

Title	Effort	Task Cost	Resources Cost	Planned Start	Planned End
▼ 1) Component A: Map Existing Research Permit Systems	1w 1d				
• 1.1) Task 1. Identify the authorities in the country with responsibility for granting ABS related research permits and the details of their mandates with respect to permits.	1d				
• 1.2) Task 2. Identify the persons responsible for administering permits in the country as a basis for consultations.	1d				
• 1.3) Task 3. Consult with permit authorities on experience to date including what has worked for them and problem areas.	1d				
• 1.4) Task 4. Obtain copies of permit application forms, terms and conditions, information on storage and existing persons with access to the data.	1d				
• 1.5) Task 5. Generate process diagrams for permits within a country.	1d				
• 1.6) Task 6. Workshop to discuss experience and the desirability (or otherwise) of a single electronic system serving multiple permit granting authorities.	1d				
▼ 2) Component B: Baseline data on scientific and patent literature	1w				
• 2.1) Task 1. Obtain copies of permit data (preferably in electronic form) to including use of confidentiality agreements and data storage.	1d				
• 2.2) Task 2. Clean and then tidy permit data into formats suitable for searching literature and patent databases	1d				
• 2.3) Task 3. Obtain scientific literature for a specific country on biodiversity, genetic resources and associated traditional knowledge (indigenous peoples and local communities)	1d				
• 2.4) Task 4. Develop search patterns for patent literature using patent databases and identify appropriate tools and match criteria to distinguish between positive and negative results.	1d				
• 2.5) Task 5. Identify, and, as appropriate, develop programmatic tools to facilitate automated literature and patent searches in future that minimise requirements for human intervention.	1d				
▼ 3) Component C: Development and Implementation Plan	2w				
• 3.1) Task 1. Identify organisations or partners in the country with the technical and programming capacity to develop an electronic permit system.	1d				
▼ 3.2) Task 2. Develop a working model and engage in field testing.	1w				
• 3.2.1) Task 2.1. Develop one or more working models of the system including identifying solutions using different tools that may be best suited to the diversity of circumstances and existing capacities within a country.	1d				
• 3.2.2) Task 2.2. Consult with staff from authorities involved in checking permit data on the ground (National Parks, Customs, police and others) and identify existing approaches and tools, what already works, problems encountered, and potential solutions.	1d				
• 3.2.3) Task 2.3. Identify how checks by local level authorities can be most effectively linked to an online permit and monitoring system.	1d				
• 3.2.4) Task 2.4. Arrange field tests of solutions such as barcodes, QR code readers, html embed codes etc. with relevant authorities and adapt solutions focusing on meeting actual needs.	1d				
• 3.2.5) Task 2.5. In consultation with relevant national/international collections identify appropriate options for the inclusion of permit identifiers in sample labels and sequence data. Identify opportunities for a networked approach with participating countries.	1d				
• 3.3) Task 3. Based on experience in Task 1 & 2, including assessment of existing capacities and strengths, identify appropriate software and hardware requirements for the Core System (Component 6).	1d				
• 3.4) Task 4. Develop a costed development plan over a period of 3 years and projected costs for future years.	1d				
• 3.5) Task 5. Document experience gained and lessons learned.	1d				
• 3.6) Task 6. Where the project forms part of a network of participating countries and organisations, deposit working code and documentation in an open access repository (e.g. Git-Hub) for potential use and further development by partners.	1d				
▼ 4) Component 1: Authorities Portal	5w 2d				
▼ 4.1) Element 1.1 Enquiries [Legal component]	1d				
• 4.1.1) Task 1. Establish standard responses to enquiries as inputs into the online permit system.	1d				
▼ 4.2) Element 1.2 Review [Legal component]	1w 2d				
• 4.2.1) Task 1. Develop Guide for Applicants	1d				
• 4.2.2) Task 2. Develop Applicants Checklist	1d				
• 4.2.3) Task 3. Develop checklist for completeness by authorities (authority side should match to applicant side)	1d				
• 4.2.4) Task 4. Develop standard notifications to applicants on receipt and completeness.	1d				
• 4.2.5) Task 5. Develop individual authority checklist (or lists as appropriate to authority)	1d				
• 4.2.6) Task 6. Define criteria for validating if non-commercial or commercial research (or both)	1d				
• 4.2.7) Task 7. Establish next steps for non-commercial research including standardised MAT for non-commercial research under Article 8(a) of the Nagoya Protocol and addressing closely related issues (e.g. compliance with environmental legislation, local partners, national deposit of samples etc.).[Legal component]	1d				
▼ 4.3) Element 1.3 Negotiation [Legal component]	1w 4d				
▼ 4.3.1) Task 1. Define next steps for commercial research	1w 2d				
• 4.3.1.1) a) Establish criteria for negotiations.	1d				
• 4.3.1.2) b) Identify standard list of participants in negotiations.	1d				
• 4.3.1.3) c) Establish time frame for negotiations.	1d				
• 4.3.1.4) d) Establish environmental legislation and procedure criteria.	1d				
• 4.3.1.5) e) Establish criteria for benefit-sharing.	1d				
• 4.3.1.6) f) Establish criteria on Intellectual Property Rights.	1d				
• 4.3.1.7) g) Establish criteria for acceptance or rejection of commercial applications.	1d				
• 4.3.2) Task 2. Develop a template for standard MAT for commercial research taking into account that this may be a starting point for negotiations.	1d				
• 4.3.3) Task 3. Establish checklist of environmental terms and conditions based on applicable laws and policies. [Legal component]	1d				
▼ 4.4) Element 1.4. Approve/Reject [Legal component]	1w				
• 4.4.1) Task 1. Define standard terms and conditions (menu of clauses) for use in generating permits.	1d				
• 4.4.2) Task 2. Define areas where specific terms and conditons are likely to be needed (menu of clauses).	1d				
• 4.4.3) Task 3. Define templates for MAT/ABS contracts linked to the permit.	1d				
• 4.4.4) Task 4. Implement the harmonised document identifier system (e.g. BS20151234) to ensure links between the permit and MAT/ABS contracts are maintained across time and space.	1d				
• 4.4.5) Task 5. Implement the system to generate .pdf permits, QR codes, barcodes, HTML embed codes and labels (see applicant side tasks for testing).	1d				
▼ 4.5) Element 1.5. Appeals [Legal component]	1w				
• 4.5.1) Task 1. Establish a clear and transparent appeals process.	1d				
• 4.5.2) Task 2. Develop guidance on the appeals process for authorities and applicants.	1d				
• 4.5.3) Task 3. Develop a timeline for appeals.	1d				
• 4.5.4) Task 4. Generate standard notifications for appeals to be sent to applicants on the stage in the procedure.	1d				
• 4.5.5) Task 5. Define the form of a clear final decision.	1d				
▼ 5) Component 2: Applicants Portal	8w 2d				
▼ 5.1) Element 2.1. Information	4d				
• 5.1.1) Task 1. Develop a guide for applicants	1d				
• 5.1.2) Task 2. Develop a checklist of required information for applicants	1d				
• 5.1.3) Task 3. Test utility with selected applicants (survey/practical tests)	1d				
• 5.1.4) Task 4. Provide information on appeals process (see authority side)	1d				
▼ 5.2) Element 2.2. Applications	4d				
• 5.2.1) Task 1. Create applicant home page system.	1d				
• 5.2.2) Task 2. Establish secure username and password system.	1d				
• 5.2.3) Task 3. Define data fields for applications in consultation with relevant permit authorities. Use checkboxes wherever possible (e.g. Marine, terrestrial, national park etc.)	1d				
• 5.2.4) Task 4. Test and refine to final version.	1d				
▼ 5.3) Element 2.3 Notifications	4d				
• 5.3.1) Task 1. Establish a system for transmitting requests from the authority side to the applicant side with appropriate data fields (title, date, originator etc.).	1d				
• 5.3.2) Task 2. Define a standard list of information request types (authority side) while allowing authorities to provide specific details (headings for the request and content or body of the request).	1d				
• 5.3.3) Task 3. Establish a system for applicants to respond to requests and channel (email) the response to the originator with a notification.	1d				
• 5.3.4) Task 4. Establish a system linking unique identifiers (e.g. BS20151234) with notifications to create an integrated file register (file history) for applications within the data archive.	1d				
▼ 5.4) Task 5. Establish a system that:	4d				
• 5.4.1) a) Lists the stages in the application procedure	1d				
• 5.4.2) b) Provides the name and contact details (within the system) for the person responsible for that stage of the procedure.	1d				
• 5.4.3) c) Updates the record upon completion to show the next stage in the procedure and persons responsible.	1d				
• 5.4.4) d) Generates the permit and associated material (permit passes, labels, embed codes) and inform the applicant of availability by email. Accessed through the approvals section.	1d				
▼ 5.5) Element 2.4 Approvals	1w 1d				
• 5.5.1) Task 1. Create a system to generate a permit as a .pdf (links to authority generated master permit).	1d				
• 5.5.2) Task 2. Create system to generate a time limited permit pass and QR code generation for mobile phones and tablets.	1d				
• 5.5.3) Task 3. Create a system to generate labels for sample bags, jars and individual samples.	1d				
• 5.5.4) Task 4. Create a system for HTML embed codes (for electronic data).	1d				
• 5.5.5) Task 5. Provide instructions on the use of unique identifiers (e.g. BS20151234) in publications, patents, products, sequence and electronic data.	1d				
• 5.5.6) Task 6. Test approaches, including "permit passes" with a selection of applicants and adjust based on lessons learned.	1d				
▼ 5.6) Element 2.5 Reporting	2w 4d				
• 5.6.1) Task 1. Establish reporting section of the applicant site.	1d				
• 5.6.2) Task 2. Decide on mandatory and voluntary reporting options. [Legal component]	1d				
• 5.6.3) Task 3. Define required uses of unique identifiers (BS20151234, QR codes, barcode, html embed codes) in reporting (see element 2.4, task 5). [Legal component]	1d				
▼ 5.6.4) Task 4. Establish data fields for reporting, including, inter alia:	1w 4d				
• 5.6.4.1) a) Links to home pages and/or academic record sites such as ORCID, and social media sites such as researchgate.com or academia.edu etc. (ideally imported from information provided on application under Element 2.2).	1d				
• 5.6.4.2) b) Uploads of publications (pre-print or published).	1d				
• 5.6.4.3) c) doi (document identifier links to publications for automated retrieval).	1d				
• 5.6.4.4) d) Accession numbers for sequence data or deposits of genetic material.	1d				
• 5.6.4.5) e) Locations where collected samples are stored.	1d				
• 5.6.4.6) f) Transfers of materials to third parties and the terms and conditions of transfer.	1d				
• 5.6.4.7) g) Patent applications and grants.	1d				
• 5.6.4.8) h) Products for which market approval is sought or approved.	1d				
• 5.6.4.9) i) other information on activities arising from the permit and associated MAT.	1d				
• 5.6.5) Task 5. Test system with selected applicants.	1d				
• 5.6.6) Task 6. Adjust system based on user feedback. [Legal component]	1d				
▼ 5.7) Element 2.6 Appeals:	1w 1d				
• 5.7.1) Task 1. Provide information on the grounds for appeal. [Legal component]	1d				
• 5.7.2) Task 2. Provide information on the timeline for appeals. [Legal component]	1d				
• 5.7.3) Task 3. Provide documents for submitting appeals. [Legal component]	1d				
• 5.7.4) Task 4. Provide information on the person(s) responsible for handling appeals. [Legal component]	1d				
• 5.7.5) Task 5. Provide information on the criteria for accepting or rejecting an appeal. [Legal component]	1d				
• 5.7.6) Task 6. Provide notifications to applicant within the system including the final written decision. [Legal component]	1d				
▼ 6) Component 3: Legal	1w 1d				
• 6.1) Task 1. Compile existing legislation relevant to permits and the terms and conditions in existing permits.	1d				
• 6.2) Task 2. Clarify and establish a clear legal relationship between permits and MAT (ABS contracts) for the purposes of legal certainty.	1d				
• 6.3) Task 3. Identify areas of the online permit and monitoring system requiring legal input.	1d				
• 6.4) Task 4. Engage in legal drafting for relevant elements of the permit and monitoring system.	1d				
• 6.5) Task 5. Collaborate with technical staff in incorporating legal elements into the system.	1d				
• 6.6) Task 6. Identify future requirements for legal review as part of the system's development plan.	1d				
▼ 7) Component 4: Monitoring	1w 4d				
• 7.1) Task 1. Generate outputs from the core permit system (database) for use in the construction of search queries of scientific literature, patent literature, dna databases, product information and general web searches.	1d				
• 7.2) Task 2. Identify programmatic open source tools to automate search and retrieval of data from relevant sources (scientific literature, patents, product information and general web searches) (e.g. R, Python).	1d				
• 7.3) Task 3. Identify relevant commercial databases and analytics software to facilitate monitoring.	1d				
• 7.4) Task 4. Develop a plan for a phased transition from commercial to open sources tools (or appropriate mix of tools).	1d				
• 7.5) Task 5. Provide training for key staff focusing on developing and sustaining local capacity and provide formal training opportunities to encourage the acquisition of programming and analytics skills.	1d				
• 7.6) Task 6. Implement monitoring following the basic workflow defined in Element 4.5 on Data Analysis in the model (Gather, Clean, Analyse, Visualise and Report).	1d				
• 7.7) Task 7. Establish a system for ensuring that the outcomes of monitoring are documented and stored in the data archive for future use.	1d				
• 7.8) Task 8. Improve internal capacity through participation in a network of staff and specialists engaged in monitoring from participating countries.	1d				
• 7.9) Task 9. Develop, or contribute to, an open access Manual on ABS monitoring for use by staff and in training future trainers.	1d				
▼ 8) Component 5: Reporting	4d				
• 8.1) Task 1. Identify national and international reporting requirements under the Nagoya Protocol and, as appropriate, related international environmental agreements.	1d				
• 8.2) Task 2. Identify components of permit and related datasets that can contribute to meeting reporting requirements.	1d				
• 8.3) Task 3. Establish templates to automate data generation to meet reporting requirements in the formats required.	0h				
• 8.4) Task 4. Identify non-confidential information and develop a procedure to output appropriate data to the ABS Clearing House Mechanism.	1d				
• 8.5) Task 5. Integrate reporting templates and outputs with the core system data archive for future use.	1d				
▼ 9) Component 6: Core System	3w 3d				
▼ 9.1) Element 1: Preparatory	4d				
• 9.1.1) Task 1. Identify internal and external programming capacity for development and maintenance of the online system. (see Component C, task 1).	1d				
• 9.1.2) Task 2. As part of an open source network approach, identify existing system elements (code) shared by network participants and consider potential adoption or adaptation of existing code.	1d				
• 9.1.3) Task 3. Based on the outcomes of Component C and Tasks 1 and 2 (above) identify the appropriate software and programming languages for system development within the national context.	1d				
• 9.1.4) Task 4. Acquire relevant hardware, server and database software.	1d				
▼ 9.2) Element 2. Server Software	4d				
• 9.2.1) Task 1. Build online front page system and unique home page system for authorities and applicants.	1d				
• 9.2.2) Task 2. Install secure password system for home page access.	1d				
• 9.2.3) Task 3. Install, adapt or build the notification system between applicants and authorities and link the system to the database and data archive.	1d				
• 9.2.4) Task 4. Based on lessons learned from Component C, implement the connection between the online system and authorities responsible for checking permits within national jurisdictions (e.g. park authorities, police, customs authorities). (See also Element 3, task 4).	1d				
▼ 9.3) Element 3. Database Software	1w				
• 9.3.1) Task 1. Develop scripts for key functions with components and elements.	1d				
• 9.3.2) Task 2. Establish file register (file history) system using unique identifiers (e.g. BS20151234).	1d				
• 9.3.3) Task 3. Develop scripts to link to the Data Archive, Secure Backup and Physical Archive.	1d				
▼ 9.3.4) Task 4. Identify and address additional software/coding needs for the generation of permits with particular attention to the technical aspects of:	2d				
• 9.3.4.1) a) QR Code based permit passes.	1d				
• 9.3.4.2) b) Labels for specimen bags, specimens and related records.	1d				
▼ 9.4) Element 4. Data Archive	4d				
• 9.4.1) Task 1. Establish a Data archive including secure backups.	1d				
• 9.4.2) Task 2. Identify and implement appropriate ways of outputting data to the physical archive while maintaining links with the unique identifier system.	1d				
• 9.4.3) Task 3. Cloud storage. Assess the stability of existing infrastructure to determine the desirability of use of a cloud based server, cloud based storage and backups. Discuss the confidentiality and security implications of cloud based data storage outside national jurisdiction and take appropriate decisions on adoption. [Legal element]	1d				
• 9.4.4) Task 4. Secure offline storage. Identify appropriate options for secure offline storage of confidential information.	1d				
▼ 9.5) Element 5. Development Cycle Planning	1d				
• 9.5.1) Task 1. Establish a procedure for updating the development plan for the online system (Component C, task 4).	1d				