

MODULE 4

BASELINE DATA COLLECTION

I. Overview of Baseline Data Collection

Baseline data collection is the process of collecting a set of data to describe the socioeconomic conditions, living standards, and livelihoods of project-affected communities and their potential hosts before any resettlement intervention. It defines who is affected by a project and what losses they are expected to experience in terms of land, assets, and livelihoods. Baseline implies that the data will be used as a reference to define pre-resettlement conditions for future monitoring of impacts and the effectiveness of measures to improve living standards and livelihoods. A resettlement completion audit will also refer to baseline data as the benchmark for assessing achievement of RAP objectives.

The purpose of resettlement baseline data collection is to provide resettlement planners with a comprehensive understanding of socioeconomic conditions, land and asset ownership, and livelihood resources, as well as the systems of production and social networks upon which displaced communities and their hosts depend prior to project impacts. The baseline provides the foundation for predicting project impacts, assessing risks, designing appropriate mitigation measures, monitoring their effectiveness, and implementing corrective actions until completion.

Baseline data are also used to describe project-affected households' pre-resettlement living standards and livelihoods. IFC PS5 defines as one of its key objectives "To improve, or restore, the livelihoods and standards of living of displaced persons." Baseline data provide a reference against which the project's effectiveness to restore and improve household living standards and livelihoods can be monitored. In designing baseline data collection, a simple, robust, and easily measurable set of key performance indicators (KPIs) should be selected that will define household living standards and livelihood levels for the baseline, subsequent monitoring surveys, and the resettlement completion audit. For more information on selecting indicators, refer to [Module 7. Monitoring](#).

The most common unit of measure for resettlement baseline surveys is the household. Various definitions of *household* are used for statistical and socioeconomic studies. Most include elements of the *Oxford Dictionary of Sociology* definition: "A group of persons sharing a home or living space, who aggregate and share their incomes, as evidenced by the fact they regularly take

meals together.”²⁸ A definition specific to the living arrangements prevailing in the project area should be adopted and used consistently for census, socioeconomic surveys, and the asset inventory. It might be useful to align the project definition with that used for a national census or Living Standards Measurement Surveys.

By convention, if the livelihood of one member of a household is affected by a project (e.g., as a farmer or a fisherperson), then all members of his or her household are counted as part of the project-affected population. This is because the household’s shared income will be reduced due to any individual member’s livelihood loss.

Baseline data collection should be tailored to the scale and complexity of expected displacement impacts. A common mistake is to not spend enough time defining a project’s baseline data needs, especially during the scoping stage (refer to [Module 1. Scoping of Land-Acquisition Impacts](#)). This can result in an unnecessary expenditure of resources and time gathering voluminous amounts of data that add little value to resettlement planning and decision-making. Baseline data collection should cover some or all of the topics listed in box 4.1, as appropriate. (Refer to [Appendix A. Scoping-Stage Checklist](#) which provides a comprehensive checklist of questions to address in scoping and baseline data collection.)



²⁸ Marshall, G., and J. Scott, eds. 2014. *A Dictionary of Sociology*. 4th ed. Oxford, UK: Oxford University Press.

Box 4.1. Checklist of Topics for Baseline Data Collection

Following is a checklist of the kinds of baseline data that should be collected for resettlement-planning purposes:

- History of site occupation and land use
- Land tenure arrangements: statutory, customary, formal and informal, seasonal, third-party arrangements such as tenancy or sharecropping, and gender aspects of land tenure
- Demographic characteristics: age, gender, socioeconomic circumstances, local livelihoods, and occupations
- Total number of physically and economically displaced people (sex disaggregated)
- Inventory of land and other assets that will be lost or altered due to the project
- Land valuation data
- Local and regional market price data for crops
- Household composition and characteristics
- Household health and nutrition (sex disaggregated)
- Household land and ownership of assets (sex disaggregated)
- Economic activities of the household (productive activities for cash and subsistence, including use of natural resources, common property, and seasonal activities)
- Household income, expenditure, savings, and indebtedness (sex disaggregated)
- Household access to and use of services (e.g., schooling, health care, markets, and public transport)
- Access to infrastructure (e.g., water, electricity, heating, cooking fuel, and sanitation)
- Local administrative and community organizational structures
- Assessment of poverty and vulnerability within the context of resettlement
- Conflict analysis
- Common property, ecosystem services, and natural resource use: inventory of what will be lost due to the project
- Social networks and safety nets (including those that work to prevent and respond to GBV)
- Cultural heritage
- Displaced people's aspirations, preferences, and concerns about resettlement, including voices of both men and women
- Attitudes and preferences for relocation and livelihood restoration

II. The Objectives of Baseline Data Collection

Baseline data provide the foundation for predicting the impacts of project displacement, designing appropriate mitigations, and monitoring the effectiveness of mitigation measures in sustainably improving, or at least restoring, displaced people's standards of living and livelihoods.

The objectives for undertaking baseline data collection include the following:

- Identify who will be displaced and, subject to verification, who will be eligible for compensation and resettlement assistance.
- Identify households that may be particularly vulnerable during the resettlement process and any other subgroups that may be differentially impacted and need targeted assistance.
- Provide an in-depth, gendered understanding of community organization and leadership and specific issues such as poverty, livelihood systems, community leadership, and organization.
- Develop an inventory of losses (rights to land, assets, access to resources, etc.) that households, enterprises, and communities will experience because of the project, as the basis for valuation and calculation of compensation.
- Record preproject livelihood resources, division of labor, production systems, and yields as the basis for designing measures to restore and improve livelihoods.
- Provide measures of displaced households' preproject living standards and livelihoods and establish a baseline or reference point for monitoring displacement impacts and the effectiveness of measures to restore and improve living standards and livelihoods.
- Provide the starting point for predicting resettlement impacts, designing mitigation measures, developing a compensation framework (eligibility, entitlements, valuation approaches), and monitoring their effectiveness.
- Identify preliminary preferences of displaced people in terms of forms of compensation.
- Gauge the views of displaced people regarding livelihood activities in transition and post-resettlement period.

III. Guidelines on Baseline Data Collection

For resettlement purposes, baseline data collection is typically divided into the following:

- Census (see section [IV. The Census](#) of this module)
- Land and asset inventories (see section [V. The Land and Assets Inventory](#) of this module)
- Socioeconomic surveys, both qualitative and quantitative (see section [VI. Socioeconomic Research and Surveys](#) of this module)
- Livelihood baseline studies (see section [VII. Livelihood Baseline Research and Surveys](#) of this module)

The purpose and objectives of each of these activities are summarized in table 4.1. The level of baseline data to be gathered should be tailored to the type and magnitude of displacement impacts. Projects that require acquisition of small areas of low productivity land that do not involve physical displacement require much less data collection than those involving large areas of land and significant physical displacement.





Table 4.1. Purpose and Scope of Data Collection Activities

DATA COLLECTION ACTIVITY	PURPOSE	SCOPE
Census	<p>The census defines who is affected and who is entitled to receive compensation and resettlement assistance.</p> <p>The census can be used to determine the cutoff date.</p> <p>The census defines the population (sample) that will be subject to household socioeconomic surveys.</p>	<p>The census covers the following:</p> <ul style="list-style-type: none"> • All households within the footprint that own or use assets (land, structures, crops, etc.) • Migratory and seasonal users • Affected persons regardless of their legal rights (informal users as well as legal owners) • Owners and all employees (full- and part-time) of potentially displaced enterprises • Households and individuals that are potentially vulnerable
Land and assets inventory	<p>The land and assets inventory records what will be lost (land, assets, and access to resources) and provides the basis for valuation of losses and determination of compensation.</p> <p>It verifies the tenurial status of displaced landowners, occupants, and users.</p> <p>Its inventories establish the boundaries of each affected landholder’s plots.</p> <p>It surveys, measures, counts, and records the land and assets that each household, enterprise, or community will lose due to the project.</p> <p>It collects and records all parameters needed for the valuation of land and assets.</p> <p>It identifies and delimits common property and natural resources that may be lost or subject to restrictions of access.</p>	<p>The inventory should cover the following:</p> <ul style="list-style-type: none"> • land and assets of all affected persons, households, and enterprises • community land and assets • services and infrastructure • ecosystem services and natural resources • cultural heritage, sacred sites, and graves that will be displaced or subject to restrictions of access, including identification of owners or custodians^a

^a The survey of cultural heritage may be addressed through the ESIA and a cultural heritage management plan, or as part of the RAP—this should be defined during the design of the ESMS.

(Table continued on next page)

Table 4.1. (Continued)

DATA COLLECTION ACTIVITY	PURPOSE	SCOPE
Socioeconomic research and surveys	<p>Provide an understanding of displaced households' living standards, livelihood resources, social networks, and access to services and infrastructure prior to impacts.</p> <p>Establish a baseline for RAP design, future monitoring and completion audit.</p> <p>Establish an understanding of displacement impacts and subsequent progress toward living standards and livelihood restoration.</p> <p>Provide detailed information about gender roles, status, and social networks in communities.</p> <p>Gather preliminary information about household preferences for relocation and livelihood restoration.</p> <p>Provide an understanding of types of vulnerable people to develop protective measures.</p>	<p>The socioeconomic surveys should include the following:</p> <ul style="list-style-type: none"> • All households within the footprint • Migratory and seasonal users • Affected persons regardless of their legal rights (informal users as well as legal owners) • Owners and all employees (full- and part-time) of potentially displaced enterprises • Households and individuals that are potentially vulnerable <p>Quantitative household surveys ensure equal inclusion of men and women.</p> <p>Qualitative research should include key groups such as women, vulnerable or marginalized groups, farmers, fisherpeople, and business groups and be tailored to local circumstances and project impacts.</p>
Livelihood baseline studies (e.g., agriculture, foraging, fisheries, businesses and employment, urban livelihoods)	<p>Define PAPs' livelihood resources, systems of production, current yields, and levels of production.</p> <p>The extent and scope of livelihood surveys should be tailored to address the specific circumstances of the project-affected population (e.g., if livelihoods include fishing, surveys of fisheries will be necessary).</p>	<p>Livelihood baseline studies cover all PAPs' livelihood activities, resources, systems of production, current yields, and levels of production, including the following:</p> <ul style="list-style-type: none"> • Assessment of crop types and varieties, cultivation techniques, yields, opportunities, and challenges

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Table 4.1. (Continued)

DATA COLLECTION ACTIVITY	PURPOSE	SCOPE
	<p>Provide the information used to develop livelihood-restoration measures.</p> <p>Document daily and seasonal calendars of activities of household members, including those of women and children so that mitigation measures will not differentially impact them.</p> <p>Identify barriers to accessing livelihood opportunities for women and vulnerable groups.</p> <p>Identify ecosystems and natural resources on which displaced communities are reliant and determine their importance for livelihoods.</p>	<ul style="list-style-type: none"> • Assessment of land requirements for rotation, fallow, and grazing of livestock • Seasonal and daily calendars • Affected persons livelihoods' regardless of their legal rights (informal users as well as legal owners) or legality of activity • Business activities (formal and informal) • Natural resource use • Seasonal or transient use of land and natural resources (e.g., nomadic pastoralists) • Assessment of household livelihood resources and division of labor • Establishment of locational interdependencies among dwellings, agricultural land, occupations, enterprises, and markets (particularly for urban resettlement) • Assessment of value chains: secondary processing, arrangements for barter or sale, and downstream parties that may be impacted by loss of supply

Upon completion of data collection, it is good practice to present a summary of findings to the project-affected communities and to provide them with copies of any summary reports that do not contain private and confidential information. This has the following benefits:

- Communities can validate findings and correct any factual inaccuracies.
- Communities and their leadership have access to the information for their future reference and use.
- Community members can see a tangible output for their time and effort invested in participating in baseline data gathering activities, and thus may be more willing to participate in future survey and monitoring activities.
- Women and vulnerable groups can see that their contributions are being recognized.

III.A. Coordination with Environmental and Social Impact Assessment and Alignment with Other IFC Performance Standards

Where possible, PS5 baseline data gathering should be coordinated with ESIA data collection (PS1 on Assessment and Management of Environmental and Social Risks and Impacts). As mentioned in Module 1 (see section [III.C. Understanding the Role of the Government](#)), the scoping stage will have identified the areas where coordination between the ESIA and the land-acquisition and resettlement process are required and possible. Data collection should be managed to avoid unnecessary replication of engagement and surveys with displaced communities, as this can give rise to mixed messages, frustration, and survey fatigue among respondents. Resettlement baseline data must be based on surveys of project-affected households specifically, not generic socioeconomic data gathered from the wider project area of influence, which is often used in project ESIA.

IV. The Census

IV.A. Overview

The census is a complete enumeration of the project-affected population (physically and economically displaced) with names of affected persons and their basic demographic data.

The purpose of the census is to:

- Identify and record the people, households, and enterprises displaced by the project and, upon verification, to define who will be eligible for compensation and resettlement assistance.
- Develop a register of households and individuals that are potentially vulnerable.
- Define the population to be sampled for household socioeconomic surveys (see section [VI.B. Quantitative Surveys](#) of this module for details on the sampling).

The census is tied to a cutoff date, which is usually established once the census is completed (see [Module 2. V.B. Cutoff Date](#)). The census establishes a list of the people and enterprises present in the project footprint at the cutoff date, that is, those who will be eligible for compensation or other forms of resettlement assistance. It provides the basis for excluding speculative claims from those settling in the project footprint after the cutoff date and claims by local households for new structures built or crops planted after the cutoff date.

The census involves a small team of trained enumerators visiting each household and recording basic information about household members, such as name, age, gender identity, occupations, and relation to the household head. Information should be gathered for project-affected enterprises (see section [IV.D. Census of Enterprises](#) of this module). Following are key aspects of a census exercise:

- One or more respected village or local government officials who can verify bona fide local residents should accompany the enumerators. It is good practice for the census enumerators to also take photographs of the household head, any household members present, and the principal household buildings.
- Global positioning system (GPS) recording of the location of the household's dwelling(s) can also be useful to confirm the completeness of census and for follow-up meetings.
- Depending on the nature of project impacts, the census team may also need to register natural resource users such as hunters, fisherpeople, intertidal zone collectors, foragers, or pastoralists.

- Care should be taken to ensure that women’s voices are represented in the census. This may mean selecting the woman instead of the male head of household to respond to the census survey in some situations.
- Care should be taken to account for seasonal users (e.g., fisherpeople, herders, pastoralists, and artisanal miners), who may reside well outside of the project area of influence.
- Satellite or aerial photography, ground photography, and videos should be taken to make a record of dwellings, assets, trees, and crops corresponding with the time of the census, and asset surveys should be taken to aid with counts and measurements and provide a basis for refuting opportunist claims based on development after the cutoff date.
- It is important to include informal or illegal residents (squatters) if they are residing on the land at the time of the census, even in cases where owners do not sanction their presence.

In order to identify the affected population quickly, before there is any influx of outsiders, the census may be undertaken as a stand-alone activity. Alternatively, it may be more practical to complete the census, socioeconomic surveys, and asset inventory at the same time. The latter approach is more suitable where the population to be recorded is dispersed and difficult to reach, or in high density urban settings where it may be logistically challenging to arrange multiple meetings with large numbers of working households. Table 4.2, at the end of the census section, describes the “do’s and don’ts” to consider when conducting a resettlement census.

IV.B. Household Census

The household census should record the following:

- Name, identification, and contact details of the household head
- Ethnicity and religious affiliations of household members
- Languages spoken in the household
- Name of each household member, with age, gender, educational attainment and level of literacy, relation to the household head, and occupation
- Names of household members normally resident in the dwelling but who may be absent at the time of census for reasons such as study, hospital confinement, military service, imprisonment, or seasonal work
- Location of the dwelling (e.g., address, GPS coordinates, or location within a predetermined grid)
- Self-reported tenurial status of the household (e.g., owner, lessee, tenant, or informal dweller)

- Assessment of the vulnerability of the household or individuals living within that household (e.g., very poor, elderly, physically or intellectually impaired, chronic illness, ethnic minority or otherwise socially marginalized—see box 4.2)
- Brief description of the dwelling (e.g., type, materials, number of stories, approximate floor area, condition, and type of finishes and furniture)
- Photo of the household head
- Collective photo of household members
- Photos of the dwelling and associated structures

An example of a household census form is given in [Appendix B. Example of a Census Form](#).



IV.C. Using the Census to Identify Vulnerable Individuals and Households

Disadvantaged or vulnerable people are those on whom project impacts may fall disproportionately, who may be challenged accessing project development benefits and opportunities, or who may have difficulties recovering from physical or economic displacement. Vulnerability may stem from an individual's or group's race, color, sex, language, religion, political or other opinion, national or social origin, property, birth, or other status. Other factors such as gender and gender identity, age, ethnicity, land tenure status, culture, literacy, sickness, physical or mental disability, poverty or economic disadvantage, and dependence on unique natural resources may also contribute to vulnerability.

For projects displacing many households, it can be very difficult and time consuming to develop a register of vulnerable households or individuals. This process is best commenced as part of the census. See box 4.2.

Box 4.2. Identifying Vulnerability for Resettlement Census Purposes

Identifying vulnerable individuals and households in a resettlement context is an iterative process. IFC PS1 offers some generic criteria for vulnerability, but these provide only a starting point for assessing what constitutes vulnerability within a project-specific and resettlement-specific setting. Vulnerability is also a dynamic condition. Households can become more or less vulnerable due to resettlement processes and external factors not related to the project, such as deaths in the family, ill health, loss of employment, crop failures, and so forth. Be particularly aware of any groups that might be disadvantaged in terms of asserting their interests or rights to use land and assets within the context of baseline studies.

- Use PS1 (paragraph 12) generic vulnerability criteria as a starting point.
- Assess other potential sources of vulnerability specific to the project context and the resettlement program.
- Incorporate vulnerability screening criteria in the census and surveys—use this to develop a working list of vulnerable households.
- Assess each household on the working list to validate vulnerability and determine the support needed—involve government social welfare officers, NGO specialists, and vulnerable people representatives in the assessment, as appropriate.

Some specific baseline collection measures might include those that follow. (See also [Module 3, VI.D. Vulnerable Groups](#) for engagement with vulnerable groups). Before designing baseline surveys, do the following:

- Conduct some focus groups and interviews with resource persons (ideally during the scoping stage) to learn about criteria local communities use to distinguish a household that is well off versus one that is vulnerable or marginalized.

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Box 4.2. Continued

- If appropriate, use these consultations to develop a preliminary list of vulnerable, affected households.

As part of the baseline census and surveys, do the following:

- Develop a simple checklist for census enumerators to assess household vulnerability in the field (e.g., household demographics, dwelling characteristics, indicator assets, access to land).
- Ask household heads to self-appraise their household's welfare (example: considering your household's current circumstances, would you describe yourself as rich/comfortable/manage to get by/never have quite enough/poor/destitute?) Be aware that such a self-assessment is subjective and may be either exaggerated or underestimated to gain additional compensation.
- Use household income or expenditure quintiles to identify poorest households.
- Develop a household welfare index based on the household's ownership of selected assets, such as televisions, bicycles, materials used for housing construction, and access to water and sanitation.

Monitoring: Throughout resettlement implementation, monitor for cases of hardship or changed household circumstances that may indicate a need for additional support.

Box 4.3 describes an approach that used a committee composed of local government, community, project, and vulnerable people representatives to screen and identify vulnerable individuals and households.

Box 4.3. Vulnerable Peoples Assessment in Mozambique

A project in Mozambique convened a Vulnerable Peoples Committee to screen and identify displaced vulnerable individuals and households for special project assistance. The Vulnerable Peoples Committee included representatives from the District Social Welfare Office, the affected community, vulnerable people, and the project resettlement team. The Vulnerable People's Committee developed criteria for eligibility to assistance to the vulnerable and then consulted key informants and groups of villagers to develop a working list of potentially vulnerable people. The committee then screened each potentially vulnerable individual or household to determine which were eligible for vulnerable assistance.

Each vulnerable individual or household was then consulted to determine their specific needs. The types of assistance offered were wide ranging and included assistance to understand and sign household agreements; modifications to replacement housing to accommodate disabilities; delivery of food packages; access to health care; access to a nearby garden area; or opportunities for project employment. During delivery of assistance, the Vulnerable People's Committee monitored the vulnerable individual's or household's progress, adjusted assistance where necessary, or agreed with the participant when vulnerable assistance was no longer needed. Through its involvement in the process, the District Social Welfare Office was able to provide ongoing assistance once the project resettlement program was completed.

IV.D. Census of Enterprises

Project implementation can cause temporary or permanent impacts on a wide range of businesses and enterprises, from factories, mills, workshops, and shops to roadside or market stalls. Some businesses are licensed, return taxes, and prepare audited accounts. Others may be informal with little or no record keeping. PS5 prescribes certain types of compensation for impacts on commercial structures affected by project land acquisition or restrictions of use (PS5, paragraph 27). Information to be gathered during the census of a business might typically include the following:

- Name and gender identity of owner(s) (and operators, if these differ)
- Type of business or enterprise
- Type of ownership (sole proprietor, partnership, company, cooperative, registered, or informal)
- Land title details or nature of rights to land
- Description of commercial structures and any fixed plant and equipment
- Monthly or annual income
- Monthly expenses
- List of employees with details of their gender identities, employment basis (full-time, part-time, casual), and typical earnings
- Locational requirements
- Degree of expected impacts (fully displaced, temporarily displaced)

Enumerators will need clear instruction about the types of evidence to be gathered to support estimates of enterprise income and expenditure. With registered businesses, these are likely to consist of tax returns and audited accounts. Informal businesses may be required to produce evidence of receipts for expenditures, or the enumerator may need to make some estimate of turnover based on the value of stock and the operator's reported frequency of replenishment. Where possible, information gathered in this way should be assessed against comparative data from other sources (e.g., national or regional small business studies or other resettlement projects). It is not uncommon in government-led resettlement for informal businesses to be left out of the census. Project proponents may need to develop supplemental measures to ensure that these businesses are both considered and their losses compensated.

To avoid double counting, clear rules need to be developed to address home-based businesses, shop-houses, or rental units for both residential and business, which are common in many countries with emerging markets. These either need to be addressed as part of the household census or enterprise census, but not both. It is important to ensure such businesses are accounted for in the census. Failure to do so may result in omission of significant data relevant to the income-generating activities

of women, many of whom may need to run their businesses from home due to lack of freedom of movement, lack of access to financial resources, or because of their concurrent responsibilities to care for children and other family members.

IV.E. Census of Natural Resource Users

In undertaking a census, resettlement practitioners must identify users of natural resources who rely on ecosystems for their livelihoods both inside and outside of the project site where the project might impact those natural resources. Such users may be active year round, or they may use the area seasonally. Examples of such users may include the following:

- Transhumance pastoralists
- Livestock herders
- Hunters and trappers
- Foragers (undertaking subsistence activities such as gathering firewood, charcoal, fruits, berries, herbs, mushrooms, honey, and/or medicinal plants)
- Fisherpeople
- Intertidal and nearshore gleaners
- Artisanal and small-scale miners
- Artisanal sand diggers
- Collectors of NTFPs for trade or self-consumption

Careful investigation is required to identify such users and record their names for census purposes. Typical steps might involve the following:

- Interview resource users to gain an understanding of the range of natural resource users who utilize the project site, the nature and timing of their activities, and where they can be contacted.
- Develop a preliminary list of user groups and decide on the approaches that will be used to expand this into a census.
- Approach government land or resource managers to identify licensed users or draw on their knowledge of resource users active in the project area of influence.
- Talk to surrounding village leaders or elders who may be able introduce key users.
- Talk to local NGOs or women's organizations that may have information on the use of resources by women.
- Approach user associations—for example, hunting or fishing associations and rubber tapper and medicinal plant collectives—to obtain information about members.
- Conduct field observations and interviews to substantiate the quantity of resources being used. For example, enumerators could wait where fishing

boats off-load or at known paths into natural resource areas where they can gather, weigh, and record the type and quantity of resources being harvested or collected and the names and details of those utilizing the area.

- Install a GPS device on potentially affected fishing boats for several days to identify fishing boat routes and fishing grounds.
- Attend markets on days when NTFP buyers and sellers are known to be in town.
- Telephone or travel to locations of known herders or pastoralists to record their details.
- Triangulate information from the above sources to form a comprehensive census of users.

In some instances, natural resource users with no legally recognized claim may be solely reliant on these for their livelihood. Such uses may be customary or have been undertaken for long durations. While a project sponsor must not condone illegal activity, such users may experience hardship and an increased risk of poverty as the result of impacts of a project development and can be persistent in their claims for support. Others may experience hardship but because the illegality of their work cannot access compensation, thereby increasing their risk of poverty. These groups are project-affected and should be recognized in the census so that the project will include those affected in a plan to address how these risks and impacts will be avoided, minimized, mitigated, or compensated. If an accommodation cannot be negotiated directly with such users, consideration should be given to engaging a third party trusted by the users (such as an NGO) to consult, establish the users' circumstances, and broker appropriate support on their behalf.

IV.F. Third-Party Property Interests: Tenants, Renters, and Sharecroppers

In addition to households that have direct rights to land, it is also important to identify and record those with third-party interests. At their simplest, these may include people who have entered into either formal or informal agreements with the landowner, such as renters, lessees, tenants, or sharecroppers. Under some circumstances, third-party interests may also include mortgagees. In urban settings, there can be many variations in the third-party arrangement. Identifying third-party property interests and designing appropriate compensation measures for both tenants and landlords can be one of the more complex challenges facing resettlement practitioners. It is not unusual for landowners to evict renters once they know that a census will be undertaken, out of fear that having a renter will dilute their compensation package. Many countries have complex arrangements for lessees and lessors where payment

may include a share of crops, seasonal payments, or annual rent. Often, to support people who are vulnerable, landowners allow people to live on their land rent-free. In places like Uganda, there are formal relationships between landowners and long-time lessees, in which the lease right (*kibanja*) can be sold with permission from the landowner. It is critical for the practitioner to understand the complexities of these relationships and be guided by local authorities. The full range of third-party arrangements in the project footprint should be identified as part of resettlement scoping (refer to [Module 1. Scoping of Land-Acquisition Impacts](#) and [Appendix A. Scoping-Stage Checklist](#)) and prior to the design of census forms. See box 4.4.

Box 4.4. Census of Tenants in Guinea

In the Guinea Alumina Corporation (GAC) project in the Dapress area of the Kamsar industrial town, it was identified early at the scoping stage that potentially displaced houses were home to numerous tenants, and that they sometimes had been designed and built specifically to accommodate tenants (multiple one-room and two-room dwellings). It was also observed that tenants would be significantly affected by the loss of their rented homes, as there was a shortage of dwellings suitable and affordable for tenants in the central areas of the city, and that rents were high and landlords very demanding as a result (e.g., charging high down payments).

Identifying tenants eligible for compensation was therefore critical. When asked whether they had tenants, landlords were not necessarily forthcoming with a full identification of tenants, as they may have perceived that this would be detrimental to the calculation of their compensation. In addition to asking landlords, the project employed a combination of methods to properly identify tenants, including the following:

- Asking the census committee (community members that were established as a committee to facilitate the census and surveys in early stages of resettlement planning) whether they were aware of any tenants in the building subject to the census
- Asking individuals (other than the landlord) found to occupy the building whether they were tenants
- Checking on the parts of the building actually occupied by the owner and asking people found in other parts whether they were tenants
- Revisiting and repeating tasks when there were doubts
- Understanding a pattern that is common in West Africa for shops: namely, that the shop structure and the shop operation often belong to two different individuals, with the shop operator renting the building from a landlord. (Compensation for the loss of the shop structure and compensation for the loss of business income were therefore provided to two different individuals.)

IV.G. Resources for Undertaking the Census

The census should be undertaken by a team of trained enumerators. The team should represent the diversity of people in the communities. This can be the same team that undertakes the socioeconomic survey or the land and asset surveys. Depending on the scale of resettlement, the census could be undertaken by the project resettlement or community relations team, local government staff, a local university, a local NGO, or specialist consultants. The field team will need to receive practical on-the-job training from their supervisors or consultants. A pilot census should be undertaken with a small sample and cross-section of households and then reviewed to ensure that the approach and questions asked are appropriate and relevant, and if not, revised. Each census team might consist of one or two members accompanied by a local leader or other person very familiar with the community. Census team tasks may include the following:

- Interviewing the household members and completing a census questionnaire
- Photographing the household head, other household members present, and the household's principal fixed assets
- Taking GPS readings on the thresholds of the principal household buildings

Typical equipment for each team might consist of a handheld GPS unit and camera, a camera with in-built GPS, or electronic tablets with camera and facility to complete the census form digitally, for subsequent transmission to a central database.

Where accuracy of measurements is critical (dense urban settings), the use of differential GPS should be considered.²⁹

Table 4.2 describes the “do’s and don’ts” to consider when conducting a resettlement census.

²⁹ A differential GPS uses one or more ground-based reference stations to provide improved location accuracy for data received from satellites. Best implementation of differential GPS provides locational accuracy +/- 100 millimeters compared to +/- 5 meters for standard GPS. Differential GPS is commonly used for topographic and engineering surveys.

Table 4.2. The Do's and Don'ts of the Resettlement Census

DO'S	DON'TS
<p>Align project census definitions (e.g., household definition, occupation categories) with those used for the national census or other national statistical surveys if practicable and appropriate. This enables project survey findings to be correlated with wider statistical information to provide insight into what makes project-affected communities common or distinctive.</p> <p>Ensure that census enumerators are trained to consistently and correctly to apply terms such as <i>household</i>, <i>family</i>, <i>landowner</i>, <i>user</i>, and <i>occupant</i>.</p> <p>Obtain aerial photography or satellite imagery that corresponds as closely as possible with the cutoff date—this can provide a snapshot of all structures, crops, and land improvements eligible for compensation and can be used to identify speculative planting or construction occurring after the cutoff date.</p> <p>Use GPS to record locations of dwellings and businesses as part of the census. These can be correlated with up-to-date orthophotographs^a or satellite imagery.</p> <p>Ensure eligible households have some form of unique identification (e.g., either a national identity card or a project-issued registration card) once census findings have been validated.</p> <p>Consider using fingerprint scanners (where appropriate or available) to identify eligible parties and to avoid confusion where names are spelled inconsistently or where many people or families have the same name.</p> <p>For linear projects, consider establishing cutoff dates by section based on the project construction schedule (e.g., one cutoff date for each section or construction phase) and/or by administrative boundaries (e.g., one cutoff date for each district).</p>	<p>Divulge private or confidential personal and household information.</p> <p>Rely only on information about quantity of fish caught or resources harvested from utilizers of natural resources.</p> <p>Proceed with a census without a robust grievance management mechanism in place.</p> <p>Overlook seasonal or transient site users who may not be present at the time of census, such as herders, transhumance pastoralists, foragers, hunters, and fisherpeople.</p> <p>Overlook informal users, including squatters and third-party users (renters, tenants, sharecroppers).</p>

^a An orthophotographs is an aerial photograph or image that has been corrected (“orthorectified”) such that the scale is uniform. Unlike an uncorrected aerial photograph, an orthophotographs can be used to measure true distances or areas.

V. The Land and Assets Inventory

The land and assets inventory³⁰ involves the survey and measurement of household, enterprise, and community assets that will be subject to loss (or loss of access) as a result of a project. Assets can include (but are not limited to) rights to land, land improvements, dwellings and associated structures, other immovable property, trees and crops, community assets and access to natural resources, and cultural and spiritual property.

The purpose of the land and assets inventory is to define what will be lost (e.g., land, assets, and access to resources) due to the project. This will be the basis for valuation of losses and determination of compensation. Other objectives and tasks of the land and asset inventory include the following:

- Identifying displaced landowners, occupants, and users and verifying their tenurial status
- Surveying and establishing the boundaries of each affected landholder's land plot(s)
- Surveying, measuring, counting, and recording the land and assets that each household, enterprise, or community will lose due to the project
- Collecting and recording all parameters needed for the valuation of land and assets
- Identifying and delimiting common property and natural resources that may be lost or subject to restrictions of access
- Mapping and recording cultural heritage that will be displaced and establishing its owners or custodians

Coupled with the census, the inventory supports establishing a cutoff date.

As a precursor to any land and asset inventory, all involved parties should be briefed and receive training on IFC PS5 and, in particular, on any areas where PS5 requirements may be more extensive than those under national legislation. Government land officers, local surveyors, and lawyers will typically have well-established procedures for undertaking land and asset inventories and will revert to these unless they understand the rationale and requirements for any

³⁰ The terminology may vary. This exercise has been called *inventory* in this handbook; however, the terms *asset survey* or *measurement survey* are also used in some jurisdictions or in certain standards to describe the same concept.

additional measures. Areas where PS5 requirements are often more extensive than national law include the following:

- Obligations related to providing information and engagement with affected households and host communities before embarking on land and asset inventories
- The need to widely publicize a cutoff date
- The obligation to make affected persons aware of avenues for making a complaint
- The need to recognize certain categories of informal or extralegal land use and occupation that might be excluded from official land and asset surveys
- The need to recognize displacement of common property and natural resources users
- The need to recognize informal and ambulatory businesses

Land and asset inventories may be led by government, supervised by government, or undertaken entirely by a project land or resettlement team or project consultants and contractors. The approach is sometimes dictated by national legislation or by responsibilities defined in host government agreements, concession agreements, or as part of license conditions. Whichever approach is adopted, the division of responsibilities between project and government should be clearly defined. It is not unusual for there to be gaps between the requirements of PS5 and national law. One typical conflict involves including squatters or informal land users in land and asset surveys. Often it is against national policy for governments to compensate squatters out of fear that such measures will only serve to encourage illegal settlements. Resolving this conflict can be challenging. One option is for the project to undertake the survey (and compensation process). Where land and asset inventories are government led but where the project sponsor is required to pay for compensation, procedures for quality assurance and validation should be agreed to at the outset. Such procedures may include one or a combination of the following:

- Asset inventories implemented by a government agency, with participation (and sign-off, if possible) of company representatives
- Asset inventories implemented by a company (or a contractor appointed by the company), with government representatives participating and signing off
- Asset inventories implemented by a third party (private contractor) based on a mutually agreeable scope of work, with government and company representatives signing off on inventory sheets

Where roles and responsibilities in legislation or project agreements are unclear, it may be desirable to develop a joint project-government land-acquisition and resettlement MoU at the scoping stage. Such an agreement should clearly define

standards, steps to be followed, time frames, and the roles and responsibilities of each party (refer to [Module 1. III.J. Scoping Field Visit and Review](#)).

Depending on the scale of the project, activities to be undertaken during the land and asset inventory may include tasks and components, as outlined in the following lists.

V.A. Before Survey

- Define rights to land (permanent acquisition, temporary occupation, and restrictions such as easement rights for transmission and pipeline corridors) necessary for the planning, construction, and operation of the project.
- Carefully research the types of land tenure arrangements existing on the project footprint—pay particular attention to any customary and/or informal rights that may coexist (or conflict) with statutory land titles and understand how these are established and formalized (see box 4.5).
- Understand the types of third-party property usage rights that might exist in the area, including renters, sharecroppers, and so forth.
- Research land titles specific to the project site as well as any other kinds of landownership or land-use rights records in state, regional, and district land cadastres, as well as village-level land allocation records.
- Conduct research to understand women’s ownership rights and which assets women typically own. (It is not unusual for ownership of assets to be split among spouses: for example, men owning the trees but women owning the fruit.)
- Determine national legislative requirements for undertaking land surveys and measurement, valuation, compensation, and resettlement. Make a plan to bridge the gap between the national requirements and PS5 if needed.
- Determine the respective roles of government and the project sponsor—and formalize this in an MoU, if needed.
- Agree with government on the standards that will be applied for land acquisition and resettlement—make specific reference to the need to comply with IFC PS5 as well as national legislative requirements in any government/project MoU.
- Identify the responsible government departments and officers and any other key stakeholders.
- Establish mechanisms for government-project coordination, such as regular meetings or formation of a joint project-government land and resettlement steering committee and/or working group (see also [Module 3. VI.A. Government](#)).

Box 4.5. Example of Urban Tenure Types in the Philippines

Urban land and property tenure can be complex. In Manila, the Philippines, for example, there are seven basic tenure combinations, with many variations on these. These include hybrids of formal and informal property rights and occupation. All tenure types are regularly transferred between owners for cash payment.

- Titled ownership of house and lot (private title)
- Rent house or room including lot
- Own house, rent lot
- Own house, rent-free lot with consent of owners (e.g., so-called backyard dwellers)
- Own house, rent-free lot without consent of owner (e.g., informal settlement on public land)
- Rent-free house and lot with consent of owners
- Rent-free house and lot without consent of owners

Before conducting resettlement census and surveys in this context, stakeholder engagement is necessary to reach consensus on the categories of tenure types that will be recognized for compensation and the procedures that will be used for validating ownership or land-use and/or property rights.

- Define the expertise needed to complete the land and assets survey, including any licensed professionals that might be required by law (e.g., valuers, surveyors, and lawyers).
- Assemble a team with such licensed professionals as mandated under local legislation and other required expertise (e.g., members with training in legal, resettlement, land surveying, valuation, forestry, agriculture, animal husbandry, building survey, and GIS practices). Try to ensure the team includes men and women.
- Conduct a pilot test to ensure consistency of responses and recording.
- Prepare communication activities as part of the overall Stakeholder Engagement Plan (refer to [Module 3. VIII. Communication and Information Disclosure](#)) for the rollout of the land and assets survey, to include relevant levels of government, local leadership, and communities.
- Visit the project footprint and do the following:
 - Identify any existing survey monuments or markers and, if necessary, place new ones to clearly delineate the project site.
 - Determine whether cadastral and land parcel information is complete and up-to-date and accurately reflects current ownership and occupation, or whether additional land parcel surveys will be required.
 - Develop a typology of affected land and assets that will need to be measured and recorded as part of the land and assets inventory.

- Identify the extent of any customary rights to land and any informal land occupation or usage.
- Develop a land and asset inventory recording form (see [Appendix C. Example of a Land and Asset Inventory Form](#)). This should take into account the parameter and units that will be used for asset valuation and be in a format that will allow easy inputting into the database.
- Conduct training with the land and asset inventory teams on national legislative and PS5 requirements and field procedures, use of equipment (GPS, camera and video, PC/tablet), and data recording; role play typical field situations that the land and asset inventory teams may encounter.
- Understand the mechanisms for resolving land ownership disputes. (What kind of disputes can and cannot be resolved by the land and asset inventory team? What are legislative avenues for resolving land disputes and conflicts? When must these avenues be used and what parties must be involved?)
- Conduct meetings to brief regional, district, and village leaders on the steps that will be followed for the land and asset inventory.

V.B. During Inventory

- Conduct a meeting or meetings with PAPs (men and women) to explain the land and asset inventory purpose and process and avenues for making a complaint.
- Verify land parcel boundaries on the ground with affected owners, users, occupants, and neighbors—where necessary update land-parceling plans to reflect current ownership and use.
- Promptly resolve any boundary discrepancies or landownership conflicts with adjacent landholders in the field or refer them to the relevant statutory processes or RAP grievance management system.
- Concurrently with the land parcel verification, carry out a process of landholder identification—verify tenurial status and owners and users of each land parcel.
- Where possible, when incidence of informal occupancy is high, register each landholder’s interest in land at least at the village or district level.
- Prepare a compensation dossier for each eligible landholder (electronic with paper back-up), to include the following:
 - Identity information and copy or scans of identity documents
 - Copy or scans of original field asset survey forms
 - Signed-off asset summaries and compensation agreements (to be included at a later stage)

- With the participation of each affected landholder or land-right user, survey, measure, count, and map assets (land, trees, crops, livestock, structures, and improvements) belonging to each landowner or land user and record all information spatially (with GIS) in tabular form and with photographs and video.
- Enter land information into the project database, identify any discrepancies, and immediately return to the field to resolve these with the landholder (and neighboring landowners, if relevant, such as in boundary disputes) so that such grievances do not escalate by being left unattended for long periods.
- Once complete, the landholder, a project representative, and a third-party witness (e.g., government representative, trusted village leader, or legal NGO) should sign an asset summary. (See [Module 6. IV. Task 1: Defining Compensation and Resettlement Entitlements and Obtaining Sign-Off.](#))

V.C. After Inventory

- Prepare a summary tabulation of affected land and assets and share with the affected household in an asset summary (see example in [Appendix E. Example of an Asset Sheet](#)).
- Apply compensation rates (see [Module 2. VII.B. Valuation and Compensation Rates](#)).
- Determine compensation budget (see [Module 2. VII.B. Valuation and Compensation Rates](#) and [Module 2. X.B. RAP/LRP Budget](#)).
- Prepare compensation agreements (household, enterprise, and community).
- Facilitate households assembling of documents, notarizations, and the like for the purposes of entering into compensation agreements.

Consider locally disclosing the completed land parcel map and list of verified owners. This ensures the transparency of the process and gives community members one final opportunity to ratify or challenge the land survey, ownership, and land-use rights.

Community and government infrastructure and assets should also be surveyed by the land and asset team, with representatives from the responsible authority or owning entity. These assets should be surveyed and recorded even when the intention is to replace them in kind. Care should be taken to identify the right custodian. Religious buildings, for example, may be the property of the community, a religious organization, or even a family or individual. Roads, wells, other water sources, or other village infrastructure could variously be private, property of a village or community, or local or higher levels of government. Agreements should be put in place with each custodian describing how these assets will be compensated for or replaced.

Table 4.3 outlines key points to remember when conducting land and assets inventories to ensure a fair and transparent compensation process and to prevent disputes before and after project impacts to land and assets.

Table 4.3. The Do's and Don'ts of the Land and Assets Inventories

DO'S	DON'TS
<p>Use low-level orthophotos where available as a time-saving tool to map land parcels and identify affected assets.</p> <p>Specify comprehensive aerial photography coverage (to anticipate potential replacement housing and agricultural sites and adjacent host communities, as well as areas that may be subject to in-migration or other project uses such as borrows, camps, laydown areas, and so forth—it pays to cover a wider area than the project anticipates it will need, as the marginal cost of wider coverage is generally minimal compared to contracting additional aerial photography later).</p> <p>Investigate avenues to regularize or otherwise formally recognize informal users and occupiers and their property rights, such as through a certificate from the local government. It is much easier to conduct transactions where rights have some kind of official recognition.</p> <p>Place survey markings that clearly delimit the project land and make clear to occupants which land and assets are affected and which are not.</p> <p>Take copious photographic and video records of property and structures that will be lost or may be potentially affected by project construction works or vehicles. Often disputes or claims for compensation can arise after a site or corridor has been cleared. In such cases, earlier air photos (including photos taken from aerial drones), ground photos, and videos can be invaluable for verifying site conditions, trees, crops, and assets prior to project impacts.</p> <p>Systematically record by survey, photographs, and videos the condition of existing roads, culverts, bridges, river crossings, drains, and irrigation systems that may be potentially impacted by project construction works or vehicles—these will be invaluable if there are later disputes about the preproject condition or operability of community or local government infrastructure or claims relating to damage.</p>	<p>So far as possible, survey or measure land and assets of households or enterprises that are not affected by a project—the act of measurement creates expectations of compensation that can be difficult to manage.</p> <p>Overlook customary or traditional rights to land (which may, in some cases, conflict with statutory rights to land).</p> <p>Overlook the need for independent governance checks and oversight as corruption, collusion, and fraudulent practices during land and asset surveys are common.</p>

(Table continued on next page)

Table 4.3. (Continued)

DO'S	DON'TS
<p>Actively involve the property owner and users (house owner, landowner or user, crop owner) in the survey and measurement process.</p> <p>Actively involve local women in the survey and measurement process.</p> <p>Help landholders to regularize or otherwise certify their interests in land.</p> <p>Involve specialists, particularly in measurement and valuation of land, productive trees, and timber species.</p> <p>Measure and record, as far as feasible, size and condition of structures, and undertake careful counts of individual trees and perennial crops—the tendency to roughly count, estimate, or round up in favor of the landowner can become a liability if there are disputes about numbers, quantities, or valuations afterward. It can also lead to jealousy and requests for recounts by neighbors if they think they can obtain an inflated estimate. Results should be replicable if there is a need to check them later.</p> <p>Use overlays on orthophotos or use GIS maps to show the spatial distribution of land and assets. This improves transparency and reduces risks of overlaps, double counting, or fraudulent overcounting of assets.</p> <p>Have a record of the completed inventory signed by the affected property owner or land-right user.</p> <p>Have a trusted third-party witness and sign off on the survey and inventory field summary (e.g., village officer or elder, district office representative).</p> <p>Measure and record all assets that will be lost, including those that will be replaced in-kind.</p> <p>Agree with government (e.g., through an MoU), on a system for validation of data prior to commencement of a government-led land and asset survey process, particularly if the project sponsor is to cover the cost of land acquisition and compensation.</p>	

VI. Socioeconomic Research and Surveys

Socioeconomic research and surveys are meant to generate a baseline that will be used throughout the project's life to assess whether resettlement objectives are met, and livelihoods are, at a minimum, restored. They involve the application of quantitative and qualitative research and survey tools to develop a set of data that describes the socioeconomic conditions, living standards, and livelihoods of project-affected communities and their potential hosts prior to resettlement. The research and surveys should yield results that are reliable, sensitive, and valid and should be designed consistent with monitoring requirements and indicators.

Techniques used for a socioeconomic survey should meet the criteria of reliability, validity, and sensitivity as defined in box 4.6.

Socioeconomic surveys designed for resettlement should follow social research good practice. Survey and research designs should include a mix of quantitative methods (e.g., household socioeconomic questionnaires) and qualitative research methods (e.g., PA techniques, including interviews with resource persons, focus group discussions, and case studies). See [Module 3. IV.C. Focus Groups](#) and [IV.H. Participatory Appraisal Techniques](#).

It is important to select a set of KPIs early on that will be used throughout project implementation and monitoring to measure the restoration and improvement of livelihoods.

Box 4.6. Criteria for Socioeconomic Survey Techniques

To have value for future monitoring of progress toward restoration of living standards and livelihoods, socioeconomic survey techniques need to yield results that are reliable, valid, and sensitive.

- *Reliability* is the extent to which the survey instrument produces the same results when used repeatedly to measure the same thing. Socioeconomic surveys used to collect resettlement baseline data need to be replicable for monitoring purposes.
- *Validity* is the extent to which the survey measures what it is intended to measure.
- *Sensitivity* refers to whether the survey instrument is sensitive enough to measure key changes resulting from a resettlement intervention.

Household socioeconomic questionnaires are useful for generating one-dimensional quantitative indicators to measure resettlement impacts and outcomes. They are less useful for understanding complex, multidimensional, and dynamic constructs such as poverty, livelihoods, community organization and support networks, gender roles, and leadership. Mixed-method survey and research designs introduce qualitative indicators that help the resettlement team understand the meaning and processes that underlie the statistical indicators derived from quantitative household questionnaires.

VI.A. Review of Published Statistics

The starting point for socioeconomic design should be a review of published social reports and statistics relevant to the project area of influence. Although general and not necessarily entirely applicable to the specific context of the affected households, these can provide some preliminary characterization of the local population that needs to be sampled and prevailing socioeconomic conditions. Sources of information include the following:

- National statistical offices: providing, for example, census results and special study reports
- Local government and village-level statistics for population, education, health, agricultural production, and the like
- World Bank Living Standards Measurement Surveys database
- Demographic and health surveys
- World Food Program Comprehensive Food Security and Vulnerability Analysis
- Integrated Demographic Surveillance System
- Project ESIA reports, if these have been completed

The World Bank's Living Standards Measurement Study website is an invaluable resource, not only for detailed household socioeconomic survey data, but also for survey questionnaire modules that can be readily adapted for resettlement use.³¹

VI.B. Quantitative Surveys

The most common quantitative survey method utilized for resettlement data gathering is the household socioeconomic questionnaire (see example in [Appendix D. Example of a Livelihood Questionnaire](#)).

³¹ Find the World Bank's Living Standards Measurement Study at <https://www.worldbank.org/en/programs/lsms>.

Quantitative surveys are useful for obtaining empirical measures of household living standards and livelihoods before displacement. Where possible, survey indicators should be aligned with national census data or other statistical indices so the socioeconomic status of displaced groups can be correlated with regional or national measures. Surveys undertaken for the ESIA are not generally sufficiently focused or detailed enough for resettlement-planning purposes. But such surveys can be useful for informing the development of resettlement survey instruments and sampling design.

Terms of reference should be developed for the consultant or institution that undertakes the household socioeconomic survey. The terms of reference should cover the following steps:

- Design of the survey instrument (and encoding for data entry)
- Sampling design
- Training of the survey team
- Pilot testing and refinement of the survey instrument and sampling protocols
- Survey implementation
- Data encoding and entry into a database
- Data cleaning and quality review
- Data analysis
- Report preparation

There are many innovations that can facilitate the conduct of socioeconomic studies. Box 4.7 describes the benefits of using electronics tablets for surveys.

The pilot test is a critical step to refine and finalize the questionnaire, but pilot test results should be discarded. The pilot should be conducted by the core team that will implement the actual survey, and the team should conduct the following:

- Check that the sampling method (and protocol for selecting replacements where a household is not available or cannot be interviewed for other reasons) works in the field.
- Verify that questions are straightforward, unambiguous, and meaningful to a diverse sample of interviewers and respondents—and that they are correctly translated and in appropriate languages.
- Confirm that technical terms and units of measurement are familiar to enumerators and respondents.
- Check the duration of interviews.
- Check the consistency of understanding questions and recording among the enumerators and respondents.
- Test and refine encoding (or software and data management systems, where tablets are used).

Box 4.7. Benefits of Tablet-Based Electronic Survey and Data Entry

Increasingly, electronic tablets are being used for carrying out household surveys in developing countries. Tablets can be programmed with survey questions and enumerator instructions and can incorporate consistency and completeness checks to ensure that the enumerator satisfactorily completes each questionnaire.

The major benefit of tablet-based interviews is that they eliminate the need for data encoding and entry—a time-consuming process and significant source of errors. Other benefits of tablets include the following:

- Lower cost per completed survey (eliminating time spent in encoding and data entry)
- Reduced survey and data-processing time
- Elimination of data entry errors
- Incorporation of consistency and completeness checks
- Ability to capture photos and GPS coordinates

Potential disadvantages include the following:

- The need of a power source for overnight recharging
- The lack of a paper record, and so no back-up if a technical malfunction occurs—surveys that have not been uploaded to a central server will need to be repeated

The socioeconomic survey instrument should be designed by experienced social specialists familiar with (i) conducting resettlement surveys to meet international standards and (ii) the living conditions and livelihood systems of the displaced population. Ideally, the design should be done by a specialist experienced with international standards and a local specialist working as a team.

The survey design should cover all affected groups. Household questionnaires should have in place clear procedures for recording absentee households and those that decline to participate.

For resettlement- and livelihood-planning purposes, the quantitative survey should encompass the broad topics summarized in table 4.4.

The household socioeconomic survey should take no longer than 1 to 1.5 hours to administer. While people's tolerance to being interviewed varies between countries and settings, surveys longer than this can lead to diminished attention and responsiveness. Also, longer surveys may represent a significant opportunity cost in terms of household members' productive time and add significantly to the cost of undertaking the survey. Ensure that the focus of the survey is on obtaining information pertinent to land acquisition and resettlement and avoid collecting other social information that may be of general interest but of no relevance. Too much irrelevant information can lead to distraction, confusion, and “analysis paralysis.”

Table 4.4. Checklist of Household Data Requirements for Resettlement Questionnaire (rural setting)

TOPIC	PARAMETERS
Household identification (correlate with census data)	Household ID, name and gender identity of household head, address/location details, identification number, contact details
Household members and demographic characteristics (if not captured in the census)	Age, gender, ethnicity, religion, languages, relationship to the household head, educational attainment, occupation of each household member
Dwelling	House tenure status, rental amount, area, number of rooms, construction materials, level of finishes (these can be captured in the asset survey as well)
Household access to land (for all household members)	Summary of household land area, types, and locations; distance of agricultural parcels from current residence; tenure or basis for use; land disaggregated into project-affected and not affected; use of land in the previous year or growing season (It is important to capture household land located outside of the affected area to ensure that households can still access it after resettlement.)
Trees and perennial and annual crops	Perennial and annual crops planted in the past year, inputs, self-consumed production, production sold
Household ownership of livestock	Number and types of livestock, use, by-products
Self-employment	Nature of business, months of operation, gross income, principle business expenditures, number of employees, average monthly income, fixed buildings, plant and equipment
Household assets	Ownership of assets and household items such as TVs, computers, electrical appliances (to be adapted depending on the local context)
Economic activities of the household	All productive activities for cash and subsistence, use of natural resources and common property, seasonal activities, secondary processing, crop storage, barter and exchange, use of markets and middlemen
Household income	Household annual income range, household income sources (all members)

(Table continued on next page)

Table 4.4. (Continued)

TOPIC	PARAMETERS
Household consumption and expenditure	Household self-consumed production and expenditure on food and nonfood items (sex disaggregated)
Savings, indebtedness, and access to credit	Household savings and savings vehicles, household loans and debts, sources of credit used by household members, purpose of loans, household total indebtedness
Food security and nutrition	Months in the past year household has experienced insufficient food, reasons for insufficient food, coping strategies during periods of food hardship
Health	Visits to health care provider in prior four weeks, type of health care provider, type of illness or injury, selected questions on women’s and young children’s health, household expenditure on health care in previous weeks
Natural resource use	Household’s use of natural resources (including foraging, fishing, hunting, grazing)—list of seasonal activities, locations, products gathered for self-use and sale, member’s time spent in foraging and other resource-based activities (ensure that women’s natural resource use is included)
Access to infrastructure	Water (sources of water, quality, amounts paid), energy (cooking fuel, lighting, heating), sanitation (type of toilet, disposal system, costs), rubbish disposal, and time spent in gathering water, fuelwood, and so forth
Access to social services and social networks	Childcare, primary school and secondary school, markets, public transport, health clinic, hospital—travel times, quality of service
Outside assistance and trusted groups	Household members’ participation in outside groups and development programs, outside assistance received, groups or individuals turned to for advice or assistance
Household’s self-assessment of household welfare	Household’s own assessment as to whether household is very rich/ rich/comfortable/can manage to get by/never quite have enough/ poor/destitute; levels of satisfaction with health, financial situation, housing, access to health care, access to education, and law and order—can be complemented by questions on the same topic to other members of the household

(Table continued on next page)

Table 4.4. (Continued)

TOPIC	PARAMETERS
Recent shocks to household welfare	Shocks to household welfare over past five years and impact on household income or assets
Attitudes and preferences for resettlement	Preferences for self-relocation or project-directed resettlement, criteria for replacement site selection, any preferred locations for housing and/or farmland, other livelihood preferences
Attitudes toward the project	Anticipated benefits and concerns—assess status of project’s social license to operate (see: Module 3. Stakeholder Engagement)
Skills available in the household	Available skills that could be mobilized for project direct or indirect employment in the project (can also be collected in the livelihood surveys, see section VII.H. Skills Base of this module)

It is common practice in socioeconomic surveys to select the head of household, in most cases a man, to answer the questions for the household. The practice introduces a degree of bias as it is unlikely that the male spouse is able to answer questions accurately about the female spouse’s income-generating activities, nor her concerns about and expectations for the project. With increased gender sensitivity, enumerators can and should include questions for the female spouse to answer to increase the accuracy of the surveys.

Household questionnaires are not generally suitable for gathering reliable information about tree or crop yields. Such information is time consuming to record within a household questionnaire format, and unless the enumerator has agricultural training and can probe in-depth, it is likely to result in data of dubious reliability. Refer to section [VII.A. Agricultural and Livestock Production Baseline Data Collection](#) of this module for recommendations on gathering agricultural data.

VI.C. Qualitative Research

Qualitative research techniques are useful for understanding in greater depth the relationships, networks, actors, and processes that contribute to community standards of living. It can be purposive, targeted to reach affected population subgroups and resource persons. Interviews are typically carried out by a skilled social researcher or community development specialist rather than a quantitative survey enumerator. Commonly, the researcher will seek to gather

views from multiple sources with differing perspectives to cross-verify and broaden understanding of issues. Women’s knowledge and views are typically underrepresented in baseline studies. Qualitative research approaches provide an effective way to bridge the gap. The following are typical uses of qualitative techniques in a resettlement context:

- Understanding gender and power relations among displaced communities, local government, traditional leaders, and other authority figures
- Targeting specific groups (e.g., vulnerable households, women or absentee landowners, youth, or elders) that may be too small or difficult to address through socioeconomic surveys
- Collecting information on sensitive topics (e.g., domestic violence, drug and alcohol abuse, sanitary practices, illegal business activities) or interviewing difficult-to-access groups (e.g., sex workers, artisanal miners, people engaged in poaching or illegal activities, and other marginalized groups)
- Eliciting information from indigenous groups or other specialist resource users whose subsistence activities may not be readily captured through standard socioeconomic quantitative questionnaires, or whose participation in surveys may be limited by marginalization from mainstream communities, language, or cultural factors
- Developing a deeper understanding of a household’s daily and seasonal calendar of economic activities, the different roles of household members, and critical links with resources, suppliers, and markets
- Developing an understanding of nonmonetary, subsistence activities and common property use that may involve nonmonetary benefits or values that are difficult to capture in a socioeconomic questionnaire
- Exploring perceptions, attitudes, and concerns of affected and host communities
- Exploring areas of potential conflict or tension within groups to be displaced or with outsiders
- Understanding household or community responses to change or hardship, the strategies they use, the risks of increased domestic violence, and social safety nets available to them
- Engaging with communities such as indigenous groups who might have a preference for group discussion or communal decision-making

PA techniques are highly applicable for initial livelihood investigation, particularly for defining agricultural and common property resource use. These include participatory community and resource mapping, transect walks, development of seasonal calendars, and group activities to prioritize the importance of various sources of livelihood or other needs.

Techniques to be used for socioeconomic studies should be determined by a social specialist that understands the strengths and weaknesses of each approach. (See [Module 3. Stakeholder Engagement](#) for more information on PA techniques, particularly section [IV.H. Participatory Appraisal Techniques](#)) Common qualitative research techniques include the following:

- *Community and resource mapping.* Participants are given paper and drawing materials to enable them as groups or individually to prepare maps of their community and resources. In a resettlement context, three types of maps maybe useful: (i) maps showing the organization of a village or community (as a tool for understanding key social and functional relationships for replacement settlement planning), (ii) maps showing the spatial pattern and organization of livelihood resources (e.g., agricultural lands and common property resources), and (iii) maps indicating sacred sites and cultural heritage. Mapping is important both as a process tool for fostering participation and communication and for generating discussion about existing and future priorities.
- *Interviews with resource persons (often called “key informant interviews”).* One-on-one interviews are conducted with individuals selected for their knowledge, experience, or insight into a particular topic. Interviews are semistructured and typically based around an interview guide that lists topics or questions to be covered.
- *Transect walk.* This information-gathering technique involves a skilled researcher taking a two- to three-hour walk through a community with community or interest group representatives for direct observation, community interaction, and diagramming of key activities and land uses.
- *Focus group discussions.* Eight to 10 participants, selected based on background or particular characteristics, participate in a guided discussion. A facilitator typically uses a set of questions or probes to focus the discussion on topics of interest. Sessions may be recorded, and transcripts prepared for detailed analysis. Recorders other than the facilitator may note comments and make observations on the behavior of the participants. Single-sexed groups or groups defined by age can be useful if some of the topics that need to be discussed are sensitive or are likely to yield different responses.
- *Case studies.* A researcher may use a combination of interviews, discussions, and direct observation to develop a multidimensional profile of a household’s or group’s livelihood activities, adaptive strategies, economic networks, use of social services, and the like.
- *Household, gender, or enterprise diaries.* Either a researcher (or the household, individual, or enterprise) maintains a daily diary on subjects of interest. This could be daily income and expenditure of a household or enterprise, a family’s agricultural and livelihood activities, or fishing or

hunting activities. This technique can be particularly useful for gathering information about natural resource-reliant families or a community's livelihood activities and range.

- *Group interview.* This involves asking a series of questions and facilitating discussion in a meeting open to all community members. The interviewer may follow a structured or semistructured set of questions.
- *Direct observation.* This entails a detailed observation form to record what is seen and heard at a program site. The information may be about past land acquisition and resettlement, ongoing activities, processes, discussions, social interactions, and observable results.

Some do's and don'ts for socioeconomic research and surveys are summarized in table 4.5.

Table 4.5. The Do's and Don'ts of Socioeconomic Research and Surveys

DO'S	DON'TS
<p>Use mixed methods research and survey designs.</p> <p>Use qualitative methods to obtain complex information, such as details on traditional land tenure arrangements, calendars, or respective responsibilities and roles in households of men and women.</p> <p>Use local language speakers to facilitate discussions and participatory involvement.</p> <p>Consider engaging a statistician for a sampling design and to help analyze results for larger and more complex projects.</p> <p>Disaggregate all quantitative data by sex and apply a gender analysis to the data.</p> <p>Use gender-sensitive qualitative methods (such as separate focus groups).</p> <p>Design surveys consistent with monitoring indicators.</p> <p>Aim for 100 percent coverage of households in socioeconomic quantitative surveys while recognizing that it may be impossible to achieve a 100 percent monitoring survey of the same households due to deaths, absences, or lack of interest in participating.</p>	<p>Force vulnerable groups to discuss issues that could place them at risk of harm.</p> <p>Draw conclusions from quantitative data unless differences are statistically significant.</p> <p>Use parametric data analysis methods when data are not normally distributed.</p> <p>Rely on information gained from qualitative research without cross-checking and triangulating information.</p>

VII. Livelihood Baseline Research and Surveys

Improving (or at least restoring) livelihoods in accordance with PS5 requirements is the most challenging aspect of any resettlement program. A key starting point for livelihood planning is a comprehensive understanding of affected households' pre-resettlement livelihoods and the suite of resources that households rely on to achieve them. For rural livelihoods, particularly where there is significant subsistence production, it is important to fully account for production and income that may come from multiple ecosystems and niches.

Types of livelihood activities can typically be categorized as follows:

- Land-based
- Wage-based
- Enterprise-based
- Common property—and/or natural resources—based

Categorizing urban livelihoods can be relatively straightforward where the majority of those affected rely on businesses or wage-based employment, but it is much more complex where the affected persons are poor, informal dwellers. Such households may be reliant on multiple income sources, including scavenging, recycling, or providing services or transport in inner-city locations. In the latter case, there is strong interdependency between the dwelling location, population density, and access to sources of income and markets. Households may have little or no capacity to absorb the additional costs for housing, public transport, or energy that may result from a resettlement site situated away from their inner-city origins and sources of livelihood.

Livelihood specialists should be selected based on their familiarity and expertise with the livelihood systems of those affected. Where multiple specialists are used, it is important to coordinate and synthesize findings to understand the full range of income sources and resources utilized by households. Case studies are a useful technique for developing a holistic understanding of urban household livelihoods, the contributions of each member, the division of labor, and the daily activities of household members.

The objectives of livelihood baseline studies are to accomplish the following:

- Identify the sources of livelihood and resources used by all members of the displaced households.
- Describe systems of production, inputs, storage, and handling as well as the seasonal calendar of activities and division of household labor.
- Identify any secondary processing or value adding.³²

³² “Value addition” in agriculture refers to the process of adding value to a product (and increasing the return to the producer) by processing, packaging, or branding it so that it commands a higher price. Examples might be processing wheat into flour or taking fresh mangoes and drying and packaging them.

- Quantify production and calculate the value of self-consumed production, products bartered or exchanged, and products sold.
- Identify suppliers and buyers, value chains, and markets used by producers.

VII.A. Agricultural and Livestock Production Baseline Data Collection

An agricultural scientist, agronomist, and livestock specialist familiar with local agricultural and animal husbandry activities should be engaged to undertake livelihood baseline studies. The specialists should undertake field investigations using PA techniques, including observations, key informant and focus group discussions, and farmer case studies to collect baseline data on the following:

- Prevailing types of cropping and grazing land tenure (including customary land) and other arrangements, such as sharecropping
- Criteria used by local farmers to select cropping locations and land-use patterns
- Local soil and land capability conditions
- Typical household types of land use and total landholding, cultivated area, pastures, and/or rangeland
- Calendar of livelihood, agricultural, and animal husbandry activities
- Tree and crop varieties and cultivation techniques
- Level of inputs (hired labor, fertilizers, pesticides, etc.) and use of improved varieties
- Typical average yields (and best yields) achievable on the project site and in any proposed replacement agricultural areas
- Crop, pasture, and/or rangeland rotation and use of fallow land
- Gender roles and division of labor
- Amount of time invested in agricultural and animal husbandry activities versus other activities
- Agricultural risks and coping strategies: for example, drought; fire; insect infestations; theft; losses to pests such as insects, rodents, or baboons; low-input, low output, and low-risk agricultural practices; suitability for introducing high-input and high-output but high-risk agricultural practices as a potential mitigation measure; and so forth
- Methods of crop handling and storage
- Any secondary processing that occurs within the household or community
- Subsistence activities versus cash earning
- Livestock-raising practices and any limiting factors

- Modes of transportation (and costs)
- Markets where produce is sold
- Buyers of produce and pricing arrangements and extent of barter
- Use of common property resources (e.g., for grazing, fuelwood, gathering, fishing, and hunting)
- Participation in any cooperatives, farmer's organizations, and other networks for support
- Access to agricultural and livestock production expertise and extension services

Based on this gathered information, the team should do the following:

- Conduct a field validation and review of resettlement options and communities where displaced households and their activities might be accommodated.
- Recommend a rule-of-thumb farm area (based on land-use types plus fallow land) to provide for household food security—for use in identifying and planning replacement agricultural and grazing land needs.
- Coordinate with other livelihood specialists to develop an understanding of the relative importance of agriculture and livestock production relative to other livelihood activities for household subsistence, cash income, and nutrition.
- Summarize agricultural livelihood opportunities and constraints.

Part of the agricultural specialist's role should be to gather information about crop prices (e.g., at farm gate and local and regional markets at various times of the season) and input costs as the basis for developing compensation rates for tree and crop losses.

VII.B. Foraging Baseline Data Collection

Recent studies show that foraging activities can be significant in rural household incomes. This component of household income is often incompletely described in resettlement projects, leading to underestimation of household losses and significant undervaluation of project impacts on their livelihoods. Foraging activities can be diverse and, in some contexts, may require specialist expertise to help describe, quantify, and value them. For example, communities living adjacent to rainforests in Sumatra, Indonesia, have been found to collect many different kinds of NTFPs. Foraging baseline studies should differentiate the activities of men, women, and children. The surface area of each land-use type should be estimated and mapped.



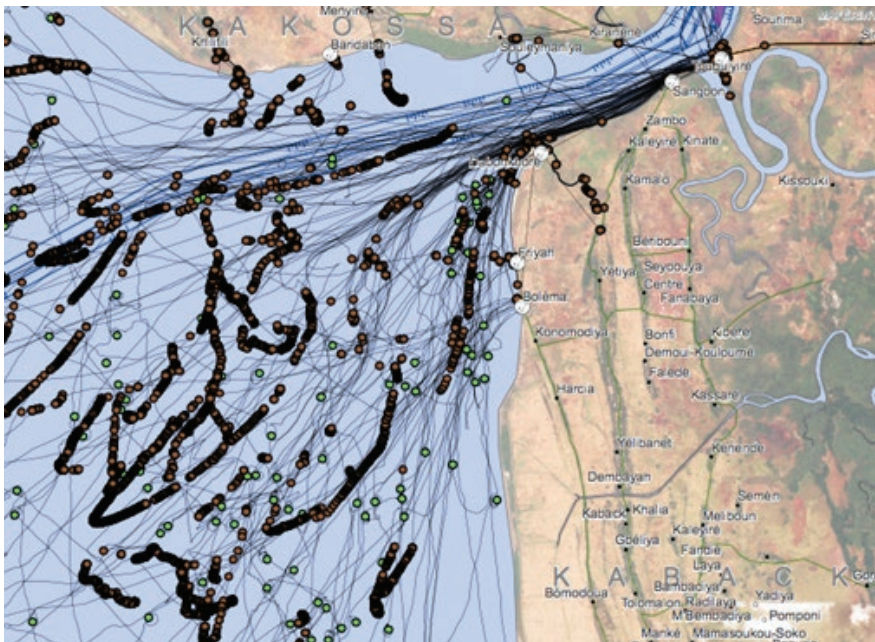
VII.C. Fishing and Gleaning

VII.C.i. Fishing

Fishery baseline studies are difficult to undertake, and artisanal fisheries expertise should be enlisted from the start. The right level of interaction between social and fisheries specialists is critical. The two key issues are (i) the identification of fishing grounds and (ii) the estimation of fish catches. Not all fisherpeople are eager to disclose to strangers where they fish and how much they catch, and when asked directly they tend to answer vaguely. Building trust and explaining the purpose of the surveys is critical to the success of the investigation and may require time. Fishing grounds should be mapped to the extent possible and their size estimated. One simple solution is to equip fishing boats with a GPS device to track boats' movements for a few days, paying attention to seasonality aspects (see map 4.1), subject to the fisherpeople fully understanding the purpose of the survey and consenting to the tracking exercise. Bias is not to be excluded and outcomes must be triangulated—for example, in focus groups, where preliminary results of GPS tracking can be discussed to check their validity and qualify the results. Recognize that the variety of fishing methods is hugely varied—from shoreline line fishing to large-scale, offshore boats.

Measuring fish catches by artisanal fisherpeople is generally done at the landing or port by weighing the catch of each boat. Assessment methods need to be discussed with specialists and the fisherpeople themselves.

Map 4.1. Results of GPS Tracking of Fishing Vessel Movements, Guinea





VII.C.ii. Intertidal or nearshore gleaning

A definition of intertidal gleaning is provided in box 4.8.

Intensity of gleaning activities and location can vary by tide, phases of the moon, weather conditions, and seasons. Absence of gleaners in the intertidal zone on any given day should not be assumed to indicate that gleaning is not an important economic activity.

For intertidal gleaning, the extent of any surveys should consider the likely area affected, duration of project impact, and availability of alternative intertidal gathering areas. For short duration impacts (e.g., the installation of a pipeline landfall), the area affected may be quite small. In such cases, coastal gatherers may be able to straightforwardly access alternative locations, so project activities may have a negligible impact. Other types of projects (e.g., port construction and liquefied natural gas terminals) may result in the permanent loss of access to intertidal gathering areas due to reclamation or engineering works, severing access paths, or the imposition of exclusion zones. In this case, the following should be undertaken:

- A census of regular users of the affected intertidal, near-shore area
- Interviews to learn about the collectors' place of origin map the locations they use for gathering, the frequency with which they use the project-affected area, the kinds of species collected and typical catch quantities and values, and how the catch is utilized or marketed
- Identification of any interdependencies (e.g., access paths, proximity to housing or transport, access to buyers or markets, safety and security)

Box 4.8. Intertidal Gleaning

Intertidal gleaning refers to the collection of intertidal marine resources by hand or hand tools in shallow water, not deeper than one can stand in. It is widely practiced by coastal communities, often by women and children. Gleaning can target a diverse range of shellfish, crustacea, worms, squid, octopus, rays, and fish for self-consumption, barter, giving away, or sale. Unlike other forms of fishing, gleaning can reliably deliver food and so can be important for family food security and as a safety net in times of shortage. Gleaning is sometimes undertaken to service specialty markets such as for sea cucumber, chitons, seaweed, or mother of pearl for the button industry. Gleaning can provide an important social networking opportunity for women, who can also pass on marine-based livelihood skills to their children.

Vii.C.iii. Associated activities

In developing countries, activities associated with fishing are often carried out by close relatives of the fisherpeople, particularly their wives and/or children. They include fish mongering and fish preserving, typically drying or smoking. These activities may be affected where fishing itself is affected, particularly near hydropower projects (HPPs) in freshwater and port projects in marine waters. It is therefore important that surveys of fishing activities extend to these associated activities to understand their baseline conditions and more generally the social and economic circumstances of the people involved, the importance of fishing-related activities in their overall livelihood streams, and the magnitude of impacts. Questionnaires used for fisherpeople may need to be tailored to the specifics of the activity, and focus groups with persons in these categories are a particularly powerful tool.

VII.D. Illicit Activities

A specific issue arises where a project affects illicit activities and the livelihoods that are derived from such. Typical examples include catching species banned from fishing or hunting (such as sturgeon in the Caspian Sea) or various extractive activities carried out in violation of local law (such as sand winning from beaches or river bottoms and subsurface mining by artisanal miners).

This raises several difficult issues:

- Surveying these activities may entail personal security risks for surveyors.
- Concerned individuals will obviously not be prepared to share information about an activity that is illegal and may lead to arrest and prosecution.
- Surveying this illegal activity may be perceived by various stakeholders, including local authorities, as a tacit recognition of its existence and its legitimacy.

Despite these issues, the impact from the cessation of illicit activities can be significant and result in impoverishment as a direct result of the project. As with fishing and fish processing, impacts to illegal activities can have broad and sometimes invisible impacts. For example, artisanal miners may hire women and children to crush rock in exchange for food or money.

Where such situations arise, integrating environmental and social considerations into an overall identification of risks and impacts for the project should enable project proponents to articulate the overall risks and benefits and inform possible ways forward in consultation with government authorities (Ministry of Agriculture, Ministry of Natural Resources or Fisheries, Ministry of Environment, as the case may be), local authorities, and NGOs or other organizations potentially involved in converting illicit livelihoods to alternate legitimate ones.

VII.E. Informal Businesses

Land acquisition can impact a variety of informal businesses—from charcoal or brick making to home-based stores to ambulatory food sellers. Most of these businesses do not keep formal bookkeeping records nor are they registered with the relevant government entities. Households may rely on a range of these small businesses without which they might become impoverished. Women are heavily represented in informal business activities, both as owners and as workers.

Socioeconomic surveys and interviews are critical to understand the importance of these businesses for the households, the interdependencies involved, how location dependent they are, and the type of incomes that they generate. Through these surveys, the project can determine the ease with which a particular business may be able to relocate (for example, an in-home neighborhood store), average income and projected income loss, approaches to mitigate impacts, and ways to enhance livelihood restoration.

VII.F. Formal Businesses

Formal businesses are typically registered with the relevant government entity and keep detailed income and expenditure records. However, surveys are needed to determine the best ways to mitigate impacts, identify relocation options, measure potential impacts, and determine ways to enhance livelihoods. Formal businesses can be highly location dependent, and their relocation can affect populations that are not relocated—day care centers, for example, or schools or a grocery store.

Construction of some projects, particularly linear projects (water pipelines, for example) can temporarily affect both formal and informal businesses. Surveys

are needed to determine the impact a temporary business closure may cause—the effect on a restaurant, for example, closing for three months or experiencing a reduction in customer traffic.

For both formal and informal businesses, surveys could cover the following information:

- Census of all businesses
- Description of business activities
- Review of bookkeeping records if available
- Categorization as formal or informal
- Daily/monthly income and expenses
- Number and type of employees (full time and part time)
- Supply chain and interdependencies

VII.G. Urban Livelihoods Data Collection

Poor, informal, inner-city dwellers often have livelihoods, childcare, and social safety nets that are closely tied to their location, membership in cohesive communities, and densities of living difficult to replicate in replacement settlement sites and housing designs. In such circumstances, care should be taken to unbundle all sources of a household's livelihood and support networks. Attention should be paid to interdependencies and distances between dwelling locations, livelihood activities, and markets.

Baseline data collection should also collect information about household recurrent expenditures and goods and services that may be available free (child minding, water, fuelwood, electricity, and transport). The viability of such livelihoods may be undermined by even minimal changes in household costs (e.g., for transport, water, or electricity and for changes to municipal rates and taxes) that result from relocation.

VII.H. Skills Base

Basic information about the skills available in each household should be gathered in view of potential project direct or indirect employment (see also [Module 5. VI.A. Access to Project Employment](#)).

VIII. Common Property and Natural Resource Use

Common property may include forests, woodlands, lakes, rivers, rangelands, pastures, hayfields, wetlands, coastal intertidal zones, and areas used for hunting, fishing, or foraging. Many subsistence-based communities are reliant on multiple ecosystems for deriving their livelihoods. Common property resources may contribute significantly to a household's subsistence production. Common property resources also provide a safety net for households in times of hardship, such as when crops fail or livestock perish because of droughts, inclement weather, or disease. Communities often take for granted their access to common property resources and do not comprehend their value until after they are lost to a project. Project proponents also often have difficulty understanding or appreciating the value of common property resources.

A common oversight in resettlement baseline studies is failing to fully account for the contribution of common property or natural resource use to households' livelihoods. This results in an incomplete understanding of those communities' livelihood basis and undervaluation of their losses. This can lead to later community dissatisfaction with compensation measures, ongoing opposition to the project, and a loss of social license to operate.

Where foraging or harvesting of NTFPs forms a significant part of household subsistence or income-earning activities, specialists with foraging or NTFP expertise should be involved in the survey process. Consider the following when determining baseline data needs for an assessment of natural resource use:

- Provide for multiple methods of valuing or determining the significance of the activity (estimating the value of produce from foraging).
- Estimate the average area of forest, woodland, or pasture utilized by a household (to provide a guide to what replacement area may need to be sought) and map where possible.
- Understand the significance of these resources for household diet and nutrition.
- Ascertain the proportion of time household members spend on foraging relative to other productive activities.

Under some circumstances, it may be prudent to also undertake an assessment of the condition and biological productivity of the supporting ecosystems. Community utilization is often not at sustainable levels, and the underlying systems can be overused and depleted, especially if there is an intensification of resource use as a result of resettlement or an influx of outsiders attracted by perceived opportunities associated with the project.

The baseline survey of common property and natural resources should delimit resources used by affected communities and their neighbors, so areas to be lost or subject to restrictions of access (whether temporary or permanent) can be readily mapped and identified. Some countries have statutorily defined processes for defining common property resources, but where these do not exist, a participatory mapping process that involves some or all of following steps is often effective:

- From oral accounts and drawing on knowledge of elders or other resource individuals, each affected community prepares a history of its occupation of its land and resource use area.
- Together, community members describe their community leadership structure and how rights to common property and resources are allocated, managed, and transferred.
- Each community maps the features of its territory that are culturally important, environmentally significant, and/or utilized for livelihoods, and these are subsequently ratified by community members.
- Community representatives walk and define the boundaries of their common property resource areas, and these are confirmed with neighboring communities.
- Where provided for by national legislation, the project can assist communities to formally register their common resources interests and area.

For each of these approaches, ensure that women and minority groups are included in the process.

Such community mapping should be facilitated by community development specialists that are experienced in PA processes and resource or village mapping. The project sponsor might provide a surveyor or GIS technician to map and record the boundaries and features described by each community.

Once existing common property and natural resources have been mapped and defined, there is an empirical basis for assessing communal impacts and losses caused by the project.

IX. Cultural Heritage

Where a project affects critical cultural heritage, or where cultural heritage impacts are significant, the project may need to prepare a Cultural Heritage Management Plan under PS8. The requirement for such a plan would be determined as part of the ESIA. Where cultural heritage impacts are relatively minor, or only of local significance, they may be addressed in the RAP. Such impacts are typically associated with the following:

- Objects, sites, or structures that have local archaeological, historical, cultural, and/or religious value
- Sacred sites (such as trees, groves, springs, hills, rocks, lakes, or waterfalls that embody local cultural, religious, or spiritual values)
- Graves and cemeteries

The RAP should describe all measures that will be undertaken by the project to avoid, protect, relocate (where possible), and minimize adverse impacts on tangible cultural heritage. Compensation and relocation will be considered where loss is unavoidable. Procedures should be in accordance with national laws and IFC PS8.

Typical steps to address impacts on cultural heritage sites may include the following:

- Reviewing ESIA cultural heritage findings and other relevant research findings
- Consulting with affected communities to identify cultural heritage and to obtain community views on how it should be managed
- Surveying, mapping, and categorizing tangible cultural heritage objects and sites
- Developing project strategies for managing tangible cultural heritage, including avoidance, protection in situ, and relocation, and where these are not feasible, compensation for loss of tangible cultural heritage
- Consultation and agreement with communities, customary owners, custodians, or next of kin on measures to manage cultural heritage
- Obtaining any necessary permits and approvals
- Signing agreements and paying any agreed compensation and supporting any ceremonies that may be required, for example, to relocate graves or to appease spirits or help relocating them where physical cultural heritage features are affected
- Carrying out relocations, exhumations, and reinterment with any agreed ceremonies (see also [Module 2. VIII.J. Graves and Graveyards](#))

Relocation of graves and cemeteries is a common resettlement activity. Reference should be made to any national laws pertaining to grave relocation and to any local government or municipal regulations. Good practice procedures for grave relocation entail many of the same steps as resettling the living: surveys, mapping, identifying next of kin, consultation, reaching agreement, and carrying out the relocation. Grave relocation planning should be undertaken with appropriate specialist input (e.g., from an anthropologist, local religious leaders, or an undertaker, depending on the circumstances) to determine appropriate social, cultural, and religious requirements. The work should be done by a trusted local undertaker or company specializing in the exhumation, handling, and reinterment of human remains.

X. Indigenous Groups

It is usual for indigenous groups to own land communally and to make decisions as a group. When projects may involve impacts on lands or to natural resources that are subject to traditional ownership or customary use by indigenous peoples, and particularly where such people do not have legal title to their land, it is necessary to have an indigenous people's specialist work with the indigenous community to describe and document the indigenous people's use of lands and resources (including seasonal or cyclical use) for livelihoods and cultural, ceremonial, and spiritual purposes (see PS7). The previously described, qualitative methods are effective in this situation. Sufficient time should be allowed for such baseline research. This could range from a few months to more than one year, depending on the magnitude of impacts.

XI. Data Management

For any project, the sponsor should establish and maintain a robust data management system. This serves multiple business functions:

- Maintaining records, legal agreements, and evidence of compensation payments
- Providing a basis for responding to complaints or legal challenges
- Providing evidence of compliance with national standards to satisfy regulators and permitting conditions
- Providing evidence of compliance with lender standards to support project financing applications
- Facilitating preparation of regular reports to project management, regulators, lenders, and other stakeholders
- Ensuring baseline data are stored for application in monitoring

Resettlement-related records may include some or all the following:

- Maps, aerial photography, and satellite imagery
- Land titles, certificates, and cadastral information
- Census records
- Socioeconomic survey and monitoring results
- Land and assets register
- Resettlement and compensation agreements (household, community)
- Compensation payments and receipts
- Minutes of meetings, engagement activities, and consultations
- Monitoring and evaluation reports

- Tracking of standards compliance reviews and resultant corrective actions
- Complaints and grievances (including tracking)

The data management system should be established early so that census, socioeconomic survey, and land and asset survey information can be systematically stored. It is also important that records of all resettlement-related consultations, meetings, and agreed follow-up actions and commitments be collated from the commencement of the resettlement. These will be needed to demonstrate that the project has followed a robust consultation process. Such records are difficult to compile accurately long after the event.

It is important to determine the type of data management software needed for resettlement planning and implementation. A simple Microsoft Excel- or Microsoft Access-based system may be adequate. More sophisticated proprietary software systems are also available. Limitations imposed by internet bandwidth at project sites should be considered when selecting an appropriate system.

Resettlement projects involve handling and disbursing of cash for compensation. There are many potential avenues for theft or fraud. The data management system, especially elements related to land and asset inventories, compensation calculation and agreements, and payments, should be secure and provide for controlled levels of access.

Large resettlement projects, particularly linear projects, may involve hundreds or even thousands of compensation and resettlement agreements. Such projects may warrant a dedicated legal or paralegal contract administrator to ensure that agreements are systematically registered and that commitments contained in such agreements are tracked and delivered promptly.

XII. Tools Needed for Data Acquisition: Remote Sensing, Aerial Photography, and Unmanned Aerial Vehicles

Satellite imagery, aerial photography, and imaging from UAVs (i.e., drones) can provide cost-effective and time-saving tools for resettlement data acquisition (see table 4.6). Satellite imagery can be straightforwardly ordered and purchased over the internet, with high resolution available for many locations. Satellite imagery is invaluable for initial site selection and routing studies at the scoping stage (see [Appendix A. Scoping-Stage Checklist](#)), for asset and livelihood surveys, and for making preliminary assessments of affected land use and dwellings at the baseline stage. It is also useful for local and regional monitoring.

Table 4.6. Tools for Remote Sensing

PLATFORM	CHARACTERISTICS	RESETTLEMENT APPLICATIONS
Satellite imagery	<p>The images are impeded by clouds (except for side-looking airborne radar).</p> <p>Data sets and imagery at varying resolutions are available on the internet.</p> <p>Regular overflights are ideal for monitoring.</p> <p>Resolution down to 0.5 meters is commercially available.</p>	<p>Scoping affected land uses and structures</p> <p>Understanding land-use history and landscape change (time-sequential images)</p> <p>Site selection and routing studies</p> <p>Creating base maps where cartography is not available</p> <p>Selecting replacement housing and agricultural sites</p> <p>Monitoring at local and regional scales (e.g., land-use change, landscape rehabilitation, in-migration and settlement patterns, cropping)</p>
Aerial photography	<p>This technique needs a cloud-free sky and high sun angles.</p> <p>It is useful for capturing large areas.</p> <p>Air photo resolution in the range of 25–150 millimeters is available.</p> <p>It can be augmented by light detection and ranging for digital terrain modeling.</p> <p>It can be augmented by infrared imaging to aid tree and crop identification.</p>	<p>Detailed resettlement surveying and planning</p> <p>Cost-effective development of accurate digital terrain modeling and site contours (with or without light detection and ranging)</p> <p>Creating base maps for field work and consultations via high-definition orthophotos (1:2,500 or 1:5,000)</p> <p>Facilitating cadastral survey and boundary mapping</p> <p>Creating the basis for rapid land, tree, crop, and asset inventories</p>

(Table continued on next page)

Table 4.6. (Continued)

PLATFORM	CHARACTERISTICS	RESETTLEMENT APPLICATIONS
Unmanned aerial vehicles	<p>UAVs operate below clouds.</p> <p>They are cost-effective for small areas (smaller than 1,000 hectares) and for frequent monitoring.</p> <p>They provide a quick turnaround for analysis and results.</p> <p>Because they are unmanned they provide safer operation than, for example, site walks.</p> <p>They can be stationed onsite.</p> <p>They are flexible and adaptable for a broad range of tasks and quick deployment.</p> <p>Their use presents the potential for skill and technology transfer to local communities.</p>	<p>Small area mapping</p> <p>Cadastral and property surveys in urban and rural settings</p> <p>Digital terrain modeling (contours)</p> <p>Vegetation mapping</p> <p>Land, tree, crop, and asset inventories</p> <p>Aerial surveys of fisherpeople and other natural resource users</p> <p>Replacement site assessment</p> <p>Monitoring of replacement agriculture (clearing, cultivation, crop establishment, yield estimates)</p> <p>Construction progress monitoring</p> <p>Monitoring of in-migration, speculative development, uncontrolled vegetation clearing, land-use change, and land rehabilitation</p> <p>Tool for managing community natural resources</p>

Aerial photography can provide higher resolution images than commercially available satellite imagery. It can be used for multiple purposes: (i) preparing draft land and asset inventories for verification on the ground; (ii) developing a digital terrain model and accurate contours for resettlement planning, project engineering, and replacement village site selection and engineering; and (iii) preparing orthophotos (1:2,500 or 1:5,000) that make ideal base maps for fieldwork and consultations.

Costs of satellite imagery and aerial photography have steadily declined. Data from both platforms can be secured in digital form and can be readily used in GIS. Data from the two platforms is complementary.

UAVs are an emerging platform for resettlement data acquisition and monitoring. They are relatively low cost and allow for rapid deployment and availability of results. UAVs have potential for site and route selection, replacement site assessments, land and asset inventories, snapshot of areas as of the cutoff date, and monitoring. Innovations include training communities to operate UAVs both for their own natural resource management and potentially to provide commercial services to projects. Ensure that communities are informed prior to any flyovers to mitigate any concerns they may have.

XIII. Protecting the Privacy and Confidentiality of Resettlement Data

Resettlement research and surveys collect information that is private and sensitive. Resettlement teams must be aware of applicable laws and standards governing the privacy and confidentiality of personal data in the country where they are working. Team members should declare any potential conflicts of interest and be required to recuse themselves accordingly. Information collected should not be shared with third parties unless required by law or specifically authorized by the respondents. All information must be held in confidence, secured safely, and destroyed when no longer needed. If data privacy laws are weak or absent, the project sponsor should consider developing its own privacy and confidentiality policy and procedures that cover matters, such as the following:

- Explaining to respondents the purpose of the data collection and the measures that will be taken to protect the confidentiality of data provided
- Obtaining informed consent of individuals or households prior to their participation in any data collection activities
- Ensuring information collected is adequate, relevant, and not excessive for resettlement purposes
- Encoding or encrypting respondents' names so their identities are protected
- Sharing information in the project team on a need-to-know basis only

XIV. Do's and Don'ts of Baseline Data Collection

Table 4.7 summarizes some key takeaways with respect to baseline data collection.

Table 4.7. The Do's and Don'ts of Baseline Data Collection

DO'S	DON'TS
<p>Where feasible, align PS5 data needs and collection with other ESIA data needs, especially those relating to vulnerable people and groups (PS1), ecosystem provisioning services (PS6), indigenous peoples (PS7), and cultural heritage (PS8).</p> <p>Ensure that census enumerators are trained to consistently and correctly apply such terms as <i>household</i>, <i>family</i>, <i>landowner</i>, <i>user</i>, and <i>occupant</i>.</p> <p>Disaggregate all quantitative data by sex and apply a gender analysis to the data.</p> <p>Ensure that women are fully integrated in all aspects of data gathering, both as enumerators and as respondents.</p> <p>Obtain aerial photography or satellite imagery that corresponds as closely as possible with the cutoff date to provide a snapshot of all structures, crops, and land improvements eligible for compensation, one that can identify speculative planting or construction after the cutoff date.</p> <p>Ensure eligible households have some form of unique identification (e.g., either a national identity card or a project-issued registration card) once census findings have been validated.</p> <p>Consider using fingerprint or retinal scanners to identify eligible parties to avoid confusion where names are spelled inconsistently or where many people or families have the same name. Be aware that emerging technology may prove useful, but it should be used with caution where people are not familiar with it and with due consideration for privacy implications.</p> <p>Agree with government (e.g., through an MoU), prior to commencement of a government-led land and asset survey process on a system for gathering and validating data, particularly if the project sponsor is to cover the cost of land acquisition and compensation.</p>	<p>Overlook seasonal or transient site users who may not be present at the time of census, such as herders, transhumance pastoralists, foragers, hunters, and fisherpeople.</p> <p>Overlook informal and illegal users and third-party users (tenants, sharecroppers).</p> <p>Overlook customary or traditional rights to land (which may, sometimes, conflict with statutory rights to land).</p> <p>Proceed with a census without a robust grievance management mechanism in place.</p> <p>Survey or measure land and assets of households or enterprises that are not affected by a project—the act of measurement creates expectations of compensation that can be difficult to manage.</p> <p>Overlook the need for independent governance checks and oversight as corruption, collusion, and fraudulent practices during land and asset surveys are common.</p> <p>Force vulnerable groups to discuss issues that could place them at risk of harm.</p> <p>Overlook the need to protect the privacy and confidentiality of personal and household information.</p>