## MODULE 4: BASELINE DATA COLLECTION

### I. BASELINE DATA COLLECTION OVERVIEW

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 prior to any resettlement intervention. It defines who is affected by a project and what losses they will experience in terms of land, assets, and livelihood opportunities. **Baseline** implies that the data will be used as a reference to define preregistration 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.

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

220. Baseline data is also used to describe project-affected households’ preregistration 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 provides 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 be used to 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 and Evaluation.”

221. 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.”

222. By convention, if the livelihood of one member of a household is affected by a project (for example, 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 production or income will be worse off due to any individual member’s livelihood loss.

223. Baseline data collection should be tailored to the scale and complexity of expected displacement impacts. A common mistake is to not spend enough time clearly defining a project’s baseline data needs, especially during the scoping stage (refer to module 1, “Scoping and Risk

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Assessment of Land Acquisition Impacts). This can result in 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.]

Box 4.1. Checklist of Topics for Baseline Data Collection

- History of site occupation and land use
- Land tenure arrangements—statutory, customary, formal and informal, seasonal, third-party arrangements such as tenancy or share-cropping, and gender aspects of land tenure
- Demographic characteristics: census, socioeconomic circumstances, local livelihoods and occupations
- Total number of physically and economically displaced people
- Inventory of all land and other assets that will be lost/altered due to the project
- Land valuation data
- Local and regional market price data for crops
- Household composition and characteristics
- Household health and nutrition
- Household land and ownership of assets
- 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
- Household access to and use of services (for example, schooling, health care, markets, and public transport)
- Access to infrastructure (for example, 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
- Cultural property
- Displaced people's aspirations, preferences, and concerns about resettlement
- Attitudes and preferences for relocation and livelihood restoration
II. THE IMPORTANCE OF BASELINE DATA COLLECTION

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

224. Reasons to undertake baseline data collection include the following:

- To identify who will be displaced and, subject to verification, who will be eligible for compensation and resettlement assistance.
- To identify households that may be particularly vulnerable during the resettlement process and any other subgroups that may be differentially impacted and need targeted assistance.
- To provide an in-depth understanding of community organization and leadership and specific issues such as poverty, livelihood systems, community leadership, and organization.
- To develop an inventory of losses (rights to land, assets, access to resources, and so on) that households, enterprises, and communities will experience because of the project, as the basis for valuation and calculation of compensation.
- To record preproject livelihood resources, division of labor, production systems, and yields as the basis for designing measures to restore and improve livelihoods.
- To 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 improve living standards and livelihoods.
- To provide the starting point for predicting resettlement impacts, designing mitigations, and monitoring their effectiveness.
- To identify preliminary preferences of displaced people in terms of forms of compensation.

III. HOW TO COLLECT BASELINE DATA

225. For resettlement purposes, baseline data collection is typically divided into the following activities (see figure 4.1):

- Census (see section IV., “The Census” of this module)
- Land and asset survey (see section V., “The Land and Assets Survey” of this module)
- Socioeconomic surveys (qualitative and quantitative) (see section VI., “Socioeconomic Surveys” of this module)
- Livelihood baseline studies (see section VII., “Livelihood Baseline Surveys” of this module)

226. The purpose and objectives of each of these activities are summarized in table 4.1.
# Table 4.1. Purpose and Objectives of Data Collection Activities

<table>
<thead>
<tr>
<th>Data collection activity</th>
<th>Purpose</th>
<th>Scope</th>
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<tbody>
<tr>
<td><strong>Census</strong></td>
<td>The census defines who is affected and who is entitled to receive compensation and resettlement assistance. The census covers all households who reside within the project footprint or own or use assets (land, structures, crops, others) located within the footprint, as well as enterprises in the footprint. The census covers affected persons regardless of their legal rights (informal users as well as legal owners).</td>
<td>Identifies and records the people, households, and enterprises that will be physically or economically displaced by the project. Records owners and all employees (full and part time) of potentially displaced enterprises. Defines who will be eligible for various forms of compensation and resettlement assistance. Registers households and individuals that are potentially vulnerable. Defines the population (sample) that will be subject to household socioeconomic surveys.</td>
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<tr>
<td><strong>Land and assets survey</strong></td>
<td>The land and assets survey defines what will be lost (land, assets, and access to resources) and provides the basis for valuation of losses and determination of compensation. The survey covers the land and assets of all affected persons, households, and enterprises. The survey should also cover community land, assets, cultural property, ecosystem services, and natural resources that will be lost to the project.</td>
<td>Identifies displaced landowners, occupants, and users and verifies their tenurial status. Surveys and establishes the boundaries of each affected landholder’s land plots. Surveys, measures, counts, and records the land and assets that each household, enterprise, or community will lose due to the project. Collects and records all parameters needed for the valuation of land and assets. Identifies and delimits common property and natural resources that may be lost or subject to restrictions of access. Maps cultural property including sacred sites that will be displaced or subject to restrictions of access and identifies owners or custodians.</td>
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<tr>
<td><strong>Socioeconomic surveys</strong></td>
<td>Socioeconomic surveys are used to define displaced people’s preproject living standards, livelihood resources and income levels. Quantitative household surveys should cover a random sample of the displaced population, ideally with defined confidence interval and limits.</td>
<td>Provides an understanding of displaced households’ preproject living standards, livelihood resources, social networks, and access to services and infrastructure. Gathers preliminary information about household preferences for relocation and livelihood restoration.</td>
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<tr>
<td>Data collection activity</td>
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<tr>
<td>Qualitative surveys</td>
<td>purposively sample key subgroups including vulnerable or marginalized groups, farmers, fisherpeople, and business groups and be tailored to local circumstances and project impacts.</td>
<td>Establishes a baseline for future monitoring of impacts and progress toward living standards and livelihood restoration.</td>
</tr>
<tr>
<td>Livelihood baseline studies</td>
<td>Livelihood baseline studies define project-affected persons’ livelihood resources, systems of production, current yields, and levels of production. The extent and scope of livelihood surveys should be tailored to address the specific circumstances of the project-affected population. (For example, if livelihoods include fishing, surveys of fisheries will be necessary.)</td>
<td>Assesses household livelihood resources and division of labor. Documents daily and seasonal calendars of activities of household members. Assesses crop types and varieties, cultivation techniques, yields, opportunities, and challenges. Assesses land requirements for rotation, fallow, and grazing of livestock. Identifies ecosystems and natural resources on which displaced communities are reliant and determines their importance for livelihoods. Assesses value chains—secondary processing, arrangements for barter or sale and downstream parties that may be impacted by loss of supply. Establishes locational interdependencies among dwellings, agricultural land, occupations, enterprises, and markets (particularly for urban resettlement).</td>
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227. 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 have the opportunity to 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.
Figure 4.1. Overview of Data Collection Steps

A. Coordination with ESIA

228. Where possible, baseline data gathering for resettlement should be coordinated with ESIA data collection (PS1 on Assessment and Management of Environmental and Social Risks) and with activities directed at identifying “biodiversity of significant social, economic, and cultural importance to local communities” (PS6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources). As mentioned in module 1, (see section IV.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 is 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 gathered from the wider project area of influence, which is often used in project ESIA.
IV. THE CENSUS

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.

229. The purpose of the census is to:

- Identify and record the people, households, and enterprises that are 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)

230. The census is tied to a cut-off date, usually the date when the census is completed (see also module 2.IV.B., “Cut-Off Date”). The census establishes a list of the people and enterprises present in the project area at the cut-off 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 area after the cut-off date and claims by local households for new structures built or crops planted after the cut-off date box 4.2).

Box 4.2. The Critical Function of the Cut-Off Date

**Purpose of the Cut-Off Date**

The purpose of the cut-off date is to prevent speculative land allocation, new settlement, and establishment of fixed assets within the project area once the census and asset survey have been completed. Persons occupying the project area after the cut-off date are not eligible for compensation and/or resettlement assistance. Fixed assets (for example, structures, crops, and trees) established after the cut-off date will not be compensated. Often, the completion date of the census and land and asset survey of project-affected persons is adopted as the cut-off date. The cut-off date is not intended to prevent the registration of individuals or groups who have legitimate claims to land, assets, or use of natural resources in the project area, including who might be absent when the cut-off date is declared. Such groups may include:

- Absentee families or family members who may be engaged in seasonal or migrant labor elsewhere in-country or internationally
- Seasonal users such as transhumance pastoralists, herders, hunters and trappers, foragers, and fisherpeople
- People separated from their land and assets due to conflict (IDPs or refugees)
- Other absentees such as those in military service, in hospital, in prison, or studying elsewhere

**Where Statutory Cut-Off Date Provisions Exist**

Where possible, the preference is that a cut-off date be defined as part of land-acquisition, compensation, or resettlement statutory procedures. The date can then be legally enforced. Often, regulations do not refer specifically to a cut-off date per se but define other milestones that can serve a similar purpose (for example, closing date for registering as “affected” or date of declaration
of a moratorium on new development). In such cases, the project sponsor’s role is to widely publicize the cut-off within the project area to ensure that local people (project affected and others) understand its significance (refer to module 3, “Stakeholder Engagement”).

Where There Is No Statutory Provision for a Cut-Off Date

Where there is no statutory provision for establishing a cut-off date, the project sponsor should consider some of the following measures:

• Seek to refer to a cut-off date procedure in project-government agreements (such as host government or production-sharing agreements, concession agreements, or land-grant agreements).

• Request the government to impose a moratorium on new land allocation and development over the project footprint—there is sometimes provision for this in land-use planning legislation.

• Seek the cooperation of local government to prevent encroachment or new development in the project footprint—consider formalizing this in a joint project-government encroachment management plan or memorandum of understanding.

• Raise awareness among local communities and their leadership about the risks of allowing encroachment and an influx of outsiders and seek their cooperation in managing these risks.

Partnership with the government and local leaders may lend some authority to measures to prevent encroachment and speculative activity where statutory provisions do not exist.

Challenges and Risks

Upon announcement of the cut-off date, there is a tendency for affected persons to suspend normal livelihood activities and expect immediate compensation. It is important that they be encouraged to continue these activities until compensation measures have been agreed and they have been given notice to stop project-affected livelihood activities.

Speculative construction and planting of crops solely for the purposes of obtaining compensation is always a risk—ideally the project sponsor should take both ground and aerial imagery that corresponds as closely to the cut-off date as possible as evidence of the fixed assets that were in ground when the cut-off was declared.

With or without a cut-off date, in-migration and encroachment on the project footprint are always a risk. The project sponsor should do the following:

• Take satellite or aerial photography, as noted, to correspond as closely to the cut-off date as possible as a record of eligible assets

• Develop and implement an encroachment and/or influx management plan

If there are protracted delays between cut-off date declaration and the start of resettlement implementation (two years as absolute maximum, sometimes less), it will be necessary to update the census and asset surveys to reflect changes that have occurred in the intervening period.

New household formation (as a result of marriages, separations, and divorces) naturally continue throughout the resettlement planning and implementation period. The resettlement team should have a clear policy on the entitlements of bona fide new households and might include provision of replacement housing in a follow-up stage.

The cut-off date may impose a significant restriction on project-affected persons’ right to enjoy and develop their property. It also represents a significant opportunity cost in terms of people being able to form new households, expand or improve their houses, start businesses, or develop new
231. The census involves a small team of trained enumerators visiting each household and recording basic information about household members, such as name, age, gender, occupations, and relation to the household head. Information should be gathered for project-affected businesses (see section IV.D., “Census of Enterprises” of this module). Below 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.
- 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.
- Dependent 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 account for seasonal users (for example, fisherpeople, herders, and pastoralists) who may reside well outside of the project area of influence.

232. To rapidly capture the affected population before there is any influx of outsiders, the census may be undertaken as a standalone 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.

B. Household Census

233. 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, together with age, gender, educational attainment and level of literacy, relation to the household head, and current 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, seasonal work, or the like
- Location of the dwelling (for example, address, GPS coordinates, or location within a predetermined grid)
- Self-reported tenurial status of the household (for example, owner, lessee, tenant, or informal dweller)
• Assessment of the vulnerability of the household or individuals living within that household (for example, very poor, elderly, physically or intellectually impaired, chronic illness, ethnic minority or otherwise socially marginalized, or poor—see box 4.3)

• Brief description of the dwelling (for example, 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

234. An example of a household census form is given in appendix B, "Example of a Census Form."

C. Using the Census to Identify Vulnerable Individuals and Households

235. For projects displacing large numbers of 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 4.3.

Box 4.3. Identifying Vulnerability for Resettlement Census Purposes

Identifying vulnerable individuals and households in a resettlement context is an iterative process. IFC PS1 identifies some generic criteria for vulnerability, but these only provide 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 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—involving 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.V.D., "Vulnerable Groups" for engagement with vulnerable groups).

Prior to designing baseline surveys:

• Conduct some interviews with resource persons and focus group discussions (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.

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

As part of the baseline census and surveys:

• Develop a simple checklist for census enumerators to assess household vulnerability in the field (for example, 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/desolate?) Be aware that such a self-assessment is subjective and either exaggerated or underestimated in an attempt 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.

**D. Census of Enterprises**

236. Project implementation can result in 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 of owner/s (and operators, if these differ)
- Type of business/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 together with details of their employment basis (full-time, part-time, casual) and typical earnings
- Locational requirements

237. Enumerators will need clear instruction about the types of evidence to be gathered to support estimates of enterprise income and expenditure. In the case of 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 (for example, national or regional small business studies or other resettlement projects).

238. To avoid double counting, clear rules need to be developed to address home-based businesses or shop-houses, 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.

**E. Census of Natural Resource Users**

239. In undertaking a census, resettlement practitioners must be aware that there are potentially natural resource users who reside outside of the project site but who rely on on-site ecosystems for
their livelihood. Such users may be active year round, or they may use the area seasonally. Examples of such users may include:

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

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

- Interview resource individuals to gain an understanding of the kinds 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.
- Approach user associations: for example, hunting or fishing associations and rubber tapper and medicinal plant collectives to get information about members.
- Conduct field observations and interviews to substantiate the quantity of resource being used. For example, enumerators could wait at fish-landing sites 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.

241. In some instances, natural resource users may be engaged in illegal activities and 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 as the result of impacts of a project development and can be persistent in their claims for support. These groups are project affected and should be recognized for census purposes. 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.
F. Third-Party Property Interests: Tenants, Renters, and Sharecroppers

242. In addition to households who 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 types of third-party arrangement. The full range of third-party arrangements in the project footprint should be identified as part of resettlement scoping (refer to module 1, “Scoping and Risk Assessment of Land Acquisition Impacts” and appendix A, “Scoping Stage Checklist”) and prior to the design of census proformas. See box 4.4.

Box 4.4. Census of Tenants in Guinea

In the Guinea Alumina Corporation (GAC) project in the Daprass 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). In addition, it was also identified 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 (for example, 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:

- 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, the shop structure and the shop operation 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 was therefore provided to two different individuals respectively.

G. Resources for Undertaking the Census

243. The census should be undertaken by a team of trained enumerators. This can be the same team that undertakes the socioeconomic survey or the land and asset surveys. Dependent 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.
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 accordingly. 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 pro-forma
- Photographing the household head, other household members present, as well as the household's principal fixed assets
- Taking GPS readings on the thresholds of the principal household buildings

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

245. Where accuracy of measurements is critical (dense urban settings), the use of differential GPS\(^\text{12}\) should be considered.

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

<table>
<thead>
<tr>
<th>Do’s</th>
<th>Don’ts</th>
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<tbody>
<tr>
<td>Align project census definitions (for example, 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. Ensure that census enumerators are trained to consistently apply terms correctly such as <em>household, family, landowner, user,</em> and <em>occupant.</em> Obtain aerial photography or satellite imagery that corresponds as closely as possible with the cut-off date—this can provide a snap shot of all structures, crops, and land improvements eligible for compensation and can be used to identify speculative planting or construction occurring after the cut-off date. Use GPS to record locations of dwellings and</td>
<td>Double count. 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. Overlook nonregistered users and third-party users (tenants, sharecroppers). Overlook the need to protect the privacy and confidentiality of personal and household information. Rely only on information about quantity of fish caught/resources harvested from utilizers of natural resources. Proceed with a census without a robust grievance management mechanism in place.</td>
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\(^\text{12}\) 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 $\pm 100$ mm compared to $\pm 5$ meters for standard GPS. Differential GPS is commonly used for topographic and engineering surveys.
businesses as part of the census. These can be correlated with up-to-date orthophotos or satellite imagery.

Ensure eligible households have some form of unique identification (for example, either a national identity card or a project-issued registration card), once census findings have been validated.

Consider using fingerprint or retinal scanners to identify eligible parties to avoid confusion where names are spelled inconsistently or where many people/families have the same name.

For linear projects, consider putting in place cut-off dates by section based on the project construction schedule (for example, one cut-off date for each section or construction phase) and/or by administrative boundaries (for example, one cut-off date for each district).

V. THE LAND AND ASSETS SURVEY

The land and assets survey 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.

246. The purpose of the land and assets survey is to define what will be lost (for example, land, assets, and access to resources) due to project land acquisition. This will be the basis for valuation of losses and determination of compensation. Other objectives and tasks of the land and asset survey 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 property that will be displaced and establishing its owners or custodians

247. As a precursor to any land and asset survey, 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 surveys and will revert to these unless they understand the rationale and requirements for any additional measures. Areas
where compliance with PS5 requirements are often more extensive than under national law include the following:

- Obligations related to providing information and engagement with affected households and host communities prior to embarking on land and asset surveys
- The need to widely publicize a cut-off 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

248. Land and asset surveys 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. Where land and asset surveys 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 surveys implemented by a government agency, with participation (and sign-off if possible) of company representatives
- Asset surveys implemented by a company (or a contractor appointed by the company), with government representatives participating and signing-off
- Asset surveys implemented by a third party (private contractor) based on a mutually agreeable scope of work, with government and company representatives signing-off on survey sheets

249. 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, timeframes and the roles and responsibilities of each party (refer to module 1.IV.J., “Scoping Field Visit and Review”).

250. Dependent on the scale of the project, some activities to be undertaken during the land and asset survey include the following:

**Presurvey**

- 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 over 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).
Box 4.5. Example of Urban Tenure Types in the Philippines

Urban land and property tenure can be complex. In Manila, 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 (for example, so-called backyard settlers)
- Own house, rent-free lot without consent of owner (for example, informal settlement on public land)
- Rent-free house and lot with consent of owners
- Rent-free house and lot without consent of owners

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

- Determine national legislative requirements for undertaking land surveys and measurement, valuation, compensation, and resettlement.
- Determine the respective roles of government and the project sponsor—and formalize this in an MoU, if needed.
- Agree with government 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.V.A., “Government”)
- Define the kinds of expertise needed to complete the land and assets survey, including any licensed professionals that might be required by law (for example, valuers, surveyors, and lawyers).
- Assemble a team with such licensed professionals as mandated under local legislation and other required expertise (for example, members with training in legal, resettlement, land surveying, valuation, forestry, agriculture, animal husbandry, building survey, and geographic information system (GIS) practices).
- Prepare communication activities as part of the overall Resettlement Stakeholder Engagement Plan (refer to module 3.VII., “Strategic Communications and Disclosure”) for the rollout of the land and assets survey, to include relevant levels of government, local leadership, and communities.
• 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 cadasters as well as village-level land allocation records.

• Conduct a visit to the project footprint to achieve the following:
  o Identify any existing survey monuments or markers and if necessary, place new ones to clearly delineate the project site
  o 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
  o Develop a typology of affected land and assets that will need to be measured and recorded as part of the land and assets inventory.
  o Identify the extent of any customary rights to land and any informal land occupation or usage.

• Develop a land and asset survey recording pro-forma (see appendix C, “Example of a Land and Asset Survey Form”). This should take into account the parameter and units that will be used for asset valuation and be in a form that will allow easy inputting into the database.

• Conduct training with the land and asset survey teams 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 survey 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 survey 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 survey.

**During survey**

• Conduct a meeting or meetings with project-affected persons to explain the land and asset survey purpose and process and avenues for making a complaint.

• Verify land parcel boundaries on the ground with affected owners, users, and 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 land holders in the field or refer them to the relevant statutory processes or RAP grievance management system as appropriate.

• 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), including the following:
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- 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 relevant 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 (for example, government representative, trusted village leader, or legal NGO) should sign an asset summary (see module 6.III., “Task 1: Defining Compensation and Resettlement Entitlements and Obtaining Sign-Off”).

**Postsurvey**

- Prepare summary tabulation of affected land and assets and share with affected household in the form of an asset summary (see example of such a summary in appendix E, “Example of an Asset Sheet”).
- Apply compensation rates (see module 2.VI.B., “Valuation and Compensation Rates”).
- Determine compensation budget (see module 2, sections VI.B., “Valuation and Compensation Rates” and VIII.B., “RAP/LRP Budget”).
- Prepare compensation agreements (household, enterprise, and community).
- Facilitate households to assemble documents, notarizations, and the like for the purposes of entering into compensation agreements.

251. Consideration should be given to 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.

252. 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 and other water sources, or other village infrastructure could variously be private, the 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 or replaced.
### Table 4.3. The Do’s and Don’ts of the Land and Assets Surveys

<table>
<thead>
<tr>
<th>Do’s</th>
<th>Don’ts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use low-level orthophotos(^{13}) where available as a time-saving tool to map land parcels and identify affected assets.</td>
<td>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.</td>
</tr>
<tr>
<td>Specify comprehensive aerial photography coverage (to anticipate potential replacement housing and agricultural sites, 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 cost of wider coverage is generally minimal compared to contracting additional aerial photography later).</td>
<td>Overlook customary or traditional rights to land (which may, in some cases, conflict with statutory rights to land).</td>
</tr>
<tr>
<td>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 always much easier to transact where rights have some kind of official recognition.</td>
<td>Overlook the need for independent governance checks and oversight—corruption, collusion, and fraudulent practices during land and asset surveys are common.</td>
</tr>
<tr>
<td>Place survey markings that clearly delimit the project land and makes it clear to occupants which land and assets are affected and which are not.</td>
<td></td>
</tr>
<tr>
<td>Take copious photographic and video records of property and structures that will be lost or may be potentially impacted by project construction works or vehicles. Very often disputes or claims for compensation can arise after a site or corridor has been cleared. In such cases, earlier air photos, ground photos, and videos can be invaluable for verifying preproject site conditions, trees, crops, and assets.</td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>Actively involve the property owner and users (house owner, landowner or user, crop owner) in the survey and 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.</td>
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</tr>
</tbody>
</table>

\(^{13}\)Orthophotograph: an aerial photograph or image that has been corrected ("orthorectified") such that the scale is uniform. Unlike an uncorrected aerial photograph, an orthophotograph can be used to measure true distances.
<table>
<thead>
<tr>
<th>measurement process.</th>
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<tbody>
<tr>
<td>Help landholders to regularize or otherwise certify their interests in land.</td>
</tr>
<tr>
<td>Involve specialists, particularly in measurement and valuation of land, productive trees, and timber species.</td>
</tr>
<tr>
<td>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 later disputes about numbers, quantities, or valuations. 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.</td>
</tr>
<tr>
<td>Use overlays on orthophotos, or GIS maps to show the spatial distribution of land and assets. This improves transparency and reduces risks of overlaps, double counting, or fraudulent over-counting of assets.</td>
</tr>
<tr>
<td>Have a record of the completed survey and inventory signed by the affected property owner or land-right user.</td>
</tr>
<tr>
<td>Have a trusted third-party witness and sign off on the survey and inventory field summary (for example, village officer or elder, district office representative).</td>
</tr>
<tr>
<td>Measure and record all assets that will be lost, including those that will be replaced in kind.</td>
</tr>
<tr>
<td>Agree with government (for example, through an MoU), prior to commencement of a government-led land and asset survey process, on a system for validation of data, particularly if the project sponsor is to cover the cost of land acquisition and compensation.</td>
</tr>
</tbody>
</table>
VI. SOCIOECONOMIC SURVEYS

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

253. 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 it 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.

254. Socioeconomic surveys designed for resettlement purposes should follow social research good practice. Survey designs should include a mix of quantitative methods (for example, household socioeconomic questionnaires) and qualitative methods (for example, PA techniques, including interviews with resource persons, focus group discussions, and case studies). See module 3, sections III.C., “Focus Groups” and III.H. “Participatory Appraisal (PA) Techniques”.

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

256. 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, and leadership. Mixed-method survey designs introduce qualitative indicators that help the resettlement team understand the meaning and processes that underlie the statistical indicators derived from quantitative household questionnaires.

A. Review of Published Statistics

257. 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 idea of the local population that needs to be sampled and prevailing socioeconomic conditions. Sources of information include the following:
• National statistical offices: 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

258. 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.

B. Quantitative Surveys

259. The most common quantitative survey method utilized for resettlement data gathering is the household socioeconomic questionnaire (see example in appendix D, “Example of a Simplified Livelihood Questionnaire”).

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

261. 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.
Box 4.6. 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. Benefits of tablets include the following:

- Lower cost per completed survey (eliminate 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 backup in the event of a technical malfunction—surveys that have not been uploaded to a central server will need to be repeated

262. 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 be responsible for implementing the actual survey, and it should be used to do 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 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 of questions and recording among the enumerators and respondents
- Test and refine encoding (or software and data management systems, where tablets are used).

263. 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 an international specialist and a local specialist working as a team. The census list of displaced persons should be used as the sample frame. The sampling design should cover all major affected groups. Household questionnaires should utilize random sampling with clear procedures for recording and replacing absentee households and those that decline to participate. Ideally, sampling of displaced households should be sufficient to provide a confidence level of 95 percent with a confidence interval of +/- 5 percent or better.

264. For resettlement- and livelihood-planning purposes, the quantitative survey should encompass the broad topics summarized in table 4.4.
Table 4.4. Checklist of Household Data Requirements for Resettlement Questionnaire (Rural Setting)

<table>
<thead>
<tr>
<th>Topic</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household identification (correlate with census data)</td>
<td>Household ID, name of household head, address/location details, identification number, contact details</td>
</tr>
<tr>
<td>Household members and demographic characteristics (if not captured in the census)</td>
<td>Age, gender, ethnicity, religion, languages, relationship to the household head, educational attainment, occupation of each household member</td>
</tr>
<tr>
<td>Dwelling</td>
<td>House tenure status, rental amount, area, number of rooms, construction materials, level of finishes. (These can be captured in the asset survey as well.)</td>
</tr>
<tr>
<td>Household access to land (for all household members)</td>
<td>Summary of household land area, types, and locations; tenure or basis for use; land disaggregated into project affected and not affected; use of land in the previous year or growing season</td>
</tr>
<tr>
<td>Trees and perennial and annual crops</td>
<td>Perennial and annual crops planted in the past year, inputs, self-consumed production, production sold</td>
</tr>
<tr>
<td>Household ownership of livestock</td>
<td>Number and types of livestock, use, by-products</td>
</tr>
<tr>
<td>Self-employment</td>
<td>Nature of business, months of operation, gross income, principal business expenditures, number of employees, average monthly income, fixed buildings, plant and equipment</td>
</tr>
<tr>
<td>Household assets</td>
<td>Ownership of assets and household items such as TVs, computers, electrical appliances (to be adapted depending on the local context)</td>
</tr>
<tr>
<td>Economic activities of the household</td>
<td>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 middle men</td>
</tr>
<tr>
<td>Household income</td>
<td>Household annual income range, household income sources (all members)</td>
</tr>
<tr>
<td>Household consumption and expenditure</td>
<td>Household self-consumed production and expenditure on food and nonfood items</td>
</tr>
<tr>
<td>Savings, indebtedness, and access to credit</td>
<td>Household savings and savings vehicles, household loans and debts, sources of credit used by household members, purpose of loans, household total indebtedness</td>
</tr>
<tr>
<td>Topic</td>
<td>Parameters</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Food security and nutrition</strong></td>
<td>Months in the past year household has experienced insufficient food, reasons for insufficient food, coping strategies during periods of food hardship</td>
</tr>
<tr>
<td><strong>Health</strong></td>
<td>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</td>
</tr>
<tr>
<td><strong>Natural resource use</strong></td>
<td>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</td>
</tr>
<tr>
<td><strong>Access to infrastructure</strong></td>
<td>Water (sources of water, quality, amounts paid), energy (cooking fuel, lighting, heating), sanitation (type of toilet, disposal system, costs), rubbish disposal, time spent in gathering water, fuelwood, and so forth</td>
</tr>
<tr>
<td><strong>Access to social services</strong></td>
<td>Child care, primary school and secondary school, markets, public transport, health clinic, hospital—travel times, quality of service</td>
</tr>
<tr>
<td><strong>Outside assistance and trusted groups</strong></td>
<td>Household members’ participation in outside groups and development programs, outside assistance received, groups or individuals turned to for advice or assistance</td>
</tr>
<tr>
<td><strong>Household heads assessment of household welfare</strong></td>
<td>Household heads 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</td>
</tr>
<tr>
<td><strong>Recent shocks to household welfare</strong></td>
<td>Shocks to household welfare over past five years and impact on household income or assets</td>
</tr>
<tr>
<td><strong>Attitudes and preferences for resettlement</strong></td>
<td>Preferences for self-relocation or project-directed resettlement, criteria for replacement-site selection, any preferred locations for housing and/or farmland, other livelihood preferences</td>
</tr>
<tr>
<td><strong>Attitudes toward the project</strong></td>
<td>Anticipated benefits and concerns. Assess status of project’s social license to operate (Refer to [module 3, &quot;Stakeholder Engagement.&quot;])</td>
</tr>
<tr>
<td><strong>Skills available in the household</strong></td>
<td>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.F., &quot;Skills Base&quot; of this module].)</td>
</tr>
</tbody>
</table>
265. The household socioeconomic survey should take no longer than 1.0–1.5 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.”

266. Household questionnaires are not generally suitable for gathering reliable information about tree or crop yields. Such information is extremely time consuming to record within a household questionnaire format, and unless the enumerator has agricultural training and is able to 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.

C. Qualitative Surveys

267. Qualitative survey techniques are useful for understanding in greater depth the relationships, networks, actors, and processes that contribute to community standards of living. Sampling 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 an enumerator. Commonly, the researcher will seek to gather views from multiple sources with differing perspectives to cross-verify and broaden understanding of issues. The following are typical uses of qualitative techniques in a resettlement context:

- Understanding power relations among displaced communities, local government, traditional leaders, and other authority figures
- Targeting specific subgroups (for example, 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 (for example, domestic violence, drug and alcohol abuse, sanitary practices) or interviewing difficult-to-access groups (for example, 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 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, of the different roles of household members and of critical linkages with resources, suppliers and markets
- Developing an understanding of nonmonetary, subsistence activities and common property use that may involve nonmonetary or affective 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, and social safety nets available to them

268. 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.

269. Techniques to be used for socioeconomic studies should be determined by a social specialist that understands the strengths and weaknesses of each approach. (Refer to module 3, “Stakeholder Engagement” for more information on PA techniques, particularly section III.H. “Participatory Appraisal (PA) Techniques”). Some common qualitative survey techniques follow:

- **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, two 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) and (ii) maps showing the spatial pattern and organization of livelihood resources (for example, agricultural lands and common property resources). Mapping is important both as a process tool for fostering participation and communication and as a basis 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 on the basis of 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.

- **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 or enterprise diaries.** Either a researcher (or the household 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 a series of questions and facilitated 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 legacy issues, ongoing activities, processes, discussions, social interactions, and observable results.

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

<table>
<thead>
<tr>
<th>Do’s</th>
<th>Don’ts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use mixed methods survey designs.</td>
<td>Attempt to achieve 100 percent coverage of households in socioeconomic surveys—such an approach does not involve random sampling, does not provide a calculable margin of error, and is not replicable. In future monitoring, it will be impossible to achieve 100 percent survey of the same households due to deaths, absences, or disinterest in participating.</td>
</tr>
<tr>
<td>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.</td>
<td>Draw conclusions from data unless differences are statistically significant.</td>
</tr>
<tr>
<td>Consider engaging a statistician for sampling design and to assist with analysis of results for larger and more complex projects.</td>
<td>Use parametric data analysis methods when data is not normally distributed.</td>
</tr>
<tr>
<td>Disaggregate all quantitative data by gender.</td>
<td></td>
</tr>
<tr>
<td>Use gender-sensitive qualitative methods (such as separate focus groups for example).</td>
<td></td>
</tr>
<tr>
<td>Design surveys consistent with monitoring indicators.</td>
<td></td>
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</tbody>
</table>

VII. LIVELIHOOD BASELINE SURVEYS

270. 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’ preresettlement 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.

271. Types of livelihood activities can be categorized as the following:

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

272. Categorizing urban livelihoods can be relatively straightforward where the majority of those affected are reliant on businesses or wage-based employment, but it is much more complex where the affected persons are poor, informally employed, and/or inner-city 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.

273. Livelihood specialists should be selected based on the livelihood systems of those affected. Ideally, specialists should have prior resettlement experience, as establishing new livelihoods requires much more conservative approaches than expanding or diversifying preexisting livelihoods. 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. Household case studies are a useful technique for developing a holistic understanding of household livelihoods, the contributions of each member, the division of labor, as well as the daily and seasonal calendar of activities of household members.

274. The objectives of livelihood baseline studies are the following:

- Identify sources of livelihood and resources used by 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
- 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

A. Agricultural and Livestock Production Baseline Data Collection

275. 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, resource person 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 for selecting 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 range land
- Calendar of livelihood, agricultural, and animal husbandry activities
- Tree and crop varieties and cultivation techniques
- Level of inputs (hired labor, fertilizers, pesticides, and so forth) 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 range-land 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 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 (for example, 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

276. Based on this gathered information the team would do the following:

• Conduct 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

277. Part of the agricultural specialist’s role should be to gather information about crop prices (for example, 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.

B. Foraging Baseline Data Collection

278. 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 extremely 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.

**C. Fishing and Coastal Gathering**

* i) Fishing

279. Fishery baseline studies are difficult to undertake, and the expertise should be enlisted from the start. The right level of interaction between social and fish 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. One simple solution is to equip fishing boats with a GPS and track their 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 agreeing with 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.

280. Measuring fish catches by artisanal fisherpeople is generally done at the landing or port by weighing the catch of each boat (see photo 4.1). Where larger fishing activities are potentially affected, assessment methods need to be discussed with specialists and the fisherpeople themselves.

**Map 4.1: Results of GPS Tracking of Fishing Vessel Movements**
**ii) Coastal gathering**

281. Coastal gathering (or gleaning) is often an important supplementary cash earning activity for women and children. The extent of any surveys should take into account the likely area affected and duration of project impact and the availability of alternative intertidal gathering areas. For short duration impacts (for example, 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 (for example, port construction and liquefied natural gas terminals) may result in 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, undertake the following:

- A census of regular users of the affected intertidal, near shore area
- Interviews to learn about the collectors’ place of origin, the locations they use for gathering, the frequency with which they use the project-affected area, the kinds of species collected and typical catch volumes, and how the catch is utilized or marketed (Fishing grounds should be mapped to the extent possible and their size estimated.)

**iii) Associated activities**

282. 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 fishmongering, and fish preserving, typically drying or smoking. These activities may be affected where fishing itself is affected, particularly in 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 the baseline conditions of their activities and more generally their social and economic circumstances, the importance of fishing-related activities in their overall livelihood streams, and the magnitude of impacts. Questionnaires used for fisherpeople or for farmers may need to be tailored to the specifics of the activity and focus groups with persons in these categories are a particularly powerful tool.

**D. Illegal Activities**

283. A specific issue arises where the project may affect illegal 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), growing plants used for the preparation of illegal substances
(such as cannabis, opium, or coca), or various extractive activities carried out in violation of local law (such as sand digging from beaches or river bottoms).

284. This raises a number of difficult issues:

- Surveying these activities may entail personal security issues 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 as a tacit recognition of its existence and its legitimacy.
- But the impact can be real and associated livelihoods seriously jeopardized with impoverishment as a direct result of the project.

285. Where such situations arise, there is no universal recipe other than extensive consultation on the possible way forward 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 illegal livelihoods to legitimate ones.

E. Urban Livelihoods Data Collection

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

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

F. Skills Base

288. Basic information about the skills available in each household should be gathered in view of potential project direct or indirect employment (see also module S.V.A., "Access to Project Employment").

VIII. Common Property and Natural Resource Use

289. Common property may include forests, woodlands, lakes, rivers, range lands, pastures, hayfields, wetlands, coastal intertidal zones, areas used for hunting, fishing, and foraging and the like. Many subsistence-based communities are reliant on multiple ecosystems for deriving their livelihoods. Common property resources may contribute more than one-third of 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 due to 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.
290. A common oversight in resettlement baseline studies is the failure 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.

A. Undertaking a Common Property and Natural Resource Inventory

291. Where foraging or harvesting of NTFP 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:

- Make provision 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.

292. 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 seriously 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.

293. The baseline survey of common property and natural resources should delimit resources that are used by affected communities and their neighbors, so that 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 their occupation of their 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 landscape that are culturally important, environmentally significant, and/or utilized for livelihoods.
- Community representatives walk and define the boundaries of their common property resource areas, and these are confirmed with neighboring communities.
- With support if needed, each community prepares a map and report summarizing its common property resources, which are then ratified by community members.
- Where provided for by national legislation, the project can assist communities to formally register their common resources interests and area.
294. Such community mapping should be facilitated by community development specialists that are experienced in PA processes and resource or village mapping. In some contexts, (for example, communities utilizing rainforests or woodlands), it may be necessary to utilize specialists in local foraging and NTFPs to assist with identifying all the activities that are present in the project area of influence. The project sponsor might provide a surveyor or GIS technician to map and record the boundaries and features described by each community.

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

IX. CULTURAL HERITAGE

296. 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. 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. 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

297. 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 will be considered where loss is unavoidable. Procedures should be in accordance with national laws and IFC PS8.

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

- Review of 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
- Development of 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 support 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.VII.I., “Graves and Graveyards”).
299. 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: survey, mapping, identifying next of kin, consultation, reaching agreement, and carrying out the relocation. Grave-relocation planning should be undertaken by an experienced local anthropologist to determine appropriate social, cultural, and religious requirements. The work should be done closely with a trusted local undertaker or company specializing in the exhumation, handling, and reinterment of human remains.

X. INDIGENOUS GROUPS

300. When projects may involve impacts on lands or 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 will be necessary to have a specialist undertake field-based ethnographic research. This should describe and document the indigenous people’s use of lands and resources (including seasonal or cyclical use) for livelihoods, cultural, ceremonial, and spiritual purposes (see PS 7). Sufficient time should be allowed for such baseline research. This can be a lengthy process, and 12 to 18 months may be necessary for the ethnographer to build trust and document customary organization and institutions, access to housing, tenure arrangements, land uses, natural resource use, cultural property, and the full range of seasonal activities.

XI. GIS AND DATA MANAGEMENT

301. For any project, it is critical that the sponsor establish and maintain a robust data management system. This serves multiple business functions, including the following:

- Maintaining records, legal agreements, and evidence of compensation payments
- Providing 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

302. Resettlement-related records may include some or all of 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
- M&E reports
• Tracking of standards compliance reviews and resultant corrective actions
• Complaints and grievances (including tracking)

303. 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.

304. It is important to determine the type of the 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 taken into account when selecting an appropriate system.

305. Resettlement projects involve handling and disbursement of cash for compensation. Accordingly, 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.

306. 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 in a timely manner.

XII. TOOLS NEEDED FOR DATA ACQUISITION: REMOTE SENSING, AERIAL PHOTOGRAPHY, AND UNMANNED AERIAL VEHICLES (UAVS)

307. Satellite imagery, aerial photography, and imaging from UAVs can provide cost-effective and time-saving tools for resettlement data acquisition (see table 4.6). Satellite imagery can be straightforwardly ordered and purchased from 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.

308. 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 field work and consultations.

309. 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.

310. UAVs (drones) 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 sites assessment, land and asset inventories, snapshot of areas as of the cut-off 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.

Table 4.6. Tools for Remote Sensing

<table>
<thead>
<tr>
<th>Platform</th>
<th>Characteristics</th>
<th>Resettlement applications</th>
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<tr>
<td>Remote sensing: satellite imagery</td>
<td>The images are impeded by clouds (except for side-looking airborne radar). Datasets and imagery at varying resolutions are available on the Internet. Regular overflights are ideal for monitoring purposes. Resolution down to 0.5 meters is commercially available.</td>
<td>Scoping affected land uses and structures Understanding land-use history and landscape change (time sequential images) Site selection and routing studies Creating base maps where cartography is not available Selecting replacement housing and agricultural sites Monitoring at local and regional scales (for example, land-use change, landscape rehabilitation, in-migration/settlement patterns, cropping)</td>
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<tr>
<td>Aerial photography</td>
<td>This technique needs cloud-free sky and high sun angles. It is useful for capturing large areas. Air photo resolution in the range 25–150 millimeter is available. It can be augmented by light detection and ranging for digital terrain modelling. It can be augmented by infra-red imaging to aid tree and crop identification.</td>
<td>Detailed resettlement surveying and planning Cost-effective development of accurate digital terrain modelling and site contours (with or without light detection and ranging) Creating base maps for field work and consultations via the high-definition orthophotos (1:2,500 or 1:5,000) Facilitating cadastral survey and boundary mapping Creating the basis for rapid land, tree, crop, and asset inventories</td>
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<tr>
<td>Unmanned aerial vehicles (UAVs)</td>
<td>UAVs operate below clouds. They are cost-effective for small areas (&lt;1,000 hectares) and for frequent</td>
<td>Small area mapping Cadastral and property surveys in urban and rural settings Digital terrain modelling (contours)</td>
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<tr>
<td>Platform</td>
<td>Characteristics</td>
<td>Resettlement applications</td>
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<td></td>
<td>monitoring.</td>
<td>Vegetation mapping</td>
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<td>They provide quick turnaround for analysis and results.</td>
<td>Land, tree, crop, and asset inventories</td>
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<td></td>
<td>Because they are unmanned they provide safer operation than, for example, site</td>
<td>Aerial surveys of fisherpeople and other natural resource users</td>
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<td>walks.</td>
<td>Replacement site assessment</td>
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<td>They can be stationed onsite.</td>
<td>Monitoring of replacement agriculture (clearing, cultivation, crop establishment, yield</td>
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<td>They are flexible and adaptable for a broad range of tasks and quick deployment.</td>
<td>estimates)</td>
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<td>Their use presents the potential for skill and technology transfer to local</td>
<td>Construction progress monitoring</td>
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<td>communities.</td>
<td>Monitoring of in-migration, speculative development, uncontrolled vegetation clearing,</td>
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<td>land use change and land rehabilitation</td>
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<td>Tool for managing community natural resources</td>
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XIII. PROTECTING THE PRIVACY AND CONFIDENTIALITY OF RESETTLEMENT DATA

311. Resettlement surveys collect information that is private and sensitive. Resettlement teams should 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 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 prevailing laws are weak, 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 that their identities are protected
- Sharing information in the project team on a need-to-know basis only