provides a way of deriving a ranking of deprivation from the answers given to the respective survey questions.

7.3.2.1 Example 1

1	Do you have at least two sets of change of clothing including underclothing and essentials appropriate to culture, season and climate?	More than two sets Two sets only No
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Indicator: Clothing ownership

	Ordered value
Did not have at least 2 sets of clothing	0
Had two sets of clothing only	1
Had more than two sets of clothing	2

7.3.2.2 Example 2

1	In the most recent election held in this country, did you vote?	Yes (to Q3) No
2	Why did you not vote?	I was not interested I was too busy to vote or did not have time I could not find the polling station I could not find my name on the voting register I was not registered to vote The polling station was too far way It was not safe to go to the polling station I was not eligible or permitted to vote Other (please specify)
3	Were you free to choose who to vote for without feeling pressured?	Yes No

Indicator: Freedom and ability to vote

	Ordered value
Vote under pressure	0
Did not vote because of ineligibility	0
Did not vote because of being busy or having no time	1
Did not vote because could not find polling station / could not find name on the voting register / voting station is too far away [External reason]	2
Did not vote because respondent is not interested in voting	3
Voted freely, not under pressure	4

7.3.2.3 Example 3

1	In the past year, did anyone beat, kick, burn, or choke you?	Yes No
2	If yes, would you say this has happened	Once A few times Many times Don't want to say

Indicator: Experience of severe violence

Frequency	Frequency value	Intensity (Had been beaten, kicked, burnt or choked in the past year)	Frequency x Intensity
None	3	3	9
Once	2	3	6
A few times	1	3	3
Many times	0	3	0

For each indicator constructed, each response option will be allocated an ordered value from most to least deprived, with lower values representing lower achievement and thus greater deprivation. In the process of converting the survey responses into numeric values, ordinal in nature, value judgements that assign a scalar value to each indicator and dimension may be seen as arbitrary and problematic, but should be justifiable. By attributing an ordered value to the various responses, a ranking is created whereby higher values represent less deprivation and lower values indicate more deprivation (See Table).

Table 7-2: Comparing the different indicators and their respective ordered value

Ordered value	Clothing Ownership	Freedom and ability to vote	Experience of severe violence
0	Did not have at least 2 sets of clothing	Vote under pressure	Had been beaten kicked, burnt or choked many times in the past year
1	Had two sets of clothing only	Did not vote because of ineligibility	Had been beaten kicked, burnt or choked a few times in the past year
2	Had more than two sets of clothing	Did not vote because of being busy or having no time	Had been beaten kicked, burnt or choked once in the past year
3		Did not vote because could not find polling station / could not find name on the voting register / voting station is too far away [External reason]	Had not been beaten kicked, burnt or choked in the past year
4		Voted freely, not under pressure	

The ordinal ranking of the person's scores across each indicator and themes represents the person's achievement. A score of one is intended to reflect extreme deprivation, and a score of 2 in the clothing, 3 in the violence and 4 in the voting reflects adequate or the highest achievement for that indicator (See Table 7-2).

Looking at the examples of clothing ownership and the experience of violence, the assignment of the rank in the responses represents the quantity or intensity of the indicator. The assumption is that the more sets of clothing the individual has, the less deprived they are and, conversely, the more frequent the report of violence, the more deprived the individual is. The ordinal ranking imposed here from the categorical information from the survey responses is less likely to be controversial bearing in mind that the difference between 1 and 2 is not more, less, or equal to the difference between 2 and 3, and so forth. In other circumstances, the assignment of the responses into an ordinal rank reflects a value judgement. In the freedom and ability to vote example, an individual who did not vote due to external reasons (e.g., the location of the polling station) is classified as being less deprived than those who did not vote due to their ineligibility.

This process becomes more complex when multiple indicators are combined to produce a theme score (dimension sub-index), and when multiple dimensions with similar scores are then compared simultaneously.

7.4 Aggregation

As there are 15 dimensions in the IDM and a number of themes within each dimension, there are several issues to consider in the process of aggregation. The three most critical are ensuring the various themes and dimensions are comparable for aggregation, setting the weights for the different dimensions, and the method of aggregation.

7.4.1 Comparability of indicators to generate themes and themes to generate dimensions

Each of the 15 dimensions is made up of themes, and each theme is an aggregation of a varying number of indicators. The majority of the variables are categorical. Categorical variables consist of two or more categories, and each category has an associated meaning attached to it without necessarily having an order to the meaning. For example, gender in the IDM is a categorical variable consisting of three categories – male, female, and other. There is also a small number of continuous variables such as the number of hours spent undertaking unpaid and paid work. In order to proceed with aggregating indicators to the theme level, the indicators must first be transformed or normalised. Normalisation is a process of adjusting or transforming the indicators with different metrics and measured on different scales to one common scale. Normalisation also ensures that an increased score on the indicators corresponds with an increase in the final IDM score, indicating an improvement in the level of deprivation (Mazziotta and Pareto 2013).

Depending on the type of index construction, either Z-scores or linear scaling (min–max) are the most commonly used methods of normalisation (Ebert and Welsch 2004 cited in Groh and Wich 2009; Tate 2012). Using z-scores [$z = (x - \bar{x})/\sigma$] (standardisation) means that variables with extreme values have a great effect on the index. Alternatively, rescaling can be used [$y = ((x - \min(x))/(\max(x) - \min(x)))$], which is also vulnerable to extreme values/outliers, but it can widen the range of indicators lying within small intervals more than z-scores can (Groh and Wich 2009).

In the first instance, we will examine the distribution of the indicators to see whether the indicators are highly skewed or whether there are extreme outliers. This will affect the choice of normalisation process undertaken for the IDM. Where possible and appropriate, the min–max normalisation process will be used. For the few continuous indicators, we will first classify the continuous variable into groupings for applying the min–max normalisation process. Otherwise, alternative normalisation processes will be investigated.

While the final IDM index is an important output in itself, the various dimensions which make up the index are also of interest for analysis. To facilitate the dimension- and theme-level reporting when undertaking comparisons across and between dimensions, the themes must also be rescaled from 0 to 4, reflecting the level of deprivations for each dimension.

Different dimensions comprise a different number of themes. Where a dimension is made up of only one theme, it is rescaled from 0 to 4 only once (e.g., for clothing and food, where the theme is also the

dimension). Where a dimension consists of two or more themes, they are rescaled twice, the first time at the theme level, and the second time at the dimension level, as in the voice and health dimensions. Below are examples of the two cases described above.

7.4.1.1 One dimension, one theme example

Building on the clothing example (example 1); the clothing dimension has one theme, which is made up of three indicators.

Indicator: Clothing ownership

	Ordered value
Owned fewer than two sets of clothing	0
Had two sets of clothing only	1
Had more than two sets of clothing	2

Indicator: Extent that clothing protects from weather and hazards

	Ordered value
No protection	0
Some protection	1
Good protection	2
Excellent protection	3

Indicator: Extent of ability to present oneself to socially acceptable standards

	Ordered value
Never	0
Rarely	1
Sometimes	2
Often	3
Always	4

Extending this example to an individual who possesses two sets of clothing (ordered value of 2), with some protection (ordered value of 2), but is rarely is able to present themselves to acceptable standards (ordered value of 1), the application of min-max normalisation produces a value between 0 and 1, as follows.

	Ordered value	Min-Max Normalisation $y = ((x - \min(x))/(\max(x) - \min(x)))$
Had two sets of clothing only	1	$\frac{1 - 0}{2 - 0} = 0.50$
Some protection from clothing	1	$\frac{1 - 0}{3 - 0} = 0.33$
Rarely able to present oneself to acceptable standards	1	$\frac{1 - 0}{4 - 0} = 0.25$
Aggregating the indicators		$0.55 + 0.33 + 0.25 = 1.13$

In this clothing example, the indicators are summed to theme level, which is also the dimension. The summed value 1.13 is rescaled from 0 to 4, to produce a score for the clothing dimension for that individual equal to 1.51.

7.4.1.2 One dimension, two themes example

The health dimension is made up of two themes. The health status theme comprises one indicator. The indicator is constructed from variables measuring the occurrence of an illness or injury in the last four weeks and the impact of that illness/injury on usual daily activities. The second theme, health care utilisation, is constructed using several questions by explicitly categorising and ranking the usage or non-usage of health care facilities or professionals, and the type and quality of health care facility. In this example, an informed value judgement is made by ranking modern health care facility access as representing greater achievement and therefore less deprivation than traditional health care access.

Let us now consider an individual who suffered an illness or injury which impacted their usual daily activities for one week, and who accessed modern facilities with five or more problems with the quality of care received.

Theme: Health status

Indicator: Health status

	Ordered value
Illness affected usual daily activities permanently	0
Illness affected usual daily activities for a month	1
Illness affected usual daily activities for 2 to 3 weeks	2
Illness affected usual daily activities for one week	3
Did not suffer any illness or injury	4

Theme: Health care utilisation

Indicator: Health care utilisation and non-use, type and quality

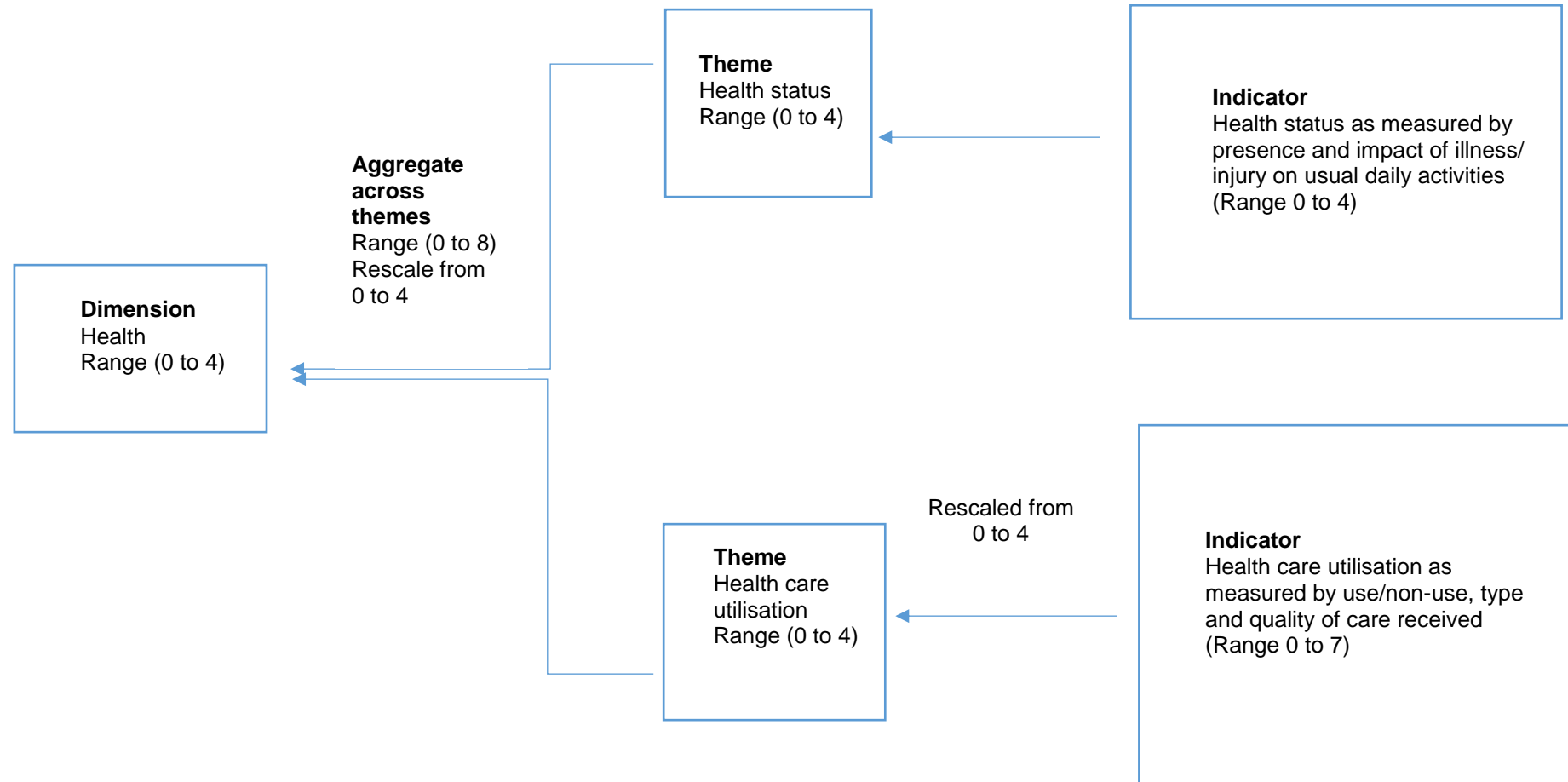
	Ordered value
Did not access health care due to external factors such as prevented, discriminated, embarrassed	0
Did not access health care due to personal factors	1
Accessed health care traditional facilities – 5 or more problems	2
Accessed health care traditional facilities – fewer than 5 problems	3
Accessed health care traditional facilities – no problems	4
Accessed health care modern facilities – 5 or more problems	5
Accessed health care modern facilities – fewer than 5 problems	6
Accessed health care modern facilities – no problems	7
Did not access health care – did not want or need health care	7

As depicted above, the range for the health status indicator is 0 to 4, whereas for health care utilisation, the range is 0 to 7. In order to ensure that we can aggregate both themes, min–max normalisation will first be undertaken. Given that health status is already ordered from 0 to 4, there is no need for normalisation or rescaling because there is only one indicator. The values for health care utilisation ranges from 0 to 7. As such, the values will have to be rescaled to 0 to 4. To generate the health dimension score, health status and health care utilisation will have to be aggregated and rescaled to produce a score with a range from 0 to 4.

For the health dimension, there are two themes, therefore two scores. The score for health status is 3 and the score for health care utilisation of 2.85. The two scores are then added: 5.85 out of a possible 8. The addition of the two scores are rescaled from 0 to 4 to produce a score for the health dimension of 2.93. The process undertaken from indicator to theme and to dimension is shown in Figure 7-1.

In both the examples above, the aggregation process across themes assumes there is no missing information. However, in some of the themes and dimensions, individuals may refuse to respond to the survey question or may not need to respond to particular modules of the survey. For example, in the previous IDM survey module on reproductive health, women aged 50 years and over did not have to answer the reproductive health questions in the survey, whereas that module was administered to all men aged 18 years and over. There are two approaches for dealing with this particular aspect of administrative non-response and non-response arising from refusal to answer. One approach would be to assign those for whom the question/theme is not relevant as being not deprived. Another approach is to calculate the IDM composite measure by aggregating only the number of completed dimensions. Both options and their implications will be considered as we move forward.

Figure 7-1: Procedures undertaken to prepare indicators for aggregation to themes and for aggregating themes to dimensions



7.4.2 Weighting the IDM

In constructing a composite index of deprivation, an important consideration is the setting of weights for the various dimensions. The weights applied to the dimensions have important implications for public policy. For that reason, dimensions assigned greater weights may reflect greater significance. There are broadly three different ways of determining weights – data driven weights, hybrid weights, and normative or equal weights (Decanq and Lugo 2013).

Applying equal weights to the domains is perhaps the most common weighting technique. At first glance it may seem to be free of judgement: equal weights suggest that all dimensions are equally important (Decanq and Lugo 2013). However, this may not always hold true. For example, some people may consider that having water and food is more important to them than having sanitation or a good environment, so would not weight them equally.

Data-driven methods largely use multivariate analysis to summarise the underlying domains. They include structural equation modelling (SEM), principal component analysis, or Multiple Indicator and Multiple Causes Models (MIMIC). Principal component analysis (PCA) is a commonly used method to summarise the domains to derive a single composite measure (Salmond and Crampton 2002; Noble et al. 2003; Pink 2006; OECD 2008). For a summary index, usually only the first extracted component, which explains the greatest variation in the data, is retained, and is considered a type of summary measure. Other statistical techniques, in particular categorical principal component analysis, Multiple Correspondence Analysis, and polychoric principal components analysis have also been used previously in the construction of composite indices (Kolenikov and Angeles 2004; Asselin and Anh 2008; Dalton-Greyling and Tregenna 2014; Canuel et al. 2014). These data reduction techniques operate on similar principles to SEM, PCA and MIMIC, with the goal of extracting common underlying variables, but these have been used with categorical data (Njong and Ningaye 2008).

Increasingly, surveys are collecting information about the state of individuals' subjective welfare through self-assessment, including self-assessment of their own poverty status (Decanq and Lugo 2013; Datt 2017). These subjective welfare measures can offer insight to inform decisions about appropriate weights to use when aggregating various dimensions of deprivation. Using data from the Philippines, Datt (2017) generated weights by estimating the relationship between a binary subjective poverty variable (representing whether the individual perceives themselves to be in the bottom two steps of the ladder) with the indicators used to construct the multidimensional poverty measure. Another way in which stated preference weights can be elicited is by asking the individual to rank the various dimensions in importance as a means of determining their overall standard of living (de Kruijk and Rutten 2007). In the Nepal IDM study, participants were asked to rank dimensions that were most important to them – this enabled us to explore the impact of stated preference weights (Fisk and Crawford 2017b). These few examples demonstrate the potential use of hybrid weights. The use of subjective welfare weights, however, is not without its challenges. Several concerns are raised in the literature, including adaptive preferences, different frames of reference, personality traits and aspirations (Crettaz and Suter 2013; Posel and Rogan 2016; Ravallion 2012; Beegle et al. 2009). Just as an individual's experience of poverty shapes which dimensions of poverty matter, equally, the individual's experience of poverty also frames how poor they feel relative to those around them, and whether they have come to adjust to their circumstances over time.

Combining the different dimensions to establish the IDM score requires the weighting of dimensions. To date, weights are applied in the IDM measure in two ways. 'Prioritarian weights' are applied at the dimension level to the individual's level of deprivation on a five-point interval scale – this attributes greater significance to improvements from more deprived circumstances, than from less deprived ones, reflecting the principle that 'more severe deprivations are morally worse than less severe deprivations' (Wisor et al. 2014). Thus, within a dimension, improvement from a score of one to two has greater significance than improvement from a score of four to five. Prior to aggregating across the dimensions, the level of deprivation experienced by the individual is first weighted whereby the distance from the lowest increment (i.e., from a score of one to two) receives four times the weight of the distance from a score of four to five.

Weights are also applied when aggregating across the dimensions to form the composite IDM score. Arbitrary weights are applied to the 15 dimensions based on a three-tiered system informed by the initial participatory work undertaken when developing the IDM (see Wisor et al. 2014). The participatory work identified the most important dimensions as food, water, shelter, health, and education, which receive a combined 50 percent of the weighting. The second-most important dimensions – energy/fuel, sanitation, relationships, clothing, and violence – receive 33 percent of the weighting, and the final tier – comprising family planning, environment, voice, time-use, and work – receive the remaining 17 percent of the weighting. The overall ordering of dimensions is consistent with the overall average rank order accorded by participants across six countries. However, the three-tier system weights are themselves arbitrary, and amplify what were sometimes relatively small differences in priority between each dimension.

In the first instance, we will build on this three-tiered weighting system by testing application of different weights to the current structure and checking how the individual scores vary. We will also test the application of equal weighting across the dimensions. However, the differing number of themes and indicators in each dimension results in an unbalanced structure. As a result, nested uniform weighting will be used to adjust for the number of themes and indicators. This means that with equal weighting at the dimension level, each dimension will receive a weight of 1/15. If the dimension contains one theme, that theme will then receive a weight of 1/15. The weights that the indicators will receive within the theme will be proportional to the number of indicators contained within the theme. For example, the clothing dimension consists of only one theme; as the dimension weight is 1/15, so too is the theme weight. The three indicators within the clothing dimension therefore receive an indicator weight of 1/45 each.

The assumption of equal weighting for the different indicators can be problematic, given that some indicators may be more important than others. One option for dealing with this is using nested inverse incidence weighting whereby indicators that were more prevalent or common in the population receive a lower weighting (Datt 2017). As a test of the sensitivity of the indicator and theme weighting, we will examine the correlations between indicators in the data structure; if correlations are high (e.g., between several indicators within a theme, or between two themes within a dimension), we will consider applying factor analysis at the appropriate level to summarise those themes or dimensions with high correlations. The correlation analysis will also help to inform the weighting at the dimension level.

The type of weighting attached to the various dimensions of a composite measure is probably one of the more contested aspects of poverty measurement. There is a growing body of literature testing the robustness of the HDI ranking using alternative weights. A general consensus from that body of literature is that the ranking of composite measures is sensitive to the different weighting methodologies (Seth and McGillivray 2016; Foster et al. 2013). Once proposed weights for the composite IDM are determined, it will be critically important to test the robustness of the resulting composite measure.

7.4.3 Other issues

7.4.3.1 Non-compensability

Because the 15 dimensions of the IDM were conceptualised through participatory work, each dimension is important in its own right. As such, we have not imposed the criteria of compensability or substitutability in the IDM. Compensability or non-compensability is the degree to which dimensions are considered substitutable (Mazziotta and Pareto 2016). If the dimensions are considered substitutes, that is, an increase in the level of deprivation in one dimension can be offset by an improvement in the level of deprivation in another dimension, then linear aggregation may be appropriate. On the other hand, if the components of the IDM are considered to be non-compensable or non-substitutable, the opposite holds true, and non-linear methods such as geometric aggregation or multi-criteria aggregation should be used.

The most common aggregation is a weighted linear aggregation (OECD 2008), which the IDM currently uses. The IDM score is calculated as the sum of (weighted) dimension scores across the 15 dimensions. This method of aggregation assumes that all the dimensions are perfect substitutes; that there is the possibility of offsetting deprivation in a dimension with non-deprivation in another dimension. As a result, an individual who is moderately deprived in all dimensions can receive a similar score to that of an individual who might be severely deprived in some aspects and mildly or not deprived in others, as illustrated by the hypothetical example in Table .

Table 7-3: Comparison of dimension-level scores of two individuals with the same overall IDM score²³

Dimensions	Person A	Person B
Food	2	4
Water	2	4
Shelter	2	4
Health	2	4
Education	2	4
Energy/Fuel	2	1
Sanitation	2	1
Relationships	2	1
Clothing	2	1
Violence	2	1
Family Planning	2	1
Environment	2	1
Voice	2	1
Time-use	2	1
Work	2	1
Total score	30	30

In future work, it will be important to test the assumption of non-compensability. When the data from the revised survey is available for analysis, it will be important to investigate the relationship between the various dimensions of the IDM to allow us to infer the compensability of various dimensions in the IDM. We will explore methods of determining if and how changes in one dimension may or may not compensate for another and how allowing the rate of substitution to vary may impact on the overall assessed deprivation level of the individual.

7.4.3.2 Cut-offs or thresholds

As noted above, the IDM moves beyond a binary cut-off to a scalar measure whereby the individuals are classified as being in one of the four/five levels of possible deprivation in each dimension. Given that the cut-off may be seen as arbitrary and may change over time or in different contexts, it will be important to test alternative cut-offs or thresholds to see how these impact on the identification of those who are deprived. In the first instance, varying cut-offs will be applied and we will explore how the proportion of people at each level of deprivation differs. Fuzzy set approaches could also be explored as one possible way of determining relative deprivation levels. Fuzzy set theory moves beyond the dichotomy of 'poor' and 'not poor' to a gradual membership model, which allows vulnerability of poverty, thereby reducing arbitrariness in the setting of cut-offs (Neff 2013).

7.4.3.3 Identification

Reflecting the scalar nature of the IDM, the final aggregated IDM score of each individual is further classified into groupings representing the various levels of deprivation. Previously, the IDM scores were classified into five levels where a score of below 60 out of 100 was classified as being extremely deprived, 60–69.9 (very deprived), 70–79.9 (deprived), 80–89 (somewhat deprived) and 90–100 (not deprived). However, as noted earlier in this chapter, the distinction of the various classifications of deprivation is based on value judgement in some instances and may be seen as somewhat arbitrary. There is most likely consensus with respect to the deprivation experienced by those who are 'extremely deprived' and those who are 'not deprived'. The distinction between 'somewhat deprived' and 'deprived' is less clear. As such, four levels of deprivation will be implemented for future use of the IDM to minimise the extent of value judgement that arises from trying to

²³ Assuming equal weighting of the 15 dimensions. If the three-tiered system of weighting is used, Person A will be more deprived compared to Person B.

make the distinction across several groupings of deprivation. It will therefore be important to test whether a broader classification sufficiently captures the nuances between different levels of deprivation.

There are several ways of testing the sensitivity of IDM cut-offs in identifying individuals who are deprived. One approach would be to set the cut-offs for the four levels of deprivation following the guidelines from the previous IDM. Another approach would be to rank and group individuals into quartiles and set the bottom quartile as being extremely deprived, the next quartile as being very deprived, and so on. Unlike the MPI, the IDM does not impose the number or percentage of dimensions in which a person has to be deprived before being considered to be multidimensionally poor. In future work, it would be possible to apply a second cut-off method similar to the MPI, whereby individuals have to be deprived in 'core dimensions', that is, those identified as being the most important dimensions of poverty in the participatory work.

7.5 Conclusion

This Chapter has indicated the range of technical work which will be undertaken over the period of this project to test the best methods to construct and score comparable indicators, themes and dimensions; determine weightings within and between dimensions in the construction of the composite index; test issues of compensability between dimensions; and determine thresholds or cut-offs, both within dimensions and in the definition of the composite index levels of deprivation. The task will be to ensure transparency in the statistical procedures used and the justifications for decisions we make about recommended procedures to create the dimension and IDM scores.

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8. FUTURE DIRECTIONS

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A primary aim of the IDM program by 2020 is to have established an evidential base that underpins the IDM. This includes a robust measure, with the survey tools tested in different contexts, the index constructed and peer-reviewed, an analysis plan developed, and analysis of data from all IDM studies completed and peer-reviewed. This Methodology Update has documented developments over the first 18 months of the program.

Over the next two years the IDM will be used in four additional countries and contexts, beginning with Indonesia in late 2017. Discussions with key stakeholders are currently underway in two additional countries, and for the use of the IDM through civil society organisations in a fourth. Below we briefly outline the proposed IDM research in Indonesia, and our thinking about using the IDM to better understand the circumstances of minorities, such as people with disabilities or gender diverse individuals. The chapter also summarises two other areas of future work: testing alternative sampling strategies and follow-up qualitative studies to ensure the IDM is both ethical and safe, in particular in relation to the voice and violence modules.

8.1 The proposed fieldwork in Indonesia

The Indonesia study is planned from late 2017 to early 2018. Indonesia has reached middle-income status and has made remarkable progress in reducing poverty over the past three decades. Yet, over 10 percent of the population is below the national poverty line, and inequality is growing. Poverty reduction is a major policy focus for the national government, while decentralisation has given local governments greater resource and decision-making responsibility, but often without relevant data.

Close stakeholder engagement has been undertaken in Indonesia to identify the ways in which the findings of the IDM study might make a contribution to policy- and decision-making, and to determine the location for the IDM study. South Sulawesi was chosen as the location for the IDM study after discussion with stakeholders, particularly KOMPAK.²⁴ KOMPAK is a Government of Indonesia and Government of Australia partnership, funded through DFAT, with the aim of supporting the Government of Indonesia (GoI) to ensure that poor and vulnerable Indonesians benefit from improved delivery of frontline services and greater economic opportunities. KOMPAK is working across seven provinces, including South Sulawesi.

By aligning with a KOMPAK province, the IDM findings have the potential to inform local decision-making. This is important in the context of the village law, which further decentralises funding and decision-making power to the local level, but often without strong evidence to inform or support decisions. Discussions with KOMPAK in Makassar identified strategies for engaging with local leaders to foster both understanding and ownership of the IDM study and its findings.

South Sulawesi is known as the gateway between eastern and western Indonesia. While poverty rates are not the highest in Indonesia (and not as high as in some provinces further east), they are significant (at 10.7%)²⁵ and inequality is growing. Some districts of South Sulawesi, including Jeneponto and Pangkajene Dan Kepulauan I (Pangkep), are highly disadvantaged and a focus for poverty reduction efforts. Jeneponto is one of the 100 districts identified in the Presidential Decree of Districts Left Behind 2015–2019. These districts are among the poorest in Indonesia and are a policy priority for the Government of Indonesia. It has been decided to focus on two districts within South Sulawesi to ensure a sufficient sample for domain-based analysis of deprivation, sex, age, and rural/urban location – these districts are Pangkep and Jeneponto. Consideration is being given to including the district of Makassar, which is the capital of South Sulawesi and entirely urban.

As this is the first IDM study using the substantively revised survey tools, a pilot will be undertaken prior to the full survey; it will be conducted collaboratively with the School of Public Health at the University of Hasanuddin (UNHAS). This is important to our commitment to stakeholder engagement and fostering local ownership. It also provides an opportunity to work with senior scholars at UNHAS, which is important to understanding the findings in context, particularly during the pilot. The collaboration with UNHAS also provides an opportunity to build the capacity of Indonesian researchers who are in the early stages of their careers.

²⁴ KOMPAK, Kolaborasi Masyarakat dan Pelayanan untuk Kesejahteraan (Community and Service Collaboration for Welfare and Prosperity – Indonesia Governance for Growth).

²⁵ Badan Pusat Statistik Percentage of poor by province 2007–2017: <https://www.bps.go.id/linkTableDinamis/view/id/1219>.

Stakeholder engagement has been a feature of the IDM Program in Indonesia, and has been designed to build support for the IDM study, and to create the potential for the findings to contribute to and influence decision-making. The IDM team has engaged with BaKTI,²⁶ a civil society organisation based in Makassar, which manages knowledge exchange across provinces of eastern Indonesia. BaKTI's networks and capacity to communicate 'smart development practices' provide a potentially powerful means of disseminating the findings of the IDM study, and the value of the IDM itself. At the national level, engagement has involved a range of stakeholders, including KOMPAK, TNP2K,²⁷ MAMPU,²⁸ MAHKOTA,²⁹ KSI,³⁰ Peduli,³¹ and PEKKA,³² as well as the World Bank and Bappenas.³³ A collaboration with the Centre for Gender and Women's Studies, Faculty of Social and Political Sciences, at the University of Indonesia, will enable the IDM team to work with local experts to analyse and make sense of the IDM data in context, to communicate the findings within Indonesia (at the national level in particular) and to co-publish. Collaboration with UNHAS will be important to disseminating the findings of the study in South Sulawesi and beyond, including through co-publication. It will also increase the possibility of the findings informing local policy making, program design and service delivery.

8.2 Disability and the IDM

The IDM was developed to redress the gender insensitivity of mainstream measures of poverty. In order to be sensitive to gender, it is necessary to assess poverty at the level of the individual, not the household or any other social grouping that is likely to mask differences among members. An important feature of the IDM is that it shifts the focus from requiring sex-based disaggregation of data to analysis at the individual level, allowing for disaggregation of data to reveal the deprivation of the most marginalised individuals and social groups, including people living with a disability. In a context of growing concern over the lack of data in relation to disability and poverty, and an increasing focus on understanding the impact of intersecting sources of discrimination and marginalisation, the IDM has the potential to make an important contribution. An intersectional approach is central to operationalising the core commitment to 'leave no one behind' in achieving the Sustainable Development Agenda 2020.

An important innovation of the IDM is that it is grounded in participatory research. In assessing the potential of the IDM to provide insight into the nature and level of poverty faced by people living with a disability, it is important to note that the participatory research did not address issues around disability directly, nor did it explicitly seek to recruit people living with a disability. Therefore, it should be recognised that there are likely to be issues of critical importance to people living with a disability that are not addressed within the fifteen dimensions of the IDM (transport being a primary example). Nevertheless, given the power of the IDM in revealing the deprivation of individuals, and as a measure that is intended for use to assess deprivation across contexts and over time, enabling people living with disability to be identified is important given available evidence about the relationship between disability and poverty (Wapling 2012: 4).

The IDM individual questionnaire includes the Washington Group Short Set (WG-SS) of questions on disability³⁴ to assess disability status. The stated purpose of the WG-SS is to

...identify all people whose functional difficulties put them at risk of not being able to participate in society, for example being employed...once we identify who is at risk, we can compare their outcomes (e.g., employment) with those not at risk to see the extent to which those barriers exist.³⁵

²⁶ BaKTI, Bursa Pertukaran Pengetahuan Timor Indonesia (Eastern Indonesia Knowledge Exchange).

²⁷ TNP2K, Tim Nasional Percepatan Penanggulangan Kemiskinan (National Team for the Acceleration of Poverty Reduction).

²⁸ MAMPU, Maju Perempuan Indonesia untuk Penanggulangan Kemiskinan (Empowering Women for Poverty Reduction Program).

²⁹ MAHKOTA, Menuju Masyarakat Indonesia Yang Kokoh Sejahtera (Towards a Strong and Prosperous Indonesian Society).

³⁰ KSI, Knowledge Sector Initiative.

³¹ Peduli is a Government of Indonesia/Government of Australia partnership aimed at creating social inclusion to reduce poverty among marginalised people in Indonesia.

³² Pemberdayaan Perempuan Kepala Keluarga is a civil society organisation working for the Empowerment of Female Headed Households.

³³ Bappenas is the Indonesian National Planning Agency.

³⁴ The initial IDM survey incorporates a brief set of questions on disability to screen for limitations in basic activity functioning. The questions were developed for use in census or similar multi-topic survey contexts where only brief information can be sought on any one topic 'to provide comparable data cross-nationally for populations living in a great variety of cultures with varying economic resources. The objective was to identify persons with similar types and levels of limitations in basic activity functioning regardless of nationality or culture.' (United Nations Statistical Commission, 2007. Report of the Washington Group on Disability Statistics: Note by the Secretary-General. Thirty- eighth session, 27 February–2 March 2007, E/CN.3/2007/4. Available at <http://unstats.un.org/unsd/statcom/doc07/2007-4e-Disability.pdf>.) Use of these questions also recognises that in contexts where disability is associated with significant discrimination and stigma, simply asking respondents whether they have a disability may result in significant under-reporting of functional limitations.

³⁵ <http://www.washingtongroup-disability.com/methodology-and-research/the-purposes-of-disability-measurement/>.

The WG-SS measurement focus is on the degree of functional difficulties, relating to eyesight, hearing, mobility, memory, concentration, self-care and communication and understanding. Disability literature tends to include physical, visual, hearing, speech, intellectual, psychosocial and multiple disabilities as possible categories of concern (Krairiksh et al. 2012; Stubbs and Tawake 2009). In Fiji and Nepal, efforts to assess the relationship between disability and deprivation have been made and some practical and ethical challenges remain (see earlier Chapters, as well as Fisk and Crawford 2017a). Further research relating to these challenges of working with people with particular sorts of disabilities will be undertaken as future studies proceed.

Whilst recognising these challenges, it is planned that at least one further IDM country study will include a focus on disability to provide further evidence of the ways in which the IDM might reveal the specific nature and depth of deprivation faced by individuals living with disabilities. As noted above, and highlighted by the Fiji and Nepal IDM studies, large sample sizes are necessary to capture the number of people with a disability required for analysis. However, as observed earlier, a larger sample size may not be sufficient in itself to reach people with disabilities. The IDM is in discussions with stakeholders in the Republic of South Africa about undertaking an IDM study there. The Republic of South Africa has a disability grant, which provides a monetary allowance to individuals who are unable to obtain employment or other means of supporting themselves due to physical or mental disability. A database of people eligible for the disability grant provides a possible means of randomly sampling households known to include an individual with a disability. This approach would ensure the inclusion of a significant number of individuals living with a disability, while avoiding some of the biases associated with a snowballing approach to sampling. However, should a random sample identified through the database of people eligible for the disability grant not be possible, a snowballing approach conducted through the networks of Disabled People's Organisations will be explored. A potential civil society organisation study to be led by IWDA, likely during early 2019, may also provide a further opportunity to explore the disability issue further in one more country.

8.3 Gender diversity and the IDM

One distinctive contribution of the IDM is its potential to reveal the implications for individuals of overlapping disadvantage. The IDM Program recognises the significance of sexual orientation, gender identity, sexual expression and characteristics (SOGISEC) as factors shaping individual circumstances. Increased attention to discrimination and rights violations on the grounds of SOGISEC is being reflected in an increased focus on gender diversity in international frameworks and fora, including addressing data gaps. An inclusive approach to gender-sensitive multidimensional poverty measurement will require understanding how SOGISEC can impact and exacerbate deprivation. This requires intersectional analysis, given that multiple marginalised identities intersect through social, economic, cultural, civil, and political barriers (Mills 2015; WB and UNDP 2015).

Gendered analyses of poverty have generally proceeded on assumptions of heteronormativity and gender binaries, and analyses of intra-household inequality and decision-making often assume a heterosexual nuclear family structure. Further, gender and sexual minorities are severely underrepresented within national surveys, for various reasons ranging from social stigma and political sensitivity to non-recognition in official statistics. There is a growing development focus on the rights of and violations experienced by people on the basis of SOGISEC, and on addressing the data gap in relation to gender diversity. The Program has explored a number of pathways for data collection that support a more expansive and accurate understanding of gender diversity, its intersections, and the implications of SOGISEC on deprivation. Consistent with the approach of the IDM Program as a whole, our attention has included both visibility in data collected with the current IDM survey, and qualitative work to determine the extent to which this survey reflects the particular deprivations experienced by individuals across the spectrum of gender diversity, i.e., the extent to which the IDM survey identifies the deprivations experienced and prioritised by gender-diverse individuals.

In 2016 and 2017, a review of global efforts to strengthen data in this space, and discussions within the IDM Program and with the Nepal-based Blue Diamond Society and the Fiji-based Diverse Voices and Action for Equality (DiVA for Equality) progressed thinking on the concept, methodology, planning and budgetary requirements for a SOGISEC-focused IDM study. In the IDM study in Nepal, we amended the demographic questions to ask 'Which gender do you identify with?', with a third response option of 'Other'.³⁶ However, despite a local context in which the 'third gender' option is recognised officially, no participants in Nepal selected the third gender option. Whether this is due to stigma or to some other barrier to self-identification, or actual lack of representation in the sample, no analysis on the basis of gender diversity was possible in the IDM Nepal study, despite more inclusive question wording. Engagement with advocacy

³⁶ This is the commonly used and officially recognised 'third gender' option in Nepal, which includes transgender individuals and appears on national identity documents. For discussion of issues related to the 'third gender' option in Nepal, see Knight 2014.

organisations on ways that enumerator training regarding inclusion might be strengthened will be incorporated in future studies.

Based on a range of methodology, partner, program management and context considerations, this study is now expected to be pursued outside this current program, post 2019, pending available funding.

8.4 Testing sampling strategies

As outlined in Chapter 6, the IDM's approach to sampling to date has been to interview all adult members (18 years and over) of the household. Based on learning from the IDM study in Nepal, and on feedback from peer reviewers, the minimum age of survey respondents has been revised to 16 years. Chapter 6 also sets out the issues under consideration in regard to sampling strategies. In order to provide an evidential base for decisions about the most effective and efficient sampling strategies, different strategies will be used in each country study. In Indonesia, all members of the household over the age of 16 years will be interviewed. In two other country studies, consideration is being given to whether other sampling strategies, such as only one randomly selected member of each household and two randomly selected members of the household, respectively, should be tested. The sampling strategy for the CSO-CSO study is yet to be finalised, but will focus on testing the IDM as a tool to inform CSO programming.

8.5 Follow-up of the IDM Survey, with a focus on the violence and voice modules

As discussed at length in Chapter 5, some modules of the IDM (particularly those on violence and voice) are particularly sensitive. Of utmost concern is the safety of individuals who are in situations of domestic violence, and it is essential that in asking questions about experiences of violence and the ability to control one's own life, the IDM does not exacerbate situations of intimate partner or family violence. To ensure the IDM is ethical and safe, and does not create unintended consequences, follow-up studies will be conducted in three countries (commencing with Indonesia) to investigate randomly selected respondents' experience of completing the IDM survey and their feedback. The follow-up studies provide an opportunity to deepen the evidential base of the IDM and provide critical information from the perspective of respondents, with emphasis on the most sensitive questions and modules. The methodology for the follow-up studies is currently under development.

8.6 Conclusion

Forthcoming IDM studies will pilot and use the revised survey in Indonesia, and at least three more countries by 2020. These studies will test the operational use of the revised survey instruments, on tablet devices, and provide data for the extensive range of statistical testing that is required to resolve the sampling and index-construction issues discussed in earlier chapters. These studies also aim to contribute to policy and programming decisions in the countries where they are carried out. Built into each study will be extensive stakeholder engagement, undertaken from the outset through to interpreting and acting on results. This will enable analysis of data and use of findings to benefit from deep local knowledge, and ensure people and organisations who partner with us benefit from their involvement in this IDM work. We are conscious of the need to improve data on people living with disabilities in particular, and to assess the suitability of the IDM for identifying the deprivation of marginalised groups. Where possible we will oversample, or conduct purposive sampling with groups representing such individuals, but our primary attention will remain on ensuring that we have established an individual measure that is gender-sensitive, and from which we can undertake intersectional analyses where sample sizes allow. The IDM work plan also includes testing various sampling strategies and ensuring that the most sensitive modules are safe to be used broadly by the range of organisations that want to benefit from a gender-sensitive measure of multi-dimensional poverty – a measure that has the potential to reveal the intersection of deprivation and a range of individual and social characteristics. The IDM cannot solve the many data gaps that exist, but we aim by 2020 to have finalised a tool that can contribute considerably to reducing them. By 2020 we will be able to demonstrate both the strengths and limitations of the IDM, in preparation for future use, as well as provide the evidential base for the power of the IDM to overcome gender data gaps globally and locally.

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