

**Institute of Primate Research**

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**STANDARD OPERATING PROCEDURE (SOP) DOCUMENT**

**Data Collection (Manual and Electronic)**

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| **Approvals** |  |  |  |
|  | **Name** | **Signature** | **Date** |
| **Developed by:** | \_Patrick Waweru Mwaura\_ | **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | **\_6th October; 2025\_** |
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| **Reviewed by:** | **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |
| **Approved by:** | **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |

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# PURPOSE

To provide a standardized framework for collecting, recording, and capturing high-quality research data across DS&AS projects. This SOP ensures accuracy, reproducibility, ethical compliance, and integration with downstream data management, storage, and analysis SOPs (SOPs 6–16).

# SCOPE

Applies to all DS&AS research projects involving **biomedical, ecological, genomic, primatological, and public health data**, covering manual and electronic data capture, observational studies, surveys, laboratory assays, sensor-based measurements, and field recordings.

# PERSONS RESPONSIBLE:

* **Field/Research Staff:** Conducts primary data collection per protocol.
* **Data Entry/Analyst Staff:** Performs digitization, verification, and quality checks.
* **Data Engineer / ICT Officer:** Configures and maintains electronic data capture platforms.
* **Head of DS&AS:** Oversees compliance, quality, and alignment with institutional standards.
* **Data Protection Officer (DPO):** Ensures data collection complies with Kenya Data Protection Act (2019) and ethical guidelines.

# FREQUENCY

* **Continuous:** During study or project fieldwork.
* **Periodic:** Daily, weekly, or project-specific verification of collected data.
* **Post-Collection:** Data quality audits and verification conducted at milestones or prior to analysis.

# MATERIALS

1. **Manual Collection:**

* Paper forms, notebooks, pens, rulers, calipers.
* Cameras and audio/video recorders for observational or ecological data.

1. **Electronic Collection:**

* **Survey/Data Capture Tools:** REDCap, CSPro, ODK/ODK Collect, KoBoToolbox.
* **Databases & Spreadsheets:** Excel, Google Sheets, Neo4j (for network/relationship data).
* **Biometric and Sensor Devices:** GPS units, digital calipers, biomedical sensors, wearable devices.
* **Mobile Devices:** Tablets, smartphones configured with electronic capture apps.

1. **Software for Quality Control and Validation:**

* R, Python, SAS for automated validation scripts.
* Version control platforms (Git/GitHub/GitLab) for tracking scripts or forms.

1. **Metadata Capture:**

* Standardized templates to record time, date, location, observer, instrument calibration, and protocol deviations.

# PROCEDURE

1. **Protocol Familiarization:**

* All data collectors review the study protocol, instruments, consent procedures, and ethical requirements.

1. **Instrument Calibration:**

* Ensure all measurement tools, sensors, and devices are calibrated according to manufacturer or SOP guidelines.

1. **Participant/Subject Preparation:**

* For human studies: Obtain informed consent; assign unique IDs; ensure confidentiality.
* For ecological/primatological studies: Record environmental conditions, GPS coordinates, and identifiers.

1. **Data Capture:**

* **Manual:** Record observations on pre-printed forms with standardized coding.
* **Electronic:** Input data into REDCap, CSPro, ODK, or other digital platforms. Ensure offline functionality and synchronization protocols are followed.

1. **Quality Control at Point of Capture:**

* Validate entries in real-time for missing, inconsistent, or out-of-range values.
* Use double-entry or cross-checking for critical variables.
* Take photographs or videos as secondary verification where appropriate.

1. **Data Transfer and Backup:**

* Sync electronic forms to institutional servers daily.
* Store manual forms securely; digitize and verify for completeness.
* Ensure encrypted transmission of sensitive data, complying with SOP 6 and SOP 7.

1. **Metadata Documentation:**

* Record all relevant metadata: observer ID, instrument ID, calibration info, collection time/date, environmental conditions, and protocol deviations.

1. **Validation and Cleaning:**

* Conduct preliminary checks for completeness, duplicates, and consistency before downstream storage and analysis.
* Document all corrections or transformations.

1. **Archiving:**

* Store raw and validated datasets in secure repositories according to SOP 7 and SOP 8.
* Maintain audit trails linking collected data to source instruments, forms, and observers.

1. **Periodic Review:**

* Head of DS&AS and data management team conduct routine audits to ensure adherence to collection SOPs and ethical standards.

# REFERENCES

1. Kenya Data Protection Act (2019).
2. SOP 6: Data Access and Authentication Procedures
3. SOP 7: Data Storage, Backup, Encryption, and Disaster Recovery
4. SOP 8: Database and Workflow Management
5. ISO 8000 / ISO 9001 Quality Standards for Data Collection
6. Institutional Ethical Guidelines and Research Protocols