SMART Standard Operating Procedures for Law Enforcement and Wildlife Monitoring Patrols in the Sundarbans Mangrove Forest of Bangladesh

The SMART Standard Operating Procedures (SMART SOP) for Law Enforcement and Wildlife Monitoring Patrols in the Sundarbans Mangrove Forest of Bangladesh are consistent with the laws and rules of the Government of Bangladesh. They should be followed at all times by Bangladesh Forest Department (BFD) staff in the planning and execution of SMART patrols as well as for collecting and managing SMART patrol data and generating up-to-date reports on patrol activities including arrests of forest, wildlife, and fishery offences and sightings of wildlife prioritized according to conservation risk. Details for following the SMART SOP are contained in the Handbook for SMART Patrols in the Sundarbans Mangrove Forest of Bangladesh. This handbook should be carried during all SMART patrols and used as a reference for the implementation of the SMART SOP.

1. SMART Patrol Objectives

1.1 **Law enforcement and forest offence control** - Achieve a secure environment for forest, wildlife, and biodiversity in the Sundarbans by controlling forest offences through enforcement of relevant laws and rules.

1.2 **Threat monitoring** - Rigorously monitor and document trends with evidence of threats including sightings of destructive fishing gears and practices (e.g., poison fishing), wildlife poaching and hunting equipment, woodcutters and signs or evidence of woodcutting, livestock grazing, illegal vessel traffic and pollution, along with instant decision making.

1.3 **Wildlife monitoring and strengthening security** - Identify and monitor the high-risk areas or hotspots for wildlife and document wildlife sightings with verifiable records of presence, detecting biodiversity and ecological trends, and evaluating the effectiveness of patrols.

1.4 **Awareness raising on laws and rules** - Create awareness among resource users including fishers, tour operators, vessel captains and crews about compliance with the laws and rules.

2. SMART Patrol Coordination Committee

2.1 All enforcement operations in the Sundarbans Wildlife Sanctuaries and Reserved Forest will be managed by a SMART Patrol Coordination Committee consisting of the Conservator of Forests, Khulna Circle, as chair; Divisional Forest Officer, Sundarban East Division, Bagerhat; Divisional Forest Officer, Sundarban West Division, Khulna; Divisional Forest Officer, Wildlife Management and Nature Conservation Division, Khulna; Range Officers of the Sarankhola, Chandpai, Khulna and Satkhira Ranges of the Sundarbans; and SMART Data Coordinator as members.

2.2 The SMART Patrol Coordination Committee will guide the operation, reporting, budgeting, and planning of SMART patrols, ensure their logistical and financial sustainability, manage internal department coordination, and coordinate with other law enforcement agencies. Based on the decisions made by this committee the Conservator of Forests will report to the National SMART Technical Committee (NSTC). The SMART Patrol Coordination Committee will meet as directed by the Conservator of Forests.

2.3 Based on the availability of skilled officers, the Conservator of Forests, Khulna Circle will assign one SMART Data Coordinator from his/her office or from the Wildlife Management and Nature Conservation Division, Khulna, and two SMART Data Managers from the Sundarbans East Division, Bagerhat and Sundarbans West Division, Khulna.

2.4 There will be one divisional SMART Enforcement Management Unit (SEMU) each in Sundarbans East and West Divisions. This management unit will consist of the Divisional Forest Officer as chair and all respective Range Officers, SMART Data Manager, and SMART Patrol Team Leaders as members. After completing each SMART patrol session, the Divisional Forest Officer will give necessary directions to the next patrol team based on the respective patrol report within three working days. Besides, the Divisional Forest Officer will meet with the members of the SEMU and the SMART Data Coordinator every month.

3. Guidelines for SMART Patrol Team Conduct

Guidelines for SMART Patrol Team Conduct will be strictly followed by all BFD staff and members of any agencies participating in SMART patrols.

3.1 Conduct prohibited by all existing government laws, rules, circulars, and notifications including Government Employment Act, 2018; Government Servants (Conduct) Rules, 1979; Bangladesh Government Servants (Discipline and Appeal) Rules, 2018; and Government Servants Regular Attendance Rules, 2019; etc. will be treated as misconduct.

3.2 In addition, all BFD staff associated with SMART patrol enforcement operations should:

3.2.1 Be conscientious and diligent in the performance of their duties. Staff should attend work promptly when scheduled or called for duty.

3.2.2 Wear a uniform during SMART patrols. Unless on duties which dictate otherwise, SMART patrol team members should always be well turned out, clean and tidy.

3.2.3 Not accept payment of any kind for the harvest or trade of timber or other forest products, poaching, consuming or trading wildlife or wildlife products or meat or illegal fishing in restricted areas and restricted seasons, using restricted gears, techniques or poison or catching undersize fishes and crabs.

3.2.4 Not violate the Forest Act, 1927; Wildlife (Conservation and Security) Act, 2012; Protection and Conservation of Fish Act, 1950; Protection and Conservation of Fish Rules, 1985; Marine Fisheries Act, 2020; Bangladesh Crab Export Policy, 1998; Bangladesh Biological Diversity Act, 2017; Bangladesh Environment Conservation Act, 1995; and any internal regulation and standing order for the Sundarbans Wildlife Sanctuaries and Reserved Forest. Violation will be reported by the Patrol Team Leader or Deputy Team Leader to the respective authority for necessary disciplinary action.

3.2.5 Treat members of the public and colleagues with courtesy and respect. Act with transparency, integrity and impartiality in all their dealings with the public and their colleagues. Avoid being improperly beholden to any person or institution and avoid all forms of harassment. Never use more force than is reasonable or abuse their authority.

3.2.6 Exercise reasonable care to prevent loss or damage to government property.

3.2.7 Keep all patrol activities and information strictly confidential, and never use patrol data or observations made during patrols for personal benefit or divulge information to other parties outside of the BFD.

3.2.8 Never behave in a way which is likely to bring discredit upon the BFD.

3.2.9 Never publish any photos, information, or data related to SMART patrol on social media according to the guidelines for using social media in government institutions.

3.2.10 Violation of any of the above codes of conduct will be treated as an offense as per the conventional laws and rules of the Government.

4. Patrol Planning

4.1 General Guidelines

4.1.1 Each SMART patrol team will conduct a 7-14 days patrol session per month comprising 6-8 hours per day. A patrol day must involve leaving basecamp for the purposes of an inspection or field patrol, and all patrols must be represented by a GPS track log and waypoints, a SMART Patrol Plan Approval Form and patrol data collected by a SMART Mobile application (the upgraded version of CyberTracker) equipped smart phone or tablet. Days spent filing forms or reports, or preparation days at basecamp do not count as patrol days. Patrols should target pre-identified priorities or hotspots for illegal human activities. Long patrols could be deployed in these areas, if necessary. All accessible areas of the Sundarbans should be covered by boat patrol and foot patrol. Generally, 75% of all accessible areas should be covered during each patrol session. The remaining 25% should be covered during the next patrol session along with at least 50% of the area that was covered during the previous patrol session. At least 25% of total patrol hours or 21 km should be on foot walking through the forest during each 7-day patrol session. Problem hotspots, defined as areas where illegal activity was previously recorded at least three times by a patrol team, should be visited on a regular basis. Some patrols should be conducted in the areas along the boundary of the Sundarbans Reserved Forest adjacent to villages and used especially for intelligence gathering on forest, wildlife, and fishery crimes and raising awareness for improving compliance with relevant laws and rules. Besides, a special SMART patrol team should be deployed in Dublar Char during the fishing season.

4.1.2 Following the direction of the respective Divisional Forest Officer, the concerned Range Officer will develop a weekly/fortnightly/monthly patrol plan using the results of the previous weekly/fortnightly/monthly patrol report and incorporate any needed adjustments that will aid patrol efficiency. Patrol routes should be chosen randomly or guided by intelligence or known hotspots of illegal activity to maximize the chances of catching wildlife poachers, illegal fishers, poison fishers, woodcutters, and other forest criminals.

4.1.3 Before leaving the range office or base station, all patrol teams constituted by the respective Range Officer must complete the SMART Patrol Plan Approval Form as depicted in the Handbook for SMART Patrols in the Sundarbans Mangrove Forest of Bangladesh and signed off by the Range Officer. All patrol teams must be briefed by the Range Officer before departure.

4.1.4 Under the direction of the Conservator of Forests, Khulna Circle, the patrol team will conduct at least one patrol session from Sundarban East to West Division and vice-versa every three months. Besides, under the direction of the Divisional Forest Officer, the patrol team will conduct at least one patrol session from one range to another every two months.

4.2 Patrol Planning through SMART Software

Patrol targets should be set up using the planning module in SMART or a printed map of Sundarbans, pen, and paper. Targets may be numeric (distance, time), spatial, or administrative to reflect the needs identified by the member of the SMART Patrol Coordination Committee or SMART Enforcement Management Unit or SMART Data Manager or Coordinator, available resources for patrolling, and the area where patrolling is needed. Patrol targets should also be established, guided by knowledge about high-risk areas for tigers or other threatened wildlife, for example- boat patrols in small channels and foot patrols inside the forest that are essential for detecting poaching activity and illegal camps. Additionally, special SMART patrol teams should be deployed in Dublar Char during the fishing season, and patrol efforts should be increased in fire-prone areas during the dry season.

4.3 Equipment and Resources

SMART patrol teams should be equipped and supplied with the Handbook for SMART Patrols in the Sundarbans Mangrove Forest of Bangladesh, range maps, emergency contact numbers, GPS, SMART Mobile app equipped smartphone or tablet, Go-Pro camera, binocular, radio, hand-held VHF radio, walkie-talkie, first aid kit, food and other equipment and supplies as detailed in the Handbook for SMART Patrols in the Sundarbans Mangrove Forest of Bangladesh.

4.4 Size and Composition of SMART Patrol Team

4.4.1 SMART patrol teams should consist of eight members: 1) Patrol Team Leader, 2) Deputy Team Leader (Communication Officer), 3) SMART Data Recorder, 4) Wildlife and Threat Monitoring Officer, and 5) Four armed Security Guards.

4.4.2 All team members should undertake foot patrols inside the forest or small boat patrols in smaller creeks or canals except for two of the armed Security Guards who should remain on the launch (mother boat). Additional crew will depend on the vessel type: 1) for launch - one Master, one Engine Driver, one cleaner, two laborers and one cook; 2) for fiberglass boat - one driver and one helper; and 3) for speed boat- one driver.

4.5 Selection of SMART Team Members

All team members should be fully trained (see training and mentoring Section 9) and capable of carrying out their designated roles in patrols including both technical (e.g., SMART data collection and use of GPS or SMART Mobile app equipped smartphone or tablet) and physical (e.g., carrying out foot patrols, swimming, and pursuing and arresting offenders) components. All staff selection should be approved by the SMART Patrol Coordination Committee. Staff should have at least 5 years remaining until retirement for participating in patrols. Staff could be rotated within the SMART patrol teams at any time of the year. Additional manpower for the SMART patrol teams should be selected with care.

4.6 Security

4.6.1 During patrols, patrol team members must wear a life jacket at all times. During night all team members on the deck or moving between boats must wear a life jacket. If a patrol member is injured or sick, he must be evacuated to medical treatment.

4.6.2 For security at night, patrol team members will work as sentry by rotation throughout the night hours.

4.6.3 Patrols will follow a SMART patrol plan. If patrol teams cannot follow the plan due to an emergency or logistical constraint, every effort will be made to communicate the change of plan to the Range Officer immediately. Patrol teams should camp in areas where communications can be maintained by cell phone or VHF radio unless otherwise instructed or authorized by the Range Officer.

4.6.4 There should be 2 (two) armed Security Guards on board the mother boat or launch and every patrol team should have 2 (two) armed Security Guards when on board a fiberglass or speed boat or while on foot patrol.

4.6.5 During foot patrol, the team should stay together and the team members in the front and back should carry flares. Armed Security Guards should be at the front and back. If a tiger approaches, everybody should stay tight together with arms raised. Make yourself appear big, shout loudly, make loud noises and detonate flares. Retreat slowly without turning your back to the tiger.

4.6.6 If illegal camps are found, the Patrol Team Leader will assess the situation and potential risk. If the camp is active, the Patrol Team Leader will record the location with GPS coordinates, contact the Range Officer or Divisional Forest Officer and the patrol team will wait at a safe distance for reinforcement from the Reserve Team, Rapid Action Battalion (RAB), Navy, Coast Guard or Border Guard Bangladesh (BGB).

4.6.7 Tidal conditions should be considered during patrols. Patrols should start headed downstream on an outgoing tide and then turn back upstream when incoming tide starts.

4.6.8 Weather should be considered when planning patrols. Local radio should be used for getting weather updates. Patrol teams should stay in a safe place during cyclones or natural calamities.

5. Patrol Procedures

5.1 Searching Effort

5.1.1 Observations: Patrol team members should search for direct signs of wildlife poaching, illegal logging or collection of forest products, illegal fishing, illegal camps or shelters, weapons, firearms, ammunition, traps, illegal vessel traffic, etc., and indirect signs such as broken branches from the passage of a boat through a small creek and human footprints leading into the forest or trails (locally known as sila), also key wildlife species and their signs as directed in the Handbook for SMART Patrols in the Sundarbans Mangrove Forest of Bangladesh.

5.1.2 Boat patrols in wide channel: For making observations in a wide channel, the patrol team member searching with binoculars should be positioned on the highest deck and keep a constant search for forest, wildlife, and fishery crimes. While passing small creeks, observers should look straight down the creek where small boats often hide beneath the tree branches. Boat speed should not exceed 12 km/hour while patrolling wide channels.

5.1.3 Boat patrols in small channel: A speed boat/small boat (dinghy or open trawler) should be used to patrol in small channels. Patrol team members should pay close attention along the channel banks for human footprints and trails (sila) leading into the forest that can lead to locations where traps or snares have been set for tigers or other wildlife or to poaching or illegal camps. Patrol teams should also search boats suspected to be engaged in illegal activities, such as poaching, wildlife smuggling, carrying hunting gear (traps, snares, etc.), or bringing supplies to poaching camps. Patrol teams should paddle small

boats or dinghies and not use the engine to avoid scaring off poachers due to the noise. Boat speed must be below 5 km/hour while patrolling small channels.

5.1.4 Foot patrols: While patrolling sila, char, small channels, or wide channel banks to forest edges, patrol team members should search for evidence of human intrusion as mentioned in section 5.1.3. Where such evidence is found and where the forest floor is accessible to conduct foot patrols, time should be spent walking through the forest to detect tiger or other wildlife signs and their poaching evidence. During foot patrols, team members should search the area thoroughly, locate poaching camps, remove traps and snares, arrest any human offenders, and confiscate contraband. When human signs are detected, the patrol team (excluding the Boat Driver) should make an initial foot patrol. But if they find the area is large or signs of poachers indicate a larger camp, they should move back to a safe place and contact the mother boat, nearest camp, station, or Range Office for reinforcement.

5.1.5 Rescuing trapped wildlife: If live animals such as deer, wild boars, macaques, turtles, jungle fowls, dolphins, otters, etc., are detected in traps, patrol teams should release them if not injured or showing signs of disease. Patrol teams should remove injured or sick animals to a wildlife care facility for treatment and rehabilitation; dead animals should be photographed and buried at the nearest station or camp. Samples should be collected for forensic tests where applicable. Patrol teams should be careful while removing injured animals from traps or snares due to the risk of physical injury to the rescuer.

However, patrol teams should immediately contact the Divisional Forest Officer or Range Officer if any live tiger, crocodile, or large male or mother wild boar with piglets are detected in traps and take necessary actions as advised by them.

5.2 Communication 5.2.1 All SMART patrol teams should be provided with a dedicated cell phone including SIM card. All communication must be conducted using the provided cell phone to secure intelligence and confidentiality. To avoid confusion, all cell phone and radio communication should be directed through the Patrol Team Leader or Deputy Team Leader.

5.2.2 All team members must handover their cell phones to the Patrol Team Leader before the beginning of the patrol. Personal cell phones will be returned at the end of the patrol.

5.2.3 Make sure the dedicated cell phone, SMART Mobile app equipped smartphone or tablet, and power bank is fully charged before a patrol starts everyday.

5.2.4 Bring the phone numbers of BFD officials and staff from your patrol range office or base station as well as emergency numbers of the Range Officer, Assistant Conservator of Forests, Divisional Forest Officer, and the Command Control Centers of RAB, Navy, Coast Guard and BGB.

5.2.5 The mother boat or launch should be equipped with a VHF radio, a high antenna, and a solar charger. The range office or camp should be equipped with a VHF radio for use as a base station. The Navy and Coast Guard monitor Channel 16 on their VHF radios. They should be contacted in case of an emergency.

5.2.6 Patrol teams should contact the Range Officer if there is any significant change from the patrolling plan including in the route or the time of return. The Range Officer or Divisional Forest Officer should also be contacted immediately if backup is needed for natural calamity, potentially dangerous enforcement situation or a hazardous event affecting the environment.

5.2.7 Patrol teams should check-in with the range office or base station every 4 hours. If more than one check-in is missed, a search for the patrol team should be initiated by the Range Officer.

5.2.8 Patrols using a speed boat/small boat in small creeks should check-in with the mother boat or launch every 30 minutes.

5.2.9 Foot patrols should keep in regular contact with the speed boat/small boat driver in case conditions including tidal change require a quick transfer to a safe place or the mother boat or launch.

5.3 Gathering Intelligence and Developing Informant Networks

5.3.1 The most important factor in developing and managing an informant network is confidentiality. Legal resource users could be considered as voluntary informants by building long-term trust with them. Some informants may try to give false information to mislead so treat the information with caution. Do not share any sensitive information with informants as they may use it for their benefit.

5.3.2 The informant management officer should record the number of times information is received from an informant and the number of times it is found to be correct and thus evaluate and rate the informants accordingly. Top-rated informants should be treated with more attention as they may cooperate in combating forest, wildlife, and fishery crimes by providing more accurate information in future.

5.4 Searching and Interrogating Suspects

5.4.1 All resource users who are stopped and searched during patrols should be treated with respect and asked questions in a friendly manner.

5.4.2 Before approaching any suspicious human activities, potential safety risks should be assessed. If any people are found in the vicinity of a sign or evidence of forest, wildlife, or fishery crimes, they should be interviewed as potential suspects and checked carefully.

5.4.3 During searches, all suspected people should be moved from their boat or to a corner of their boat for safety. The people and vessel should be thoroughly searched.

5.4.4 Arrested poachers must be interrogated to obtain information that could lead to the arrest of associated criminals and dismantle the entire criminal syndicate.

5.4.5 Before starting an interrogation, information should be collected on the criminal record, family background, and other relevant details about the poachers.

5.4.6 Before starting the interrogation, interrogating officers should decide what questions will be asked. These should be written down in a logical order, generally proceeding from general questions to more specific ones. To assess the credibility of the poachers, it is important to ask some questions that the interrogator already knows the answer.

5.4.7 The interrogator should try to understand the motivation of the poachers, which can help direct questioning and generate a clearer understanding of what they have done and why. The interrogator should keep in mind that the goal is to discover the truth and obtaining any confession to a crime is secondary. An interrogator should consider following:

(i) Approach the suspect like you are ready to listen;
(ii) Introduce yourself in a friendly manner and identify yourself as a law enforcement officer;
(iii) Put the suspect at ease so s/he will be more willing to share information;

(iv) Do not share information about the investigation to avoid giving the suspect clues about what is already known;
(v) Ask questions in a clear, specific, and professional manner; be patient and try to get information on criminal networks and details about the crime;
(vi) Take detailed notes of the suspect's statement or record the interrogation while making sure not to discourage the suspect from talking freely;
(vii) Evaluate whether information provided by the suspect is true or false by asking the suspect the same question in different ways more than once to assess if his/her statement is consistent;
(viii) Make sure that at the end of the interrogation, a signed statement from the suspect is taken, this will be needed as evidence if there is a trial.

5.5 Collecting and Storing Evidence

5.5.1 Accurate information about the circumstances of the detected offence should be recorded in detailed this should include: (1) a written record of the law or rule broken, (2) personal profile of offenders and confession statement (if any), (3) list with correct identification of the plant and animal species involved, (4) brief details after a site visit to the location where the offence occurred, if necessary.

5.5.2 The patrol teams should minimize disturbance to the site while visiting crime scenes. Do not touch anything unless absolutely necessary. Stand still when movement is not required. All necessary items must be kept and never place any equipment on the ground.

5.5.3 Make sure to collect and photograph any removable evidence such as a carcass, bones, skin, traps, fishing gears, poison, etc. The identification of whole animals or their parts should be confirmed with photographs.

5.5.4 After properly seizing all evidence, make a detailed seizure list with tagging and photo or video documentation, and ensure safe transportation and preservation of all evidence during and after the patrol. Tampering with or deleting any part of the video documentation must be avoided.

5.5.5 Each item of evidence for an incident needs to be preserved separately with a unique tag number for forensic tests. Decomposable evidence such as poisoned fish or meat should be packed in a plastic container or bag and preserved in ice in the field and later stored in a refrigerator at the laboratory. If ice is unavailable on site, perishable evidence should be dried thoroughly in the sunlight and stored in a plastic container or bag.

5.5.6 It is vital to maintain the chain of custody of evidence. This means that a witnessed, written record must be kept by all individuals who have maintained unbroken control over the evidence. The chain of custody establishes proof that the evidence collected at the crime scene is the same as presented in a court of law.

5.6 Handover of Offender and Evidence, and Follow up Actions

5.6.1 Arrested offender(s) and related evidence or seized items should be handed over to the nearest BFD station or camp and the Offender and Seized Items Handover Form as depicted in the Handbook for SMART Patrols in the Sundarbans Mangrove Forest of Bangladesh should be filled out with detailed information on offender(s), evidence and seized items.

5.6.2 BFD stations or patrol posts or camps will receive the offender(s) and evidence or seized items and pursue necessary processes for prosecution.

5.6.3 Both the handover and the receiving officer should sign the Offender and Seized Items Handover Form and copies should be kept by both.

5.6.4 Arrested offender(s) should be produced before the nearest magistrate within twenty-four hours of arrest excluding the time needed for the journey to the Court.

5.6.5 If the arrested offender(s) cannot be produced before the court within the stipulated time or security issues arise, they may be held in custody at the nearest police station.

5.6.6 If necessary, evidences such as meat, bones, teeth or any body parts or poison should be taken to the forensic lab and a certificate should be collected for any forensic tests.

5.7 Filling Case: An Effective Prosecution Offence Report

5.7.1 Chapter XIX of the Code of Criminal Procedure (CrPC), in section 221-232, illustrates the contents of the Prosecution Offence Report (POR). To increase the chances of conviction, a POR should include:

(i) Name, father's name, age, and address of the accused;
(ii) Description of the offence;
(iii) Name of the offence citing specific law;
(iv) Definition of the offence, if the law does not give it any specific name;
(v) Details about the time and place of the offence, and the person or the creature/matter the offense was committed against;
(vi) Details on how the offence was committed;
(vii) Details about the date and place with case number of any previous conviction of the accused;
(viii) Testimony of accused and witnesses interviewed by the law enforcement officer;
(ix) Sketch map and documents on the place of occurrence, expert reports, etc. as attachments;
(x) Details of evidence which may be produced before the court during the hearing and trial.

5.7.2 A case will be filed in the court or the police station (as appropriate) jointly by the SMART patrol team and the nearest station or camp. At least one SMART team member must be included as a witness in the case.

5.8 Reserve Team

A Reserve Team with similar size and composition to a SMART patrol team should be positioned at the range office. This team will provide backup to the SMART patrol team during emergency situations or where additional manpower is needed for effectively carrying out patrolling and enforcement operations.

6. SMART Data Collection

SMART data should be collected by three methods: i) SMART patrolling using the SMART Mobile app, ii) Joint patrolling by Bangladesh Forest Department and Community Patrol Group (CPG) using SMART Mobile app (see section 15), and iii) citizen scientists and other law enforcement agencies using SMART Collect plug-in (see section 16).

6.1 SMART Patrol Data Collection

6.1.1 A SMART Mobile app equipped smartphone or tablet should be used in SMART patrols for data collection with the standard setup of configured data model as defined in the Handbook for SMART Patrols in the Sundarbans Mangrove Forest of Bangladesh.

6.1.2 All patrol activities must be recorded in the SMART Mobile app equipped smartphone or tablet.

6.1.3 Illegal human encounters and their activities (e.g., illegal fishing, poaching, logging or harvesting other forest products); signs of human offences (snares, hunting signs, illegal camps, and illegal fishing gear); and sighting of priority wildlife species of conservation concern (e.g., Bengal Tiger, Fishing Cat, Leopard Cat, Spotted Deer, Barking Deer, Wild Boar, Rhesus Macaque, Ganges River Dolphin, Irrawaddy Dolphin, Finless Porpoise, Indo-Pacific Hump-backed Dolphin, Small-clawed Otter, Smooth-coated Otter, King Cobra, Rock Python, Estuarine Crocodile, River Terrapin, Water Monitor, Masked Finfoot, Lesser Adjutant, White-rumped Vulture, White-bellied Sea-eagle, Brown-winged Kingfisher, and legal human encounters (people not committing any offence) including their activities which should be recorded in the SMART Mobile app equipped smartphone or tablet. Information should be recorded on the action taken (e.g., warning, penalty, arrest and handing over to the nearest camp for prosecution) and where there was an offence, what was done with the evidence (e.g., seized, collected, destroyed, left at scene, etc.).

6.1.4 Documenting tiger sightings and signs: Because of the particular importance of the Sundarbans for tiger conservation, additional information should be recorded when tigers or evidence of tigers are encountered. When tigers are observed during patrols, data will be recorded in the SMART Mobile app after selecting the species tiger, for example: total number of tigers, sex, number of cubs (if any), behavior (walking, resting, hunting, swimming), and health condition (healthy or injured). In cases where a carcass or body parts of a tiger are found, the incident should be thoroughly documented under the carcass category in the SMART Mobile app with photographs taken of the top, bottom, and side view of the animal or part, as well as more detailed photographs of any wounds, injuries or abnormalities that could assist in determining the cause of death. Photographs should also be taken of the immediate area where the tiger carcass was found that may give clues about the circumstance of its death, including any evidence of human activity in that area. The Divisional Forest Officer and the respective Range Officer should be immediately notified, and an investigation and post-mortem examination should be made. Patrol teams should also record similar information using the SMART Mobile app for other threatened species when encountered.

6.1.5 If weapons are seized, information should be recorded on the weapon type (automatic, semi-automatic, shotgun, muzzle loader, homemade rifle, pipe gun, bow and arrow, spear, slingshot, club, other), number of weapons and ammunition (loaded cartridges, spent cartridges, caliber). Also record the manufacturer and serial number if available.

6.1.6 If poisons are encountered record the type of poison, volume in liters, and any indication of how the poison has been or would be administered (e.g., live or dead animal bait, hooked bait, fruit bait). Traps or rope snares must be assessed as well and whether it is active or not, snare type and number should be recorded.

6.1.7 Search for snares and traps and, if any are found, record the type, number, if any are active, and target species if known/reported.

6.1.8 Camera traps can be used to monitor human activity hotspots or high-risk areas for tigers and other wildlife in the absence of SMART patrolling (see section 14).

7. SMART Patrol Data Management and Reporting

7.1 SMART data management will follow the flowchart depicted in section 13.

7.2 At the end of each day's patrol, the Patrol Team Leader will create a folder in the computer and rename the folder with the name of team, SMART Mobile app equipped smartphone or tablet number and date. Jesson files from the smartphone/tablet will be downloaded in

the computer folder as soon as possible after the patrol has ended, SMART Mobile data will be uploaded to SMART software in a computer and added as new patrols in the SMART database. Photographs and video footages from the Go-Pro camera should also be downloaded into the same folder in the computer.

7.3 After completion of a 7–14 days SMART patrol session, the Patrol Team Leader will prepare a SMART patrol briefing note on the overall security situation and level of threat to forest, wildlife, and fishery as a directive to the next patrol team visiting the area. He/she will submit the SMART patrol briefing note along with the exported patrol data, Jesson files, photographs, and video footages to the SMART Data Manager with approval from the Range Officer within one day after finishing the patrol session.

7.4 Upon receiving the SMART patrol briefing note, SMART patrol data, Jesson files, photographs, and video footages from the SMART Patrol Team Leader, the SMART Data Manager will inform the Divisional Forest Officer and prepare a SMART Patrol Report for the designated range following the format depicted in sections 7.10 and 7.11; and will also send the report along with all data and documents to the SMART Data Coordinator and Resource and Information Management System (RIMS) Unit with approval from the Divisional Forest Officer within 2 working days. Along with that, the SMART Data Manager will send the patrol data to the SMART Data Analyst responsible in the RIMS Unit to upload into the SMART Connect Server. He/she will then safely store all received documents in the respective Divisional Forest Officer's office and file a register of the data received from SMART Patrol Team Leaders and sent to the SMART Data Coordinator.

7.5 The Divisional Forest Officer will issue necessary directions to the next patrol team within 3 days after receiving the patrol report and organize a monthly meeting with the members of the SMART Enforcement Management Unit and SMART Data Coordinator. In this meeting, they will discuss and use information from the SMART patrol report to plan actions to strengthen conservation, combat illegal activities, identify areas in and around the respective Range in the Sundarbans Reserved Forest that lack patrols, and plan targeting such areas for coverage by the next patrol team. They will also discuss briefing notes and provide necessary directions to the next patrol team as appropriate. At the discretion of the Divisional Forest Officer, supporting development partners and conservation agencies (if available) can participate in this meeting as observers to provide technical support, advice, and input as needed.

7.6 The SMART Data Coordinator will prepare a composite draft Monthly Report for all four ranges in the Sundarbans including patrol recommendations and send it for review to the SMART Patrol Coordination Committee at the end of each month. He/she will then safely store all received documents in the Wildlife Management and Nature Conservation Division, Khulna or in the office designated by the Conservator of Forests, Khulna Circle.

7.7 The SMART Patrol Coordination Committee will conduct a quarterly SMART patrol meeting chaired by the Conservator of Forests, Khulna Circle at the end of each quarter. All SMART Patrol Team Leaders, Data Coordinator, and Data Managers will attend the meeting. In this meeting, all the monthly reports of that quarter will be reviewed and discussed to improve overall SMART operation and patrol planning, and for management of internal departmental coordination. At the discretion of the Conservator of Forests, Khulna Circle, supporting development partners and conservation agencies (if available) can participate in this meeting as observers to provide technical support, advice, and inputs as needed.

7.8 Comments from the SMART Patrol Coordination Committee should be incorporated in the monthly reports by the SMART Data Coordinator within one working day. All the

final monthly reports on SMART patrols in the Sundarbans of that quarter should then be submitted to the Conservator of Forests, Khulna Circle, for his/her final approval.

7.9 The Conservator of Forests, Khulna Circle will send all the SMART patrol reports to the National SMART Technical Committee, RIMS Unit, SMART Enforcement Management Unit, and Range Officers.

7.10 The monthly report on SMART patrols in the Sundarbans should include: i) Cover page (Monthly Report on SMART Patrols in the Sundarbans, Name of Month, Name of Range or Sanctuary, Report Number, Name of Authors, Name and Logo of BFD), ii) Table of Contents, iii) Summary, iv) Introduction/Background, v) Patrol Effort (based on time and distance), vi) Human Activities and Law Enforcement, vii) Wildlife Encounters, viii) Challenges Faced by the Team, and ix) Recommendations.

7.11 A standard set of tables and maps will be prepared based on SMART queries and summaries, including but not limited to: i) total patrol length coverage in km, ii) legal human activities (human presence and signs), iii) illegal human activities, iv) fishing activities, v) boats or trawlers, vi) illegal camp or shelter, vii) poison fishing, viii) all wildlife observations, ix) terrestrial mammal observations, x) aquatic mammal observations, xi) reptile observations, xii) bird observations, and xiii) signs of wildlife. All maps should have a scale, legend, north arrow, border, and latitude-longitude grids and values on the top and right outside the border. In the map, all observations should be defined with different types of symbols rather than colors.

7.12 Recommendations should be added at the end of the Monthly Report on SMART Patrols in the Sundarbans based on patrol data and observations.

7.13 A list of offenders will be shared among all SMART patrol teams for identification of repeat offenders during patrols.

8. Strengthening Tiger Protection

8.1 Using SMART Patrol Data to Protect Tigers

8.1.1 Any human activities that threaten tigers and their prey, including observations reported through SMART databases as set out in section 6.1, should be acted upon as soon as they are reported. Actions should include prioritizing patrols in the areas where human activities were reported and scaling up the size of the patrolling team to arrest suspects and confiscate illegal equipment or contraband.

8.1.2 Observations of human signs and legal human encounters may indicate the presence of threats to tigers and their prey. When such observations appear in the SMART database, SMART patrols should be increased in the respective areas, and necessary spatial and temporal allocation of patrol resources should be provided to combat poaching.

8.2 Patrol Planning Using Spatial Data and Modeling

All known previous locations where traps and snares were seized, and wildlife offenders were arrested should be treated as potential tiger poaching sites. Using the information on past poaching along with associated characteristics of those sites, predictive maps can be generated to indicate hotspots where poaching is predicted to occur and therefore where patrols should be prioritized. A new plugin for the SMART app called the Protection Assistant for Wildlife Security (PAWS) plug-in automates this process allowing all or subsets of patrol data to be used to predict high-risk areas for tigers and other wildlife.

9. Training and Mentoring

9.1 All BFD staff participating in SMART patrols will complete a comprehensive field enforcement training and specialist on-the-job training in law enforcement monitoring techniques and other subjects relevant to the enforcement operations organized by the BFD and development partners or conservation agencies.

9.2 The Patrol Team Leader and Deputy Team Leader of the SMART patrol team must be trained on advanced wildlife crime scene investigations, evidence collection, developing informants and interrogation techniques.

9.3 At least one member of each patrol team should complete training on basic first aid.

9.4 The Patrol Team Leader and Deputy Team Leader of the SMART patrol team must complete training on data collection using SMART Mobile and SMART Collect app, and data entry in a SMART database.

9.5 The SMART Data Coordinator and the SMART Data Managers should receive intensive training on data management and reporting.

9.6 SMART Security Guards and Reserve Team members should receive advanced training on firearms handling, crime scene management, and counter piracy operations.

9.7 Mentoring will be provided by qualified trainers on a regular basis so that patrol teams are empowered to understand how to effectively conduct law enforcement and wildlife monitoring patrols including how to enforce laws and rules correctly, and understand how to collect SMART data and enter it into the SMART database.

9.8 If possible, an onboard observer should be deployed from the BFD or conservation agencies or partners to mentor patrol teams and evaluate their efficiency.

10. Roles of Forest Stations and Patrol Camps

10.1 Forest staff based at forest stations and patrol camps must continue patrols in the jurisdiction of their patrol camps and provide backup support as needed to the SMART patrol teams.

10.2 Both the SMART patrol team and forest stations or patrol camps will maintain communication between them about intelligence and joint enforcement operations.

10.3 The forest stations or patrol camps should accept arrested offenders and seized items and file the case for prosecution and safely store evidence until they send it to the court.

11. Monitoring Performance and Incentives

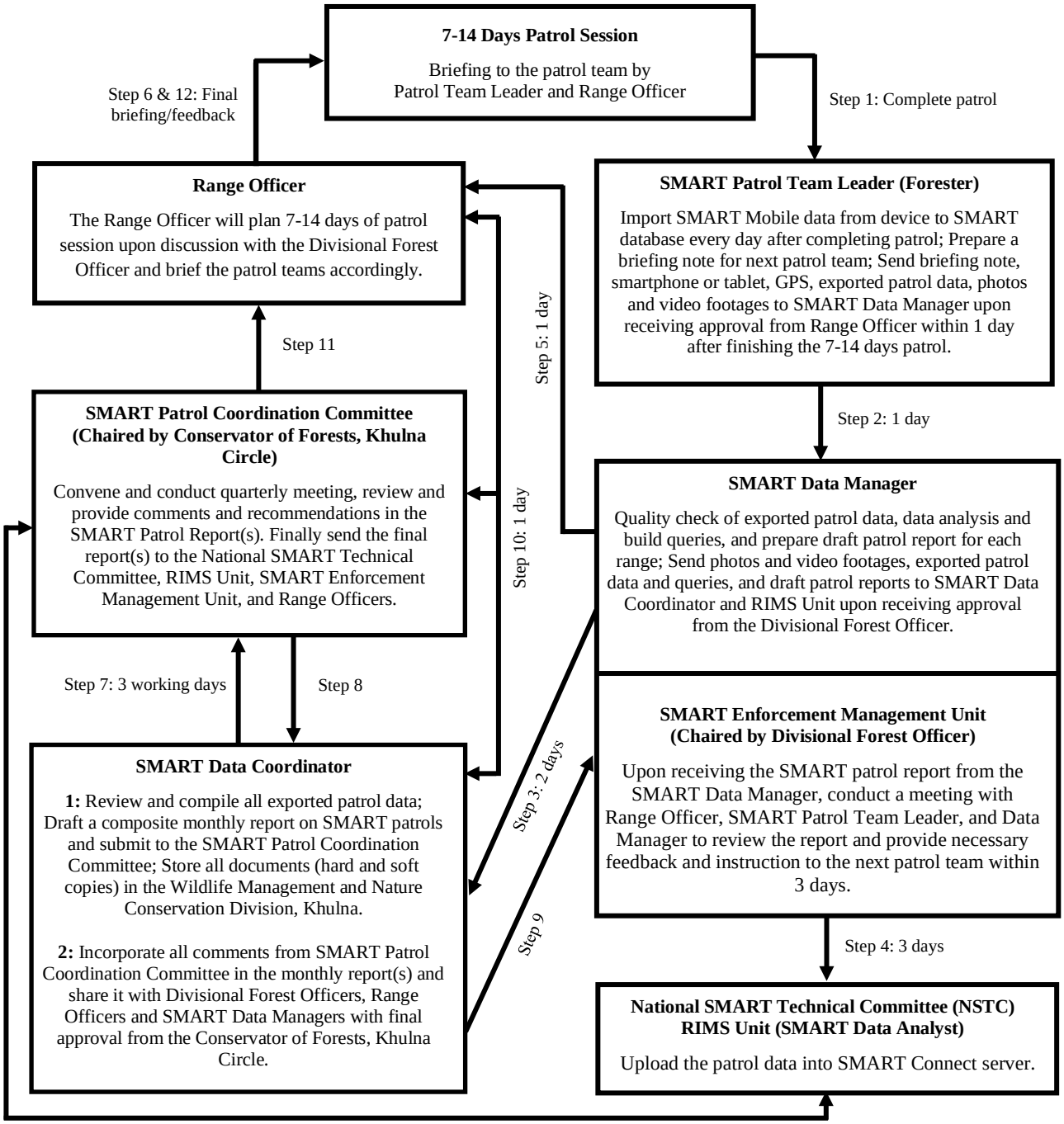
11.1 Performance of patrol team members will be evaluated on a quarterly basis according to a standard set of indicators that will include results of field patrol efforts (e.g., total patrol hours per team, distance (km) travelled per team, patrol coverage (%) per team, observations (number) per team), and reports of the Range Officer and SMART Data Coordinator.

11.2 If a budget is available, a special system could be considered to reward exemplary performance. The SMART Patrol Coordination Committee will take decisions about this reward.

12. Compensation

The informants will be rewarded as per the Offence Detection (Information Sharing) Award Rules, 2020 and compensation against casualties, medical injuries or animal attacks for both BFD and local community members should be provided as per the Wildlife (Conservation and Security) Act, 2012; and Wildlife Victim Compensation Rules, 2021.

13. Flow Chart of SMART Data Collection, Reporting and Management



14. Monitoring High-risk Areas (hotspots) for Tigers and Other Wildlife Using Camera Traps

In the absence of SMART patrols, camera traps can be used to monitor high-risk areas for tigers and other wildlife or illegal human activity hotspots in the Sundarbans. Analyzing the photos recorded in camera traps and detecting the trends of human activity threats, necessary steps should be taken to ensure that such activities do not directly or indirectly affect the hotspots in any manner.

14.1 Camera Trap Installation at Hotspots

14.1.1 During patrols, the SMART patrol teams will set the camera traps about 2 feet above the maximum tidal mark on trees and ensure that cameras remain camouflaged but are able to capture clear photos of human activities. Tree branches or leaves that block the camera's view should be removed to ensure clear photo capture.

14.1.2 Camera traps should be strategically deployed along small channels (less than 25 meters wide) in Wildlife Sanctuaries where small boat traffic is known or predicted to be moving and at the entry point of banned creeks. In this regard, SMART patrol teams can take assistance from the onboard mentors.

14.2 Camera Trap Data Management and Reporting

14.2.1 After installing the camera traps, the patrol team will download the photos to the computer hard disk every time while patrolling the hotspots. The Patrol Team Leader will then rename the folder with the name of the patrol team, camera number, and duration by the date the camera was installed (for example- Chandpai1_Camera Trap No. 14_01-23August2023) and after completing the patrol session, will copy that folder to a pen drive/memory stick and submit it to the SMART Data Manager along with SMART patrol data.

14.2.2 The SMART Data Manager will copy the folder containing camera trap photos from the pen drive/memory stick and archive it in a specific folder on his/her computer; sort the images based on illegal human activities in the Sundarbans including: fishing in Wildlife Sanctuaries, poison fishing, carrying illegal fishing gears, logging, and human presence during fishing or other activity ban periods, and archive them in the respective folder. He/she will then prepare a report analyzing the photos of human activities threatening tigers and other wildlife and submit it to the Divisional Forest Officer. Based on the camera trap report, the Divisional Forest Officer will issue necessary directions to the next SMART patrol team to take immediate action in any hotspots.

14.2.3 The Camera Trap Report should include: 1) camera site names, 2) GPS coordinates of camera sites, 3) total number of photos captured, 4) number of human activity photos, 5) Camera trap summary result, and 6) recommendations.

14.2.4 The SMART Data Manager will send a copy of the Camera Trap Report to the SMART Data Coordinator with approval from the Divisional Forest Officer within three working days and store all photos in the office of Divisional Forest Officer.

14.2.5 The SMART Data Coordinator will present the Camera Trap Reports at the quarterly meeting of the SMART Patrol Coordination Committee. The SMART Patrol Coordination Committee will review the Camera Trap Reports besides the SMART Patrol Reports and suggest necessary adjustments for camera trapping in the hotspots. The respective Divisional Forest Officers and Range Officers will implement the adjustments immediately.

15. Joint Patrol Activities of Bangladesh Forest Department and Community Patrol Groups

Bangladesh Forest Department will operate joint patrols with CPGs in the Village Conservation Forum (VCF) areas adjacent to the Sundarbans. Such patrol activities should be recorded using the SMART Mobile app and reports should be generated using SMART software. For instance, a dedicated "Conservation Area" equipped with a VCF area map of the Sundarbans with an auto-reporting format (e.g., BFD-CPG Joint Patrol Report) will be integrated into the SMART software.

15.1 Joint Patrolling by BFD-CPG

Activities of the joint patrol teams will be conducted as per the following:

15.1.1 BFD-CPG joint patrol team members will conduct foot patrols for at least 6 hours per week in the VCF areas adjacent to Sundarbans and record observations using the SMART Mobile app following the same protocols as for the SMART patrol teams, where intelligence-based patrolling will be prioritized.

15.1.2 Joint patrol teams will record any illegal activities encountered in the VFC area using the SMART Mobile app and take necessary actions. Upon assessing the offense's severity, the respective Divisional Forest Officer and Range Officer should be contacted and follow their directions accordingly.

15.1.3 Patrol teams should be equipped with the Handbook for SMART Patrols in the Sundarbans Mangrove Forest of Bangladesh, VCF area map, emergency contact number, and SMART Mobile app equipped smartphone or tablet.

15.1.4 Joint patrol teams should consist of 5-10 members: 1) Patrol Team Leader, 2) Deputy Team Leader, 3) SMART Data Recorder, 4) Two armed Security Guards, and 5) Others- This will include CPG members as general crime investigators and observers.

15.1.5 CPG members should wear their uniforms while on patrol.

15.1.6 After completing patrols, patrol data should be downloaded from the SMART Mobile app to a specific computer folder and sent to the respective SMART Data Manager through e-mail or pen drive.

15.1.7 When any wildlife crime is detected and an investigation is required, the area (e.g., house, shop, etc.) should be investigated in the presence of prominent local figures including one or more of the following: Chairman, Member, Female Councilor or Watchman of the respective Union Council, as well as school teachers or the mosque's Imam. Take the signatures of the dignitaries in the seizure list and include them as witnesses in the case.

15.1.8 CPG members will assist BFD officials during searches and arrests and will be witnesses in cases if necessary. The cost of transporting the accused and witnesses (CPG) to the court will be covered by the BFD.

15.1.9 CPG members must complete the necessary training on SMART patrolling.

15.1.10 Apart from the above instructions (15.1.1 - 15.1.9), the SOP for SMART Patrols should be followed in all circumstances.

16. Data Collection Using SMART Collect Application

The SMART Collect app is a simplified version of the SMART Mobile app that documents individual incident data. Local communities, legal resource users, volunteers, tourism vessel captains and crews, tour guides, journalists, Community Patrol Groups, Village Conservation Forums, Village Tiger Response Teams, Dolphin Response Teams, and co-management organizations (collectively referred to as "citizen scientists" in this document) and trained law enforcement agency personnel (e.g., Police, RAB, Coast Guard, Navy, BGB, and Customs) will collect or report forest, wildlife or fishery related information from Sundarbans and Sundarbans-adjacent VCF areas using the SMART Collect app.

16.1 SMART Data Collection through Citizen Scientists

16.1.1 Citizen scientists should immediately report observations on tiger and other threatened species of wildlife sightings (live or dead), poaching, illegal trade of wildlife, human-tiger conflict, and other illegal human activities (e.g., carrying long rope, snare, trap, poison or insecticides, axe, saw, carving knife and machete) that could impact wildlife, their food, and habitat in writing or verbally to BFD or a BFD nominated SMART Collect Focal Person. For example, vessel captains, crew, tour guides, and legal resource users will share their observations with respective forest Station Officers (SOs) or SMART Collect Focal Persons when submitting their permits after returning from the forests or tours. Both citizen scientists and Forest Department officials must maintain confidentiality regarding information sharing.

16.1.2 SMART Collect Focal Person or BFD officials will record any of the above observations reported by the citizen scientists using the SMART Collect app on their behalf.

16.1.3 Documentation of human-tiger or any other human-wildlife conflict should include the date and time of observation, name of the observer, village, and location (GPS coordinates where available), age and sex of wildlife, duration that wildlife spent in the village, number (if any) of livestock attacked or killed, details of any humans attacked or killed, villagers' response to the wildlife, cause of death if the wildlife died during the conflict, whether a report was made to the nearest forest office, what actions were taken with any carcass, and any other actions taken with the wildlife if injured or alive.

16.1.4 One SMART Collect Focal Person will be nominated from the citizen scientists for each village under the VCF area. Someone among the citizen scientists who has a smartphone, is competent in using it, and has an interest in wildlife conservation can be selected as the SMART Collect Focal Person.

16.2 SMART Data Collection through Law Enforcement Agencies

All law enforcement agencies (such as Police, RAB, Coast Guard, Navy, BGB, and Customs officials) will report any observations related to wildlife crime, tigers, or other threatened wildlife species in or adjacent to the Sundarbans using the SMART Collect app or verbally to the BFD to enter records of such incidents.

16.3 SMART Collect Data Management

16.3.1 SMART Collect data management will follow the flowchart depicted in section 16.6.

16.3.2 SMART Data Managers will check the SMART Connect dashboard and observe the recorded data in the SMART Collect app every day and immediately inform regarding

any special observations to the respective Divisional Forest Officer and take actions as per his/her instruction.

16.3.3 SMART Data Managers will prepare a summary report on SMART Collect data every Thursday and submit to the respective Divisional Forest Officer. The Divisional Forest Officer will take necessary actions based on the report. SMART Data Managers will also prepare monthly reports on SMART Collect data.

16.3.4 Upon analyzing the SMART Collect data, SMART Data Managers will prepare a weekly, fortnightly or monthly report and submit to the respective Divisional Forest Officer for necessary actions.

16.3.5 The SMART Data Analyst at the RIMS unit will upload the received SMART Collect data into the SMART Connect Server.

16.3.6 SMART Data Coordinator will check the SMART Connect dashboard while preparing monthly reports and prepare a summary report on the SMART Collect data; include the summary report in the Monthly SMART Patrol Report with recommendations and submit it to the SMART Patrol Coordination Committee for review.

16.4 Training on SMART Collect

With support from development partners or conservation agencies, the BFD will provide training and mentoring on the SMART Collect app to selected SMART Collect Focal Persons from VCF areas adjacent to Sundarbans and other law enforcement agency officials.

16.5 Education and Outreach Activities

The BFD will conduct monthly community group meetings “Uthan Boithak” with community people in the VCF areas under the jurisdiction of respective stations and motivate them to conserve tigers and the Sundarbans; encourage them to share information on the issues mentioned above in sub-sections 16.1.1 and 16.1.3; educate and raise awareness among them on forest, wildlife, and fishery related regulations; and distribute pamphlets, stickers, posters, booklets, and leaflets. Information on each meeting should be recorded in the SMART Collect App or reported to the SMART Data Analyst at the RIMS Unit who will then record and upload it to the SMART Connect Server.

16.6 Flow Chart of SMART Data Collection, Reporting, and Management

