



WATER
for GROWTH
RWANDA

IWRM Programme Rwanda

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List of Abbreviations

CC	Catchment Committee
CCA	Cross Cutting Area (of NST1 / Vision 2050)
CP	Catchment Plan
CROM DSS	Catchment Restoration Opportunities Mapping Decision Support System
CTF	Catchment Task Force (predecessor of CC during W4GR)
DDS	District Development Strategy
EIA	Environmental Impact Assessment
GIS	Geographic Information System
IWRM	Integrated Water Resources Management
M&E	Monitoring and Evaluation
NCEA	Netherlands Commission for Environmental Assessment
NST1	National Strategy for Transformation 1 (2017-2024)
REMA	Rwanda Environmental Management Authority
RWFA	Rwanda Water and Forestry Authority
SEA	Strategic Environmental Assessment
SSP	Sector Strategic Plan
TSC	Technical Support Committee (of the Catchment Committee)
W4GR	Water for Growth Rwanda
WRMD	Water Resources Management Department (of RWFA)

1. Introduction

1.1 Integrated spatial planning at catchment level

Catchment planning is a form of spatial planning (integrated planning of land, water, and related resources) and is based on the principles of Integrated Water Resources Management (IWRM). The IWRM planning cycle (Figure 1) combines the cyclical process of Catchment Plan (CP) development with a continuous learning process. Awareness of IWRM principles, knowledge about the catchment, and capacities to manage the catchment sustainably increase during each revolution of the IWRM planning cycle. In Rwanda, Catchment Plan development is integrated with the process of Strategic Environmental Assessment (SEA). This integration is based on key shared principles between IWRM and SEA, such as an integrated, participatory approach and the inclusion of monitoring and evaluation, to learn lessons, to correct or adapt during implementation where necessary, and to inform subsequent plans (Annex 1). An example typical Table of Contents of a Catchment Plan is provided in Annex 2.

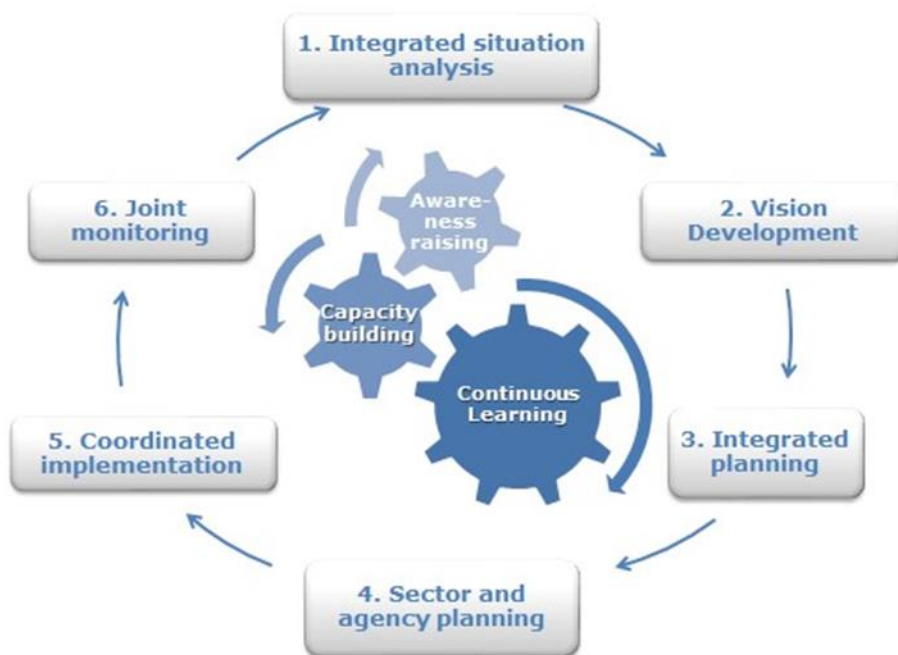


Figure 1: IWRM planning cycle

1.2 Catchments of Rwanda

A catchment, also called watershed, is any area of land where precipitation collects and drains off into a common outlet, such as a river, lake, or other body of water. A catchment contains all the surface water from rain runoff, and nearby streams that run downslope towards the shared outlet, as well as groundwater stored in soil and aquifers and flowing through the underground, contributing to base flow of rivers.

Catchments can be defined at several scales, depending on the number of branches in the system of watercourses. They can be hierarchically sub-divided into smaller catchments, or sub-catchments, micro-catchments and individual watercourses, as the number of branches in the system reduces.

Rwanda distinguishes four catchment levels in its National Water Resources Master Plan¹. The country comprises two basins: the Congo River basin (Congo Basin) in the west, fed by the Kivu and Rusizi level one catchments; and the River Nile basin (Nile Basin) in the east, fed by seven other level 1 catchments, namely: Upper Nyabarongo, Lower Nyabarongo, Mukungwa, Akanyaru, Upper Akagera, Lower Akagera, and Muvumba catchments. Within these nine level 1 catchments, 20 level 2 sub-catchments are distinguished, dozens of level 3, and hundreds of level 4 catchments.

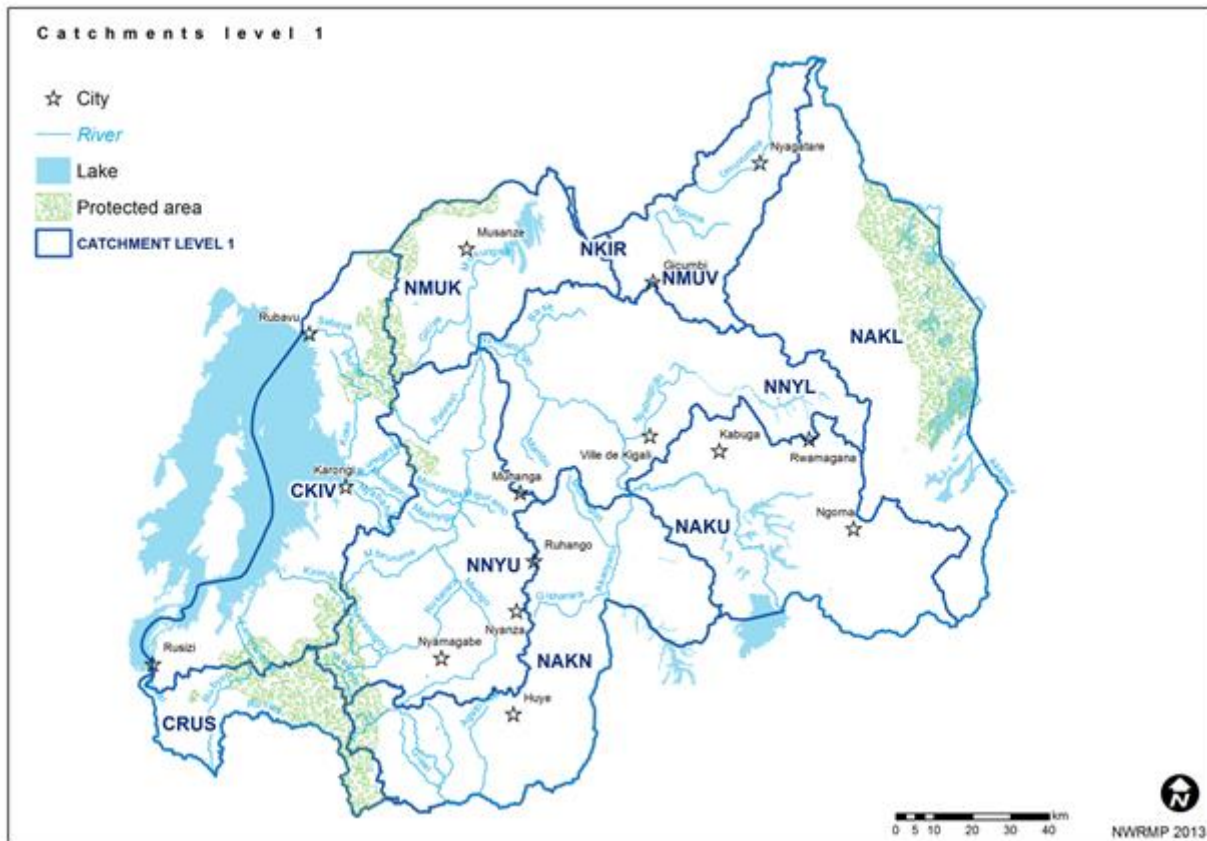


Figure 2: Map of level 1 catchments of Rwanda (source: National Water Resources Master Plan, 2014)

1.3 Intended use of this manual?

This manual serves different target groups during the development of Catchment Plans.

- Those developing the catchment plan, integrated with conducting the SEA process:
 - The Technical Support Committee of the Catchment Committee (details in Chapter 3. supported by
 - Catchment Officers of the Water Resources Board;
- Those taking decisions during the plan development process
 - The Catchment Committee;
 - Rwanda Environmental Management Authority (REMA), and;
 - The Cabinet of the Government of Rwanda;
- Stakeholders who will be or want to be informed during the process.

¹ MINIRENA, October 2015. Rwanda Water Resources Master Plan.

In addition, this manual contains initial guidance for the Catchment Plan implementation process. At the time of writing, the first four Catchment Plans were about to be endorsed by Cabinet. Anticipating formal endorsement, first ‘Catchment Plan Annual Implementation Plans’ (AIPs) have been developed by teams comprising the Catchment Task Force, District staff including Directors of Planning and Natural Resources Officers, supported by W4GR Programme Officers and WRMD Catchment Management Officers. As much as possible, GIS was used to map physical infrastructure interventions based on existing Imihigo commitments, following the process mapped out in Annex 6.1. For subsequent years, timely, integrated development of AIPs should inform sectorial and district planning and (joint) Imihigos. The draft process for this is outlined in an information & process flow chart in Annex 6.2.

1.4 Structure of this document

This document is structured along the main phases and detailed steps and sub-steps of catchment plan development. The annexes provide reference materials. Annex 1 provides information on integration of IWRM and SEA. Annex 2 presents a standard table of contents for a catchment plan. Annex 3 summarises the current REMA guidelines for SEA (under revision). Planning for the implementation phase of catchment plans is addressed in Annex 4. Guidance for the development of a Monitoring and Evaluation (M&E) plan for Catchment Plan implementation is given in Annex 5, and guidance for development of Annual Implementation Plans (AIPs) for joint execution of Catchment Plans is provided in Annex 6.

This document was reviewed by the Water Resources Management Department (WRMD) of Rwanda Water and Forestry Authority (RWFA), by the Rwanda Environmental Management Authority (REMA), and by the Netherlands Commission for Environmental Assessment (NCEA), who previously acted as trainers and coaches in the development of the first four Catchment Plans in Rwanda, under Water for Growth Rwanda (2015-2019). The review letter of NCEA of 10 April 2019 is provided in Annex 7. A validation workshop was held on 23 April 2019. A list of participants is included in Annex 8.

2. Process

2.1 Integrated process based on SEA & IWRM principles

In Rwanda, the development of catchment plans is integrated with the Strategic Environmental Assessment (SEA) process. The internationally most accepted OECD-DAC (2006) SEA definition reads as follows: ‘Analytical and participatory approaches to strategic decision-making that aim to integrate environmental considerations into policies, plans and programmes and evaluate the inter linkages with economic and social considerations.’ Rwanda Environmental Management Agency (REMA) defines SEA as a ‘systematic, ongoing process for evaluating at the earliest stage, the environmental quality and consequences of alternative visions and development intentions incorporated in policy, planning or programme initiatives, to ensure full integration of relevant biophysical, economic, social and political considerations’ (General Guidelines and Procedures for Strategic Environmental Assessment, REMA, 2011). At the time of writing this Catchment Plan Development Manual (April 2019), REMA is developing new SEA guidelines.

Rwanda’s Organic Law on the Environment (N04/2005)², Chapter 4, Article 67, states:

1. Every project must be subjected to an initial environmental impact assessment (EIA) in order to obtain authorisation for its execution;
2. The same applies to programmes, plans and policies that may affect the environment (SEA).

From these criteria it becomes clear immediately that Catchment Plans belong to the second category. In such cases, the actual need for an SEA is identified in the first SEA step. This ‘Screening’ step led to broad support for the conclusion by participants from national government entities in the first National SEA Training, that an SEA is required by law for the development of catchment plans³. Moreover, training participants agreed that the SEA process would provide significant added value in terms of stakeholder participation and transparent decision making.

Any implementation projects derived from the Catchment Plan, fall into category 1, requiring and EIA.

2.2 Process steps and time required

The process described in this manual is the result of the initial process design within Water for Growth Rwanda, on the basis of which Catchment Plans were developed for Sebeya, Upper Nyabarongo, Nyabugogo, and Muvumba. Annex 1 provides an elaborate description of how the IWRM cycle and SEA process have been integrated. Several adaptations were made to incorporate feedback on this process from REMA and to present the integrated process in an as-simple-as-possible manner in this manual. Official review and approval moments have been included in the Catchment Plan & SEA development process.

Participatory planning takes time. Plan partners and stakeholders in the process need to convene multiple times and need to consult the people they represent at key moments. To avoid a lengthy process in which participants might lose interest, the entire process duration needs to be limited. Participants must be

² Now replaced by the new Environment Law of 2018.

³ This conclusion underlies the outputs of the National Training Workshop of SEA for IWRM in Rwanda, reported in a Workshop Report, Roadmap, and Workshop Outputs (NCEA, 16 October 2015).

informed consistently on the steps in the process and content needs to be well prepared. An important task lies with the Water Authority⁴: the better a catchment planning process is prepared and conceived, the quicker the participatory will run, the easier it will be to maintain the interest and obtain the buy-in from stakeholders, and ultimately the more effective the process will be and the better the resulting plan will be.

The main steps of the catchment planning process (or rather the integrated development process of catchment plan and SEA) are provided in Figure 3 and further detailed into sub-steps and outputs in Figure 4 and Figure 5. In subsequent chapters, each phase is elaborated in sections on the steps and sub-steps within that phase.

Provided that the process for a new catchment plan is well prepared by the Water Authority, that the Ministerial Order on Catchment Committees⁵ has come into effect, that data and staff are readily available at the Water Authority, and sufficient funds are available to carry out the participatory process, the total duration of catchment plan development could be around 1.5 years. If data availability on a catchment of interest is considered too limited to start up a smooth planning process, the Water Authority may decide to either start with a self-led data and information gathering campaign, or it may agree with District Authorities within the catchment beforehand upon a longer process (e.g. up to 2 years).

It is worth mentioning that the development of the first four (demonstration) Catchment Plans for Sebeya, Upper Nyabarongo, Nyabugogo, and Muvumba took around three years. A plan process of 1.5 to 3 years may be longer than regular in Rwanda, but the participatory approach introduced in the four demonstration catchments has led to significant ownership and commitment among stakeholders (the Catchment Task Forces as well as national and district authorities). This is already noticeable in the development of the first joint Catchment Plan Annual Implementation Plans and is expected to prove very valuable in eventual implementation of the Catchment Plan and joint monitoring and evaluation thereof.

The Catchment Committee (CC) will hold biannual meetings. The CP development process is kicked off by a CC meeting and two more will follow as a minimum requirement. Official endorsement by the Cabinet forms the one-but-last step of the process, upon which a public version can be finalised and publicised. Subsequently, biannual meetings of the CC will be targeted at optimal implementation of the plan.

⁴ At the time of writing (April 2019), the Water Authority as meant in the Water Law of 2018 is the Rwanda Water and Forestry Authority and in particular its Water Resources Management Department. At the same time, efforts are being made to establish a national Water Resources Board, which would henceforth become the designated Water Authority.

⁵ The Water Law of 2018 provides for a Catchment Committee to be set up in each catchment for which a Catchment Plan is developed. A Ministerial Order will be gazetted to define scope, mandate, composition, funding, etcetera of the Committee. At the time of writing (April 2019) a draft Ministerial Order has been prepared, but not gazetted yet.

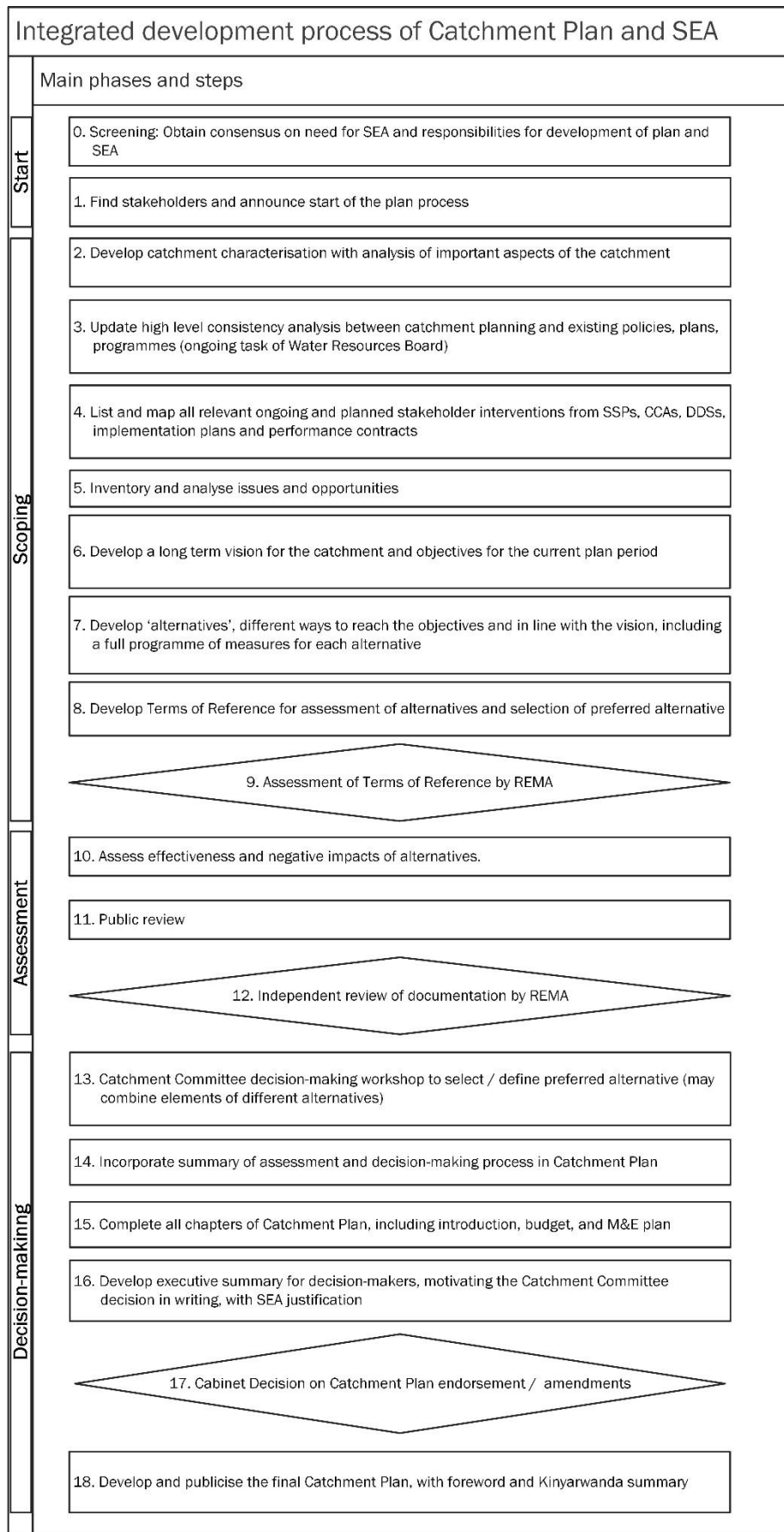


Figure 3: Main steps of integrated development process of Catchment Plan and SEA

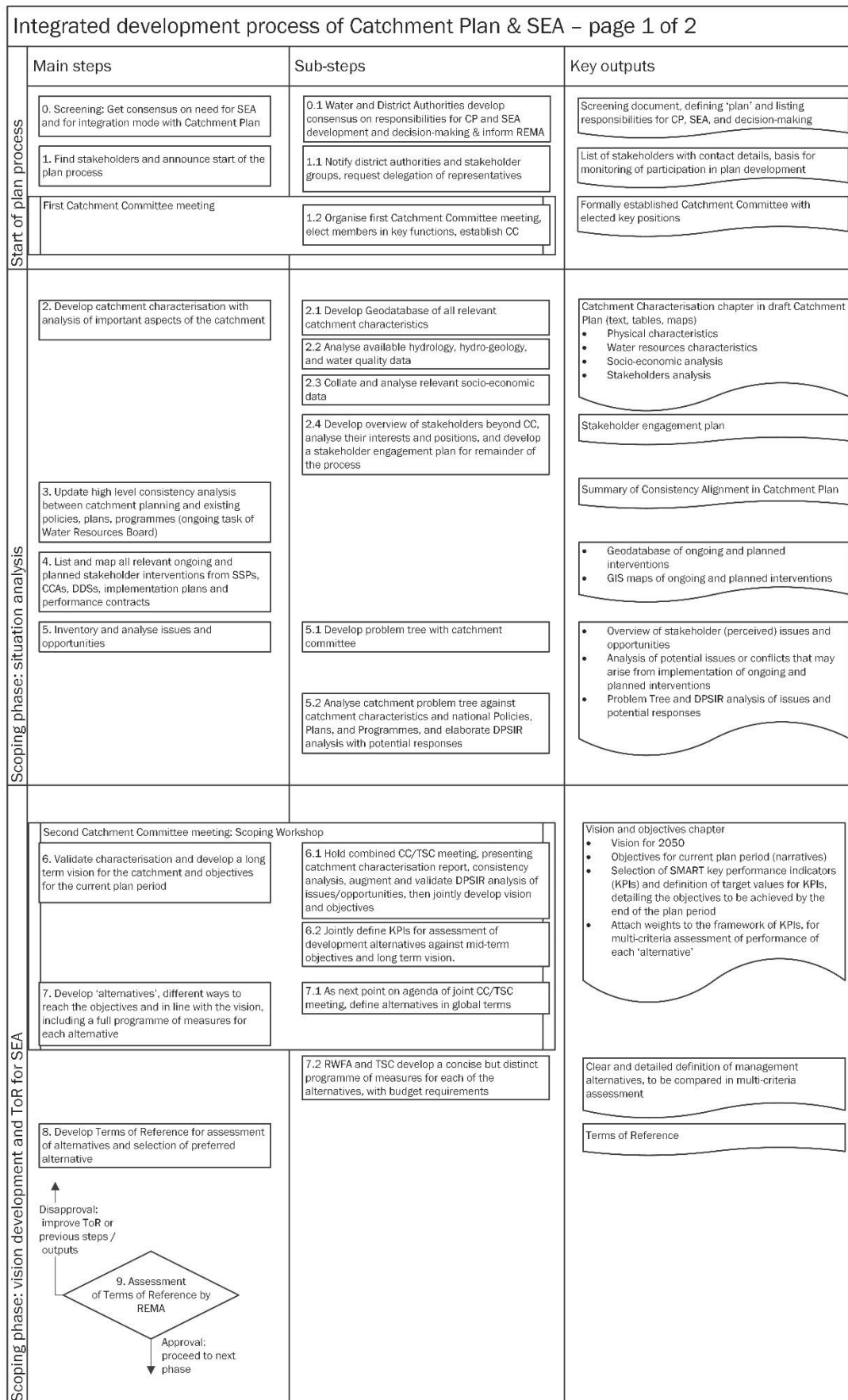


Figure 4: Detailed process steps and outputs (page 1 of 2)

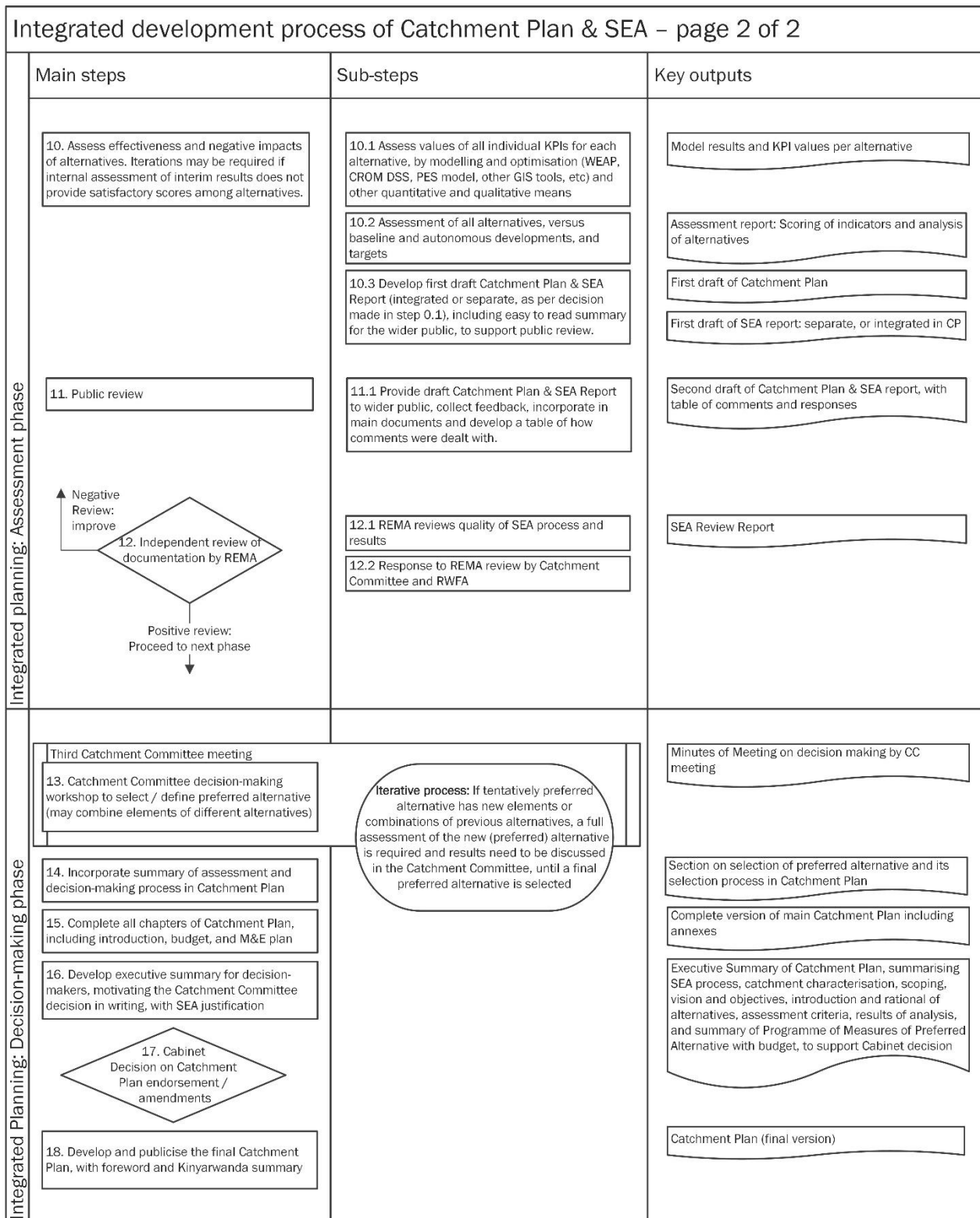


Figure 5: Detailed process steps and outputs (page 2 of 2)

3. Start of Plan Process

3.1 Step 0: Reach consensus on need for SEA and modalities for CP & SEA process

At national level it was agreed in the SEA Training, provided by NCEA in 2016, that Catchment Plans officially require SEA. Nevertheless, consensus on this shall also be obtained from the key authorities in any catchment for which a Catchment Plan is to be developed. This is not only to determine (again) whether SEA is necessary, but also to find *consensus* on the need for SEA, to which plan it will be linked (in other words ‘what will the catchment plan cover?’), in which way it will be integrated, and who will be responsible for the development of SEA, plan, or both, and who will be responsible for decision making on SEA, plan or both.

In this step, the Water Authority starts by consulting MINALOC. Next, District Mayors are notified by the Water Authority, through formal channels involving MINALOC. Local authorities should be represented by District Mayors or (at least) Vice Mayors for Economic Development, in order to obtain high-level commitment.

Explicit prior agreement on the above-mentioned issues, before starting the actual process, will provide a solid basis for the remainder of the process and give it legitimacy.

The main **output** of this step is a screening document that includes details on the type of plan that will be developed, the need for SEA, agreed upon responsibilities for development of the plan and the SEA, and for decision-making. Moreover, a Road Map for SEA & Catchment Planning should be included, based on this current manual.

3.2 Step 1: Find stakeholders and announce start of the plan process

3.2.1 Introduction

As per SEA guidelines, the start of the plan process needs to be announced formally to the relevant stakeholders. This step consists of 2 sub-steps: in step 1.1, authorities and stakeholder groups are notified; in step 1.2 their representatives convene to establish the Catchment Committee.

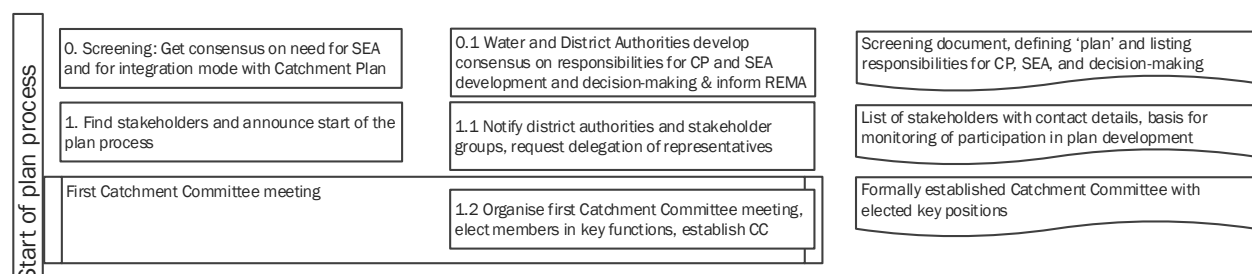


Figure 6: Start of plan process (steps, sub-steps, outputs)

3.2.2 Step 1.1: Notify district authorities and stakeholder groups, request delegation of representatives

The Water Authority, in close collaboration with the Vice Mayors for Economic Development, announces the start of the plan process to relevant stakeholders. Finding the right people within the largely pre-defined organisations is a process that may take a while. It is important to involve the district authorities in each relevant district within the catchment as soon as possible, and to do so with consent from MINALOC. District staff will subsequently be able to identify focal persons representing different stakeholder groups. Plan partners and stakeholders include government entities at national and district level as well as representatives of private sector and civil society, insofar they have an interest as water user or (co)manager of water, land, and related natural resources in the catchment. A Ministerial Order on Catchment Committees will define the categories that will be represented in a Catchment Committee, which needs to be established in the next sub-step. The list of stakeholders to be notified of the start of the plan process may however be longer, depending on local circumstances. Not every stakeholder can be taken on board in the entire process, but they should be informed (after step 1.2) on the composition of the Catchment Committee, to know who represent(s) their interests.

As **output** of this sub-step, a simple database of stakeholder representatives with contact details should be established, which forms the basis for sending out invitations for CC and Technical Support Committee (TSC) meetings, and for gender-disaggregated monitoring of participation levels in plan development. The simple database, which might be in excel or in a relational database platform, can be set up to store key characteristics of individuals (organisation, position, specific interest, gender, contact details) as well as to store information on invitations and actual participation of individuals. The database should be able to allow for new persons to be added, and positions to be changed over time. The W4GR database may be reused for this.

3.2.3 Step 1.2: Organise first Catchment Committee meeting and elect members in key functions

The Rwandan Water Law of 2018 introduces the Catchment Committee (CC) as institutional entity to facilitate collaboration between districts and stakeholder groups at catchment level. All districts with a significant surface area within the catchment are included (e.g. where catchment area within the district exceeds 5% of the district or 5% of the catchment, and/or where human activities influence flow and water quality by means of land use or water abstractions). Composition and mandate of the CC are laid down in a Ministerial Order (2019). This also introduces the composition, roles, and mandate of the Technical Support Committee (TSC), comprised of a selection of key technical staff from all districts represented in the CC. Both are supported in first instance by the WRMD of RWFA (or its legal successor), and where needed by external experts. The composition of the CC and relation to support structures is provided in Figure 7.

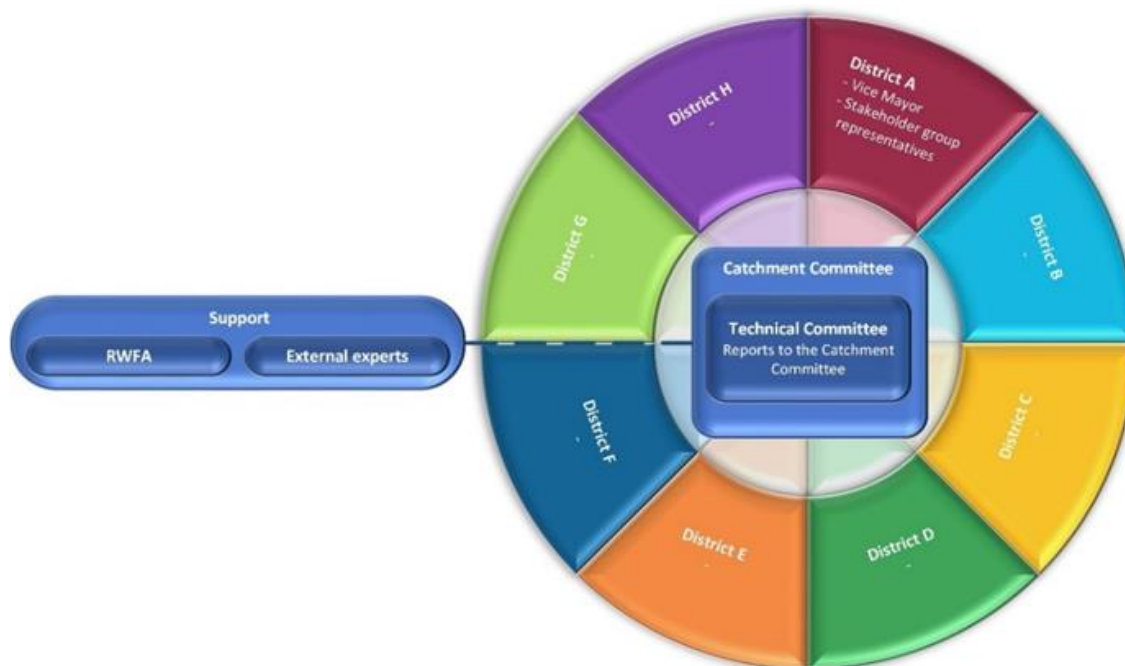


Figure 7: Catchment Committee and support structure

In sub-step 1.2, RWFA invites the delegates and representatives identified in sub-step 1.1 for the first CC meeting. In this meeting, both the CC proper as well as the TSC will be invited in full, i.e. the full list of positions will be invited from each district in the catchment.

RWFA introduces the concepts of IWRM and the process of catchment planning with integrated SEA, informing all stakeholders present on the rationale for a catchment plan, the legal need for SEA, and the roadmap for their development. Moreover, RWFA will inform participants on the roles and mandates of the CC and the TSC. During the meeting, a chair will be elected for the CC, and a concise TSC will be elected from among technical staff from all districts present, in such a way that each district is represented by at least 1 staff, and all staff positions (e.g. natural resources officer and agriculture officer) are represented in the concise TSC by at least 1 district staff member.

The main **output** of this step will be the official composition list of the CC and concise TSC. From this point onwards, RWFA and its potential external advisors will collaborate very closely with the TSC in every step and sub step of the process. They will also jointly prepare and play an active role in subsequent meetings of the CC.

Institutionalisation

Local government staff and political representatives (Mayor and Vice-Mayors) require prior approval from MINALOC for activities initiated by other Government entities, in particular if these occur outside their own district. Standard requirement is a request to MINALOC at least two weeks in advance. It is recommended to develop a detailed meeting schedule for the CC at the start of the process and request blanket approval for the entire CP development process. Full support from MINALOC and individual districts will also be required for the selected members of the TSC. CC and TSC members should not only be allowed to participate in meetings and to collaborate; their roles and tasks in CP development (and subsequently: in CP implementation) should also be anchored in their individual performance contracts / imihigo, to ensure focus on delivery and performance. A default draft imihigo entry line may be developed upon gazetting of the Ministerial Order on Catchment Committees.

4. Scoping phase / situation analysis

4.1 Introduction

The situation analysis is the first sub- phase of the scoping phase. In this part of the process, RWFA and the TSC develop a common understanding of the current state of the catchment and the institutional environment in which the catchment plan is being developed. Ultimately, a joint understanding is built of the key issues and opportunities in the catchment and of potential responses to manage these successfully and pro-actively. Main steps, sub-steps, and key outputs are provided in Figure 8 and elaborated in the sections hereunder.

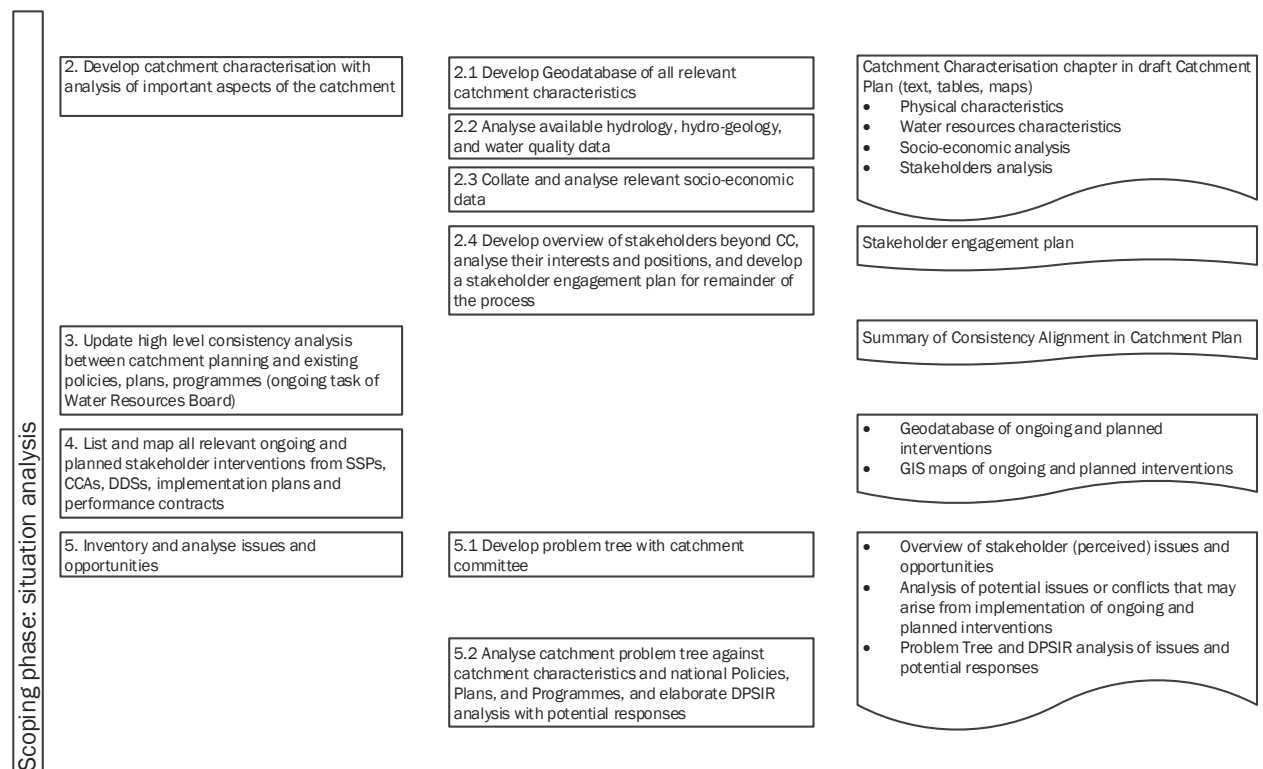


Figure 8: Scoping phase / situation analysis (steps, sub-steps, key outputs)

4.2 Step 2: Catchment characterisation

4.2.1 Introduction

Catchment characterisation takes place in four sub-steps, which are elaborated in the sections below.

- 2.1. Develop Geodatabase of all relevant catchment characteristics;
- 2.2. Analyse available hydrology, hydro-geology, and water quality data;
- 2.3. Collate and analyse relevant socio-economic data;
- 2.4. Assess stakeholders, their interests, and develop engagement plan

4.2.2 Step 2.1: Develop geodatabase and simulation models of catchment characteristics

Catchment planning is a form of spatial planning, within natural rainwater catchment (watershed) boundaries. These boundaries do not overlap with administrative boundaries, so a new starting point needs to be developed for understanding and management of the spatial area under concern. As a first sub-step, relevant spatial information is gathered and combined in a geodatabase. This comprises spatial information on the physical environment as well as the socio-economic and cultural environment as they are at that moment.

The key output of this sub-step is the geodatabase, and a series of maps with tables and narratives, as part of the Catchment Characterisation chapter of the Catchment Plan. Most of the required information about the physiography, or the physical environment of the catchment, is available at RWFA and national partners. A list of key maps to be developed at this stage is as follows.

- Geology map
- Soil map
- Hydrographic map
- Elevation map
- Sub-catchment delineation map
- Land Use / Land Cover map
- Map of existing soil erosion control areas (digitise existing terraces and other protection works)
- Flood risk map
- All maps of CROM DSS
- Demographic density map at most detailed level
- Poverty map at most detailed level
- Map of key anthropogenic infrastructure

A series of tools can be used to disclose this information, and to develop additional information based on analysis of existing data. The main instruments are:

- **GIS** for development of maps of existing geo-datasets and for spatial analysis / combination of geo-datasets to arrive at new, tailor-made information for catchment planning;
- **WEAP models** for water balance and water allocation simulations, used at this stage to model the **Baseline** (the present situation) and **Autonomous developments** (what happens if a catchment plan is not developed and implemented), under different population/demand/climate change **scenarios** or potential **'futures'**. An additional standard model simulation, considering implementation of all plans/programmes/projects that have been already decided upon, is often called **'business as usual'**;
- **CHIRPS** – an online resource for precipitation and evapotranspiration data, to feed into e.g. WEAP models, potentially to be replaced by RMA datasets;
- **WaPOR** – the FAO Water Productivity Portal, to augment CHIRPS data where needed and to analyse potential and actual crop water productivity in the catchment;
- **LULC** – the Land Use / Land Cover map, to analyse the land use in the catchment and (among others) to feed into the WEAP model;
- **CROM DSS** – the Catchment Restoration Opportunities Mapping Decision Support System, to analyse and map the areas at risk of landscape degradation, to inform decision making on opportunities for catchment landscape restoration;
- **HEC RAS, HEC HMS**, and other models to analyse the hydrology and hydraulic functioning of the catchment and to identify flood prone areas.

These instruments are briefly explained or referred to in the Knowledge Management Strategy of the Water Resources Management Department (W4GR TR89, 2019), or available online. The Knowledge Management Strategy formed the basis for the development of the Knowledge and Forecasting Hub – the largest department in the future Water Resources Board. Staff members of this department will be assigned to

manage, utilise, and further develop the above-mentioned instruments, which are considered vital for sustainable water resources management in Rwanda in years to come.

As main **output** of this sub-step, and input to the Catchment Characterisation chapter in the CP, all maps need to have a clear legend and need to be accompanied by a narrative and, where relevant, by tables further explaining the content of the maps.

4.2.3 Step 2.2: Analyse available hydrology, hydro-geology, and water quality data

Any catchment plan is about managing water, in its context of land and related natural resources, so any data that are available to describe the state of water in the catchment, need to be analysed and summarised in the Catchment Plan. At the time of development of this manual, early 2019, data availability is limited, where hydro-geology (groundwater) and water quality are concerned. Over time however, more and more data and derived information products will become available from the water resources monitoring programme (comprising hydrology, water quality, and groundwater). Second versions of catchment plans, around the year 2030, will therefore be much richer in this analysis. Moreover, information that becomes available during CP implementation can always be used to develop interim updates of the catchment plan, or to inform implementation planning and M&E.

The key **output** of this sub-step is formed by the sections on water resources characteristics, in the CP chapter on catchment characterisation.

4.2.4 Step 2.3: Collate and analyse relevant socio-economic data

Catchment plans are developed in order to support sustainable development of the area. This includes socio-economic development, for which natural resources availability forms a prerequisite. A socio-economic profile of the catchment is developed on the basis of demographic information from the National Institute of Statistics of Rwanda (NISR), the latest Integrated Household Living Conditions Survey / Rwanda Poverty Profile Report⁶, key infrastructure data and maps from different sources, including GIS files of districts and line ministries, as well as District Development Strategies, information on economic activity from MINICOM and MINAGRI, and external reports. It is important to include proper references to all data presented, since the catchment characterisation is largely based on external information. Several data come in the form of tables, others are readily available as maps. This list of maps to be developed in the geodatabase is presented above, under Step 2.1 (Section 4.2.2).

The main **output** of this sub-step consists of geoinformation in the geodatabase, turned into, and augmented with tables and narratives in the relevant sections of the Catchment Characterisation chapter of the Catchment Plan.

4.2.5 Step 2.4: Stakeholder assessment and engagement plan

Participatory planning requires a good overview of relevant stakeholders and their roles and interests. In this sub-step, an overview is developed that stretches beyond the stakeholders in the CC. This extended group includes Civil Society Organisations (CSO) including (i)NGOs, private sector, a wide range of Government entities, departments, and agencies at national and local level, temporary actors such as projects or programmes, and stakeholders from the education sector. Water users from private and (semi) public sector require dedicated attention, as well as the main managers of the landscape: small farmers. Where opportune, it is recommended to map the physical area of interest of each significant stakeholder in GIS. Area managed by small holder farmers (the majority of (rain)water users and land managers) can be retrieved by analysing the Land Use / Land Cover (LULC) map, by combining geo-information of commercial farmland and woodlots with LULC perennial or annual (seasonal) crop land and forests categories. Mapping

⁶ At the time of writing, this is EICV5, NISR, 2018, covering data of 2016-2017.

stakeholder geographical areas will allow for more focused detailed interaction in subsequent stages of plan development and implementation.

Once the overview of stakeholders has been developed and their roles and interests are mapped out, a stakeholder engagement plan needs to be developed. Ultimate goal of stakeholder engagement / participation is to obtain buy in for the catchment plan. This is best achieved if stakeholder interests are incorporated in the plan, through true participation or representation, and by keeping all relevant stakeholders, also those at a slightly greater distance from the plan development process, informed. A key benefit from this participatory approach, as advocated in SEA and IWRM best practices, is that those who feel part of the plan development process are much more likely to support plan implementation. On the contrary, parties or stakes that have not been represented or addressed during plan development, may oppose plan approval and/or implementation, leading to inevitable delays and sub-optimal achievement of plan objectives. Standard practice is to compensate stakeholders who suffer from plan implementation in a reasonable manner; such compensation measures must be included in the catchment plan.

The key **outputs** of this sub-step thus include a stakeholder analysis, ideally supported by a GIS map identifying their physical areas of interest, and a plan for stakeholder engagement throughout plan development and implementation. A summary of the analysis needs to be included in the Catchment Characterisation chapter of the CP. The stakeholder engagement plan needs to be included in an annex, as part of the SEA process justification.

4.3 Step 3: Update high level Consistency Analysis

An in-depth consistency analysis between (the concept of) catchment planning and existing policy documents was carried out in 2016 under W4GR (TR16). In 2017-2018 a further process of alignment took place within the development of the four demonstration Catchment Plans under W4GR (TR84-TR87, 2018 and subsequent Cabinet versions of the Catchment Plans, 2019), ensuring optimal coherence between national and local (district) implementation strategies of NST1, the National Strategy for Transformation (2017-2024) and Vision 2050. The first series of Catchment Plans was meticulously aligned with Sector Strategic Plans (SSPs) and District Development Strategies (DDSs), as well as Cross Cutting Areas (CCAs). In years to come, these will be further worked out in annual implementation plans, which need to be reflected where opportune in new CPs, as well as in CP Annual Implementation Plans (AIPs). Moreover, additional laws, regulations, policies, programmes, and plans may be developed by any key stakeholder. In this step, such new elements should be added to the existing analysis as developed under W4GR, and implications for new CPs and vice versa, need to be well documented and incorporated.

The main **output** of this sub-step is therefore an updated summary of the consistency alignment annex and summary. Subsequently, key recommendations need to be incorporated into the new CPs, and where necessary, RWFA should provide feedback to the Government entities behind any updated or new policy documents, in order to make them IWRM-proof before coming into force.

4.4 Step 4: List and map all relevant ongoing and planned interventions, plans, and imihigos

This step is closely linked to the previous step, but now focusing at concrete interventions (physical, institutional, or related to knowledge management) entirely or partly within the catchment or with concrete implications at (sub)catchment level. This activity requires careful study of imihigos and annual action plans of districts and other stakeholders active in the catchment. All relevant interventions need to be mapped, listed, and described. These include all interventions that have a physical influence on management or use of land, water, and related natural resources; and all interventions that strengthen institutional and personal capacities of actors in the catchment to manage natural resources in the catchment or to enhance socio-economic development insofar this is related to water and other natural resources. Again, where possible the spatial extent of interventions should be mapped in GIS.

The **outputs** of this sub-step include tables, narratives, and in particular a map of all relevant interventions in the catchment, ongoing or planned for the CP period. The physical interventions stand out, as they may directly influence water availability and quality in specific locations or areas within the catchment. The following map is therefore to be added to the geodatabase:

- Map of planned or ongoing significant infrastructure interventions by any stakeholder.

4.5 Step 5: Inventory and analyse issues and opportunities

4.5.1 Introduction

In this step, an inventory and analysis are made of issues and opportunities in the current situation and anticipated for the future, pertaining to existing policies, plans, and programmes and ongoing and planned interventions (Steps 3 and 4). Whereas the current step 5 suggests a logical, predefined order or sequence in the planning and SEA process, this order or sequence may be different in different plan development processes, and steps may also be carried out in parallel. Sometimes iteration of steps can be necessary or useful.

4.5.2 Step 5.1: Develop problem tree with Technical Support Committee

It is very important in any plan process to develop a joint understanding of the issues and opportunities that the plan needs to address. Inevitably, this requires a participatory process, and for the catchment plan this needs to be conducted with the Catchment Committee and the Technical Support Committee. In order to save time and money and to optimise quality, a first inventory of catchment issues in terms of water resources related risks can already be prepared by staff of the Water Authority and the TSC, based on available information and local insights. Whereas this initial assessment should not lead or replace the participatory process with the Catchment Committee, it will help to complete the assessment of issues and opportunities in an efficient manner and it reduces the risk of overlooking important information during the participatory process in Step 6, when the initial inventory and analysis of issues and opportunities will be augmented and validated by the CC.

Key sources of readily available information informing the assessment include, but are not limited to, the following.

- The Risk Atlas of the former Ministry of Disaster Management and Refugee Affairs (MIDIMAR), combined with data on prevalence of landslides and other recent emergencies from its successor, the Ministry of Emergency Management (MINEMA);
- Flood risk mapping (GIS, HEC RAS, HEC HMS) by experts of the Water Authority, consultants, or other sources;
- Meteo Rwanda (RMA) data on weather and climate, to identify risks related to floods and drought, incorporating climate change forecasts;
- Risks and opportunities for landscape restoration, which can be assessed beforehand using CROM DSS.

A desk-based study can also investigate socio-economic development opportunities, e.g. from District Development Strategies or from national level studies.

Next, the issues and opportunities should be translated into a problem tree, to map out the relationships between causes and effects. This forms the basis for the definition of potential responses (interventions, eventually leading to a programme of measures for the CP) in the next step.

Key **outputs** from this scoping workshop are the maps and tables of (ranked) issues and opportunities, and a translation thereof into a jointly developed problem tree for the catchment.

Looking ahead at the scoping workshop (Step 6)

After this desk-based inventory, participatory augmentation and validation takes place in Step 6, in the scoping workshop with the Catchment Committee, the Technical Support Committee, augmented with third parties if deemed necessary. In that step, it is important to first gather the original issues and opportunities from participants, as per their own perception, and unbiased as yet by the additional information that was collected in the desk study. This information should only be provided to the scoping workshop participants after an initial inventory round. This inventory should make use of 'blank' maps (A0 sized maps of the catchment, on which issues and opportunities can be drawn in groups). At this stage, basic maps from the initial catchment characterisation can be made available to participants, e.g. by mounting printed copies on the wall. After the first inventory round, results should be compared to the results of the desk study, and jointly a map and tables should be developed of the most pertinent issues, and the best opportunities in the catchment. Scoring can be used to rank both in order of importance for the catchment plan.

4.5.3 Analysis of issues, opportunities, and potential responses

Starting from the preliminary problem tree and associated maps and tables, whilst taking into account all other information gathered to this moment in characterisation of the catchment (i.e. all previous steps and sub-steps), staff of the Water Authority and the Technical Support Committee jointly analyse the identified issues and opportunities, augment these with additional potential issues and opportunities that may arise from ongoing or planned interventions within or outside the catchment (e.g. dam development upstream or downstream of the catchment, inter-catchment water transfers, etcetera), to subsequently develop potential responses in a DPSIR⁷ analysis. DPSIR works like a problem tree analysis, which focuses on causes (DPSIR Driving forces), issues (DPSIR Pressures), and effects (DPSIR States of the environment and Impacts thereof). DPSIR Responses are the potential measures that can be taken to improve the situation, by targeting drivers, pressures, or impacts. The set of potential responses forms the basis for later definition of management alternatives: different potential programmes of measures by which the vision and objectives for the catchment may be achieved.

The main **outputs** of the two sub-steps in step 5 thus are as follows:

- Preliminary overview of stakeholder (perceived) issues and opportunities;
- Preliminary analysis of potential issues or conflicts that may arise from implementation of ongoing and planned interventions within or outside the catchment;
- Preliminary Problem Tree and DPSIR analysis of issues and potential responses.

⁷ A widely used environmental analysis tool, distinguishing Driving forces, Pressures, States, Impacts, and Responses.

5. Scoping phase- vision development and ToR

5.1 Introduction

Each catchment plan needs to follow a clear vision for the long term and concrete objectives for the plan period. SEA regulations in Rwanda demand that these are drawn up in a participatory manner, that alternative scenarios to reach the objectives are defined, and that the way in which these alternative scenarios (or short: ‘alternatives’) are compared for their performance, are laid down in terms of reference that are developed and approved before the actual assessment thereof takes place. The main steps, sub-steps, and key outputs of the vision development phase are summarised in Figure 9 and detailed in the sections below. This phase starts with a scoping workshop, as already introduced under Step 5, above. Results thereof are further detailed in a Scoping Report, as key element of the SEA process, and ends with the approval by REMA of Terms of Reference for the Assessment Phase. Where needed, REMA may require the plan developers to amend or adapt results of prior steps.

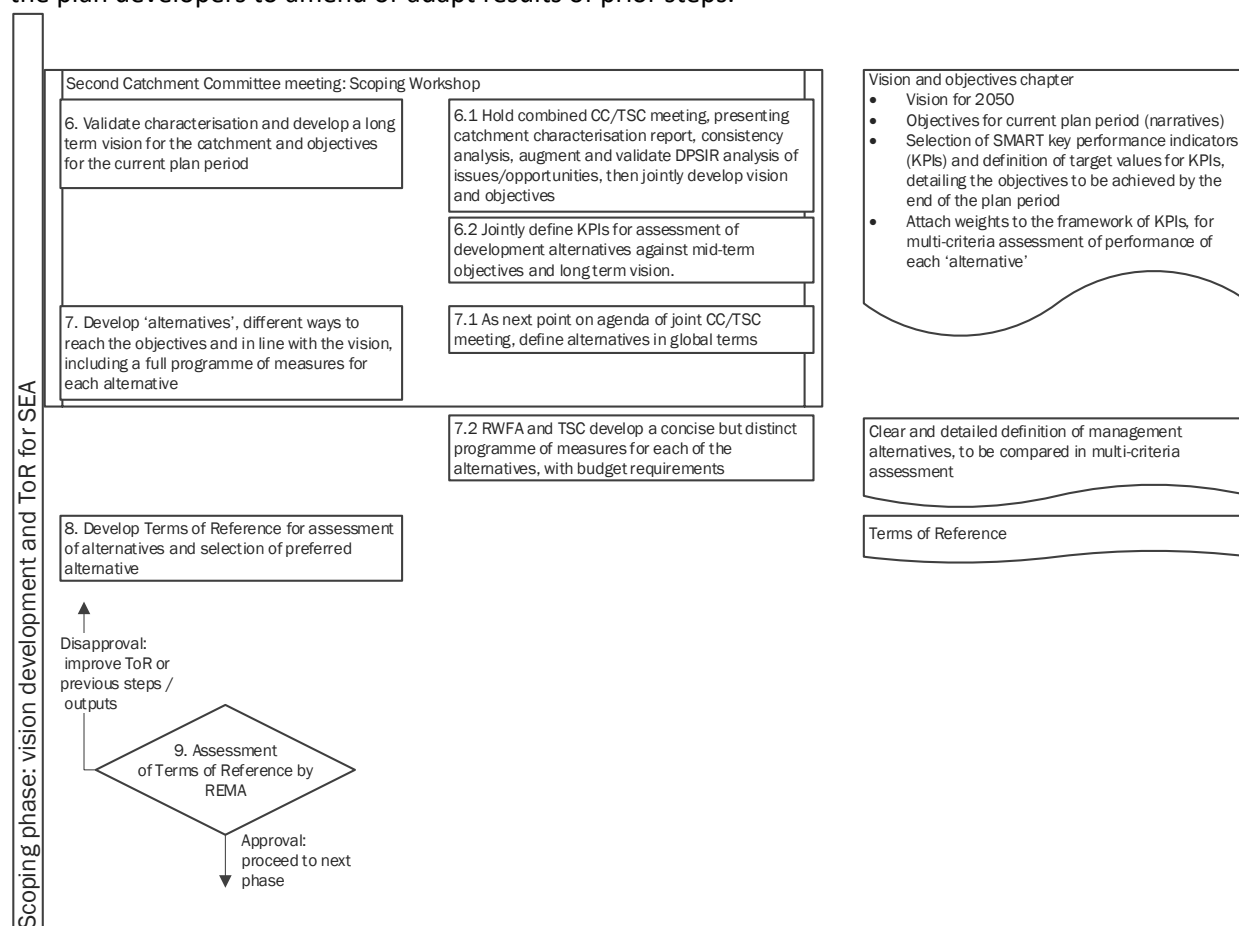


Figure 9: Scoping phase / vision development and ToR for SEA (steps, sub-steps, key outputs)

5.2 Step 6: Develop a long-term vision for the catchment and objectives for plan period

A Vision and objectives for the catchment are developed in a participatory manner in the scoping workshop of the Catchment Committee. As usual, the workshop is prepared by the TSC and the Water Authority, but

only CC members have a right to vote or prioritise where needed. The workshop covers 2 distinct process steps and may be held over a course of two days.

5.2.1 Step 6.1: Validate catchment characterisation and develop vision and objectives

First of all, a summary of the results of the situation analysis are presented to the CC members (the Catchment Characterisation chapter of the CP needs to be sent to members at least two weeks in advance). The preliminary overview of key issues and opportunities and potential responses is (i.e. the DPSIR analysis) augmented and validated (see Step 5, above) and subsequently a joint vision statement is developed. For optimal participation of all members, they can be divided across random groups. After the group work, the vision is finalised in a plenary discussion.

Next, the same or newly established groups draft objectives for the current plan period, that support the long-term vision. Again, after group work, final objectives are defined in a plenary session.

The **outputs** of this sub-step are the catchment Vision (for the year 2050) and a series of objectives to be achieved by the end of the plan period.

5.2.2 Step 6.2: Define framework of indicators for assessment of alternatives

Objectives are subsequently translated into a series of key performance indicators (KPIs) and targets are set for the completion date of the catchment plan period, which ideally is harmonised with the NST/SSP/DDS cycles. Multiple (but not too many) KPIs may be defined per objective. These are the parameters against which the performance of each alternative (developed later) will be assessed.

Comparing alternatives by assessing their effects is key to an SEA. For this an “assessment framework” is needed: which (environmental, social, economic) issues and criteria are relevant and which indicators can be used to assess the effects against those criteria. To understand the results of the assessment it is necessary to explain in the SEA-report the issues that were considered and the criteria and indicators that have been used to “score” alternatives on those issues.

Scoping should ensure that only significant impacts will be extensively investigated in the SEA report. Those responsible for scoping often find difficulties in defining what is “significant”. A useful simple check is to ask whether the effect is one that can be considered to be influenced by the plan and – if negative impacts may be expected, if alteration of the plan can reduce such negative impacts. The following list of questions may be helpful.

- Will there be a large change in environmental conditions?
- Will new features be out-of-scale with the existing environment?
- Will the effect be unusual in the area or particularly complex?
- Will the effect extend over a large area?
- Will there be any potential for transboundary impact?
- Will many people be affected?
- Will many receptors of different types (fauna and flora, businesses, facilities) be affected?
- Will valuable or scarce features or resources be affected?
- Is there a risk that environmental standards will be breached?
- Is there a risk that protected sites, areas, features will be affected?
- Is there a high probability of the effect occurring?
- Will the effect continue for a long time?
- Will the effect be permanent rather than temporary?
- Will the impact be continuous rather than intermittent?
- If it is intermittent will it be frequent rather than rare?
- Will the impact be irreversible?

- Will it be difficult to avoid, or reduce or repair or compensate for the effect?

In defining the indicators, care should be taken that the catchment plan will be able to actually influence their values. And where different options exist to reach the related targets, they should be formulated in such a way that meaningful management alternatives (in SEA terms) can be developed in the next step, which' impacts can be assessed in the assessment phase.

The eventual assessment may be done using a multi-criteria analysis (MCA), in which each KPI receives a relative weight in the overall assessment. This weighting is always a political process, whereas definition of clear KPIs requires technical skills of the TSC and the Water Authority. Setting targets is a combination of both: for some KPIs, official targets may already exist e.g. at a national level or informed by policies and regulations of e.g. the Water Authority. Others may be set by local decision makers i.e. the Catchment Committee. Weights can be attached via group work, plenary discussions, or by allowing CC members to distribute a total of 100% in the form of stickers on flipcharts with the KPIs, or in a spreadsheet. Each CC member has an equal vote, which also means that each district has an equal vote in the overall weight distribution.

An MCA approach is however not always the only or best option, or even preferable in general. Especially adding up scores or using averages could lead to loss of important information. Different criteria will lead to different sorts of scores, both quantitative and qualitative, and can be interpreted in different ways. Therefore, these scores should not be summed up but be judged separately. Furthermore, in SEA several scores cannot be quantified and will therefore be qualitative, based on expert judgement. Usually there will be a bandwidth of possible impacts, which makes straightforward summing up of scores impossible.

Also, one should be careful in distributing weights. Weights usually depend on the point of view of different actors/stakeholders and will therefore be subjective, at least partly. In a Catchment Committee where different interests are represented, consensus on weights might not be obtained easily, or the 'objective' average results might be too much watered-down, lacking clear direction or ambition.

Some (general) points of attention on assessing the effects of a plan in SEA:

- Where a plan includes proposals for individual projects, these should be assessed in sufficient level to enable significant environmental, social and economic impacts to be broadly predicted. If EIA is needed later for the project, it is likely to be informed by the findings of the SEA, but it will not usually be appropriate or even possible to provide the level of detail needed for EIA in the context of the plan;
- The impacts do not always have to be expressed in quantitative terms. Quantification is not always practicable, and qualitative, broad-brush methods can be equally valid for a strategic assessment study. However, qualitative should not mean "guessed". The assessment conclusions should be supported by evidence, such as the results of studies undertaken, discussions or consultation;
- Impacts may be expressed in easily understood terms such as "getting better or worse" or a scale from ++ (very positive) to -- (very negative). But the predictions could also be more detailed and quantitative, e.g. a measurable effect would be: "20% reduction of input of nitrogen";
- When using symbols or other ways of presenting information regarding the likely impacts (e.g. positive, negative, uncertain, not significant), always explain and justify the choice of symbol or narrative assessment with reference to the baseline situation relevant to the SEA objective;
- Consider whether the impact is likely to be permanent or temporary, and the timescale over which the impact is likely to be observed;
- Consider the effects of displacement of environmental, social or economic problems to other areas as a result of the plan;
- If there are risks or uncertainties attached to the assessment, these should be clearly stated. If impacts are uncertain, it is advisable to work with impact ranges.

The **output** of this sub-step is therefore a complete set of indicators or criteria, and where opportune, target values, against which alternatives can be assessed. When MCA is applied (i.e. selected in the SEA ToR as selected method for assessment of alternatives), each KPI will moreover have been given a relative weight for computation of the total performance of each alternative. Note that it is also possible to refrain from attaching weights up front. In that case, decision makers can each use their own preferences in a later stage, when the results of each alternative are compared in the assessment phase.

5.3 Step 7: Develop plan alternatives

5.3.1 Step 7.1: Define alternatives in global terms

The final activity in the Scoping Workshop is to define alternatives (different management options) to achieve CP objectives. In the first four CPs these were formulated as different ambition levels towards (mainly) the management of water resources, ranging from minimal interventions to high levels of sustainable management. The challenge however is to define alternatives in a broader sense and reflecting all elements of the vision and objectives. This may require the inclusion of politically sensitive topics, such as comparing a focus on agricultural production for markets versus subsistence farming, or a focus on eco-tourism versus mining. Alternatives may also include different modes of allocating land to different uses, i.e. to compare different possible land use scenarios and zoning principles. In the end, the definition of distinctly different management alternatives should support transparency in decision making about the future of water, land, and related resources within the catchment. This is *by definition* a political arena. The role of CC members is to make sure their interests are maximally represented in at least one of the alternatives. TSC members need to make sure the spectrum of alternatives is as wide as practically possible, although one or more alternatives may also seek middle ground. This is however NOT a time for negotiations or compromises; this follows in the Decision-making phase, step 13, when the next CC meeting is held. To create maximal insight in the consequences of strategic choices on catchment management, it may even be helpful to select strongly opposing, somewhat unrealistic alternatives, simply for the sake of getting good oversight of the consequences of such extreme choices. At a later stage, bad elements may be left out and good elements maintained in a new ‘negotiated’ alternative that may lead to a preferred alternative.

In this sub-step, the alternatives are outlined in general terms. Detailing takes more time and follows in the next sub-step.

The **output** of this sub-step therefore is formed by a series of roughly sketched distinct alternatives, with catchy titles that represent the content. In addition, directly after the CC meeting, a scoping workshop report will be drafted to store all relevant results of the workshop and to keep track of the participatory process.

5.3.2 Step 7.2: Develop programmes of measures for each alternative

For proper assessment of the performance of each alternative and subsequent comparison between them, it is important to further detail, and where possible quantify and map, programmes of measures for each alternative. These need to comprise infrastructural, institutional, and knowledge measures and need to be costed for computation of values for money of each alternative. Some measures may be the same in all alternatives, but combined effects within each programme of measures may result in different impacts on specific KPIs.

Drawing up these programmes of measures for each alternative, and costing them, is a time-consuming activity, requiring multiple skills including GIS and cost calculation. This is not possible during the scoping workshop but needs to be done afterwards by the TSC and the Water Authority. Where needed, external support can be included.

Minor adaptations or adjustments of the results of the scoping workshop might need to be made at this stage, to arrive at a coherent and sound starting point for the assessment phase. A Scoping Report is therefore developed, including the final vision and objectives, the framework of KPIs and the weights attached to them, and the alternatives including detailed, costed programmes of measures. A summary of the vision and objectives and the framework of KPIs is included in the Vision and Objectives chapter of the Catchment Plan, and the alternatives are also summarised in the plan.

Outputs of this step are therefore the Scoping Report and related sections in the catchment plan. This report may include the Terms of Reference for the SEA assessment phase (see Step 8, below).

5.4 Step 8: Develop Terms of Reference for assessment of alternatives

SEA regulations require clear terms of reference (ToR) for assessment of plan impacts under different management alternatives. The ToR need to be developed in the scoping phase, based on the framework of indicators, targets, and weights from the scoping workshop, and submitted to REMA. Upfront approval from REMA is required, before the actual assessment can start.

The ToR needs to present the criteria against which each management alternative will be assessed (the aforementioned KPIs and their target values), as well as the methodologies used to score alternatives on these criteria. These methodologies may include the use of models commonly used by the Water Authority (e.g. WEAP for water allocation) but may also include models or methodologies more commonly used in socio-economic discourses. Importantly, the ToR also need to set out how multiple criteria are jointly evaluated: either in a transparent multi-criteria analysis, or by means of a less transparent but not necessarily less valuable unprescribed integration of individual preferences through voting, negotiation, or consensus.

The **output** of Step 8 is a document listing the Terms of Reference for assessment of alternatives and selection of the preferred alternative. These are submitted to REMA, along with the documents already prepared in previous steps. In some countries the ToR is almost synonymous to the scoping report (for example in the Netherlands). Depending on how the Rwandan SEA regulation (under development) will address this, it may be wise to have the ToR as the last section of the scoping report, so that REMA has one document to respond to.

5.5 Step 9: Assessment of Terms of Reference by REMA

REMA is required to assess the ToR as part of its mandate in the field of SEA. Following its own guidelines, REMA evaluates the process underlying the ToR, as well as ToR itself. REMA may also look at the content of documents produced in the process, but this should ideally be done as member of the wider stakeholder group, not as SEA reviewer.

The **result** of this step is the approval or disapproval of the ToR. If disapproved, REMA will indicate what needs to be improved. Ultimately, the process cannot continue formally until approval of the ToR has been obtained.

6. Integrated planning phase- assessment

6.1 Introduction

The assessment phase, the first SEA sub-phase of what is called the Integrated Planning phase in the IWRM cycle, is an (often iterative) process of assessing the effectiveness of each alternative, in preparation of the second sub-phase of integrated planning, the Decision-making phase. Most of the work in this phase is done by the technical team of the Water Authority and the TSC, possible augmented with external consultants. A key step is however the independent review of documentation, by REMA. This is the quality control built-in to the process. An overview of steps is provided in Figure 10; details per step follow in the sections below.

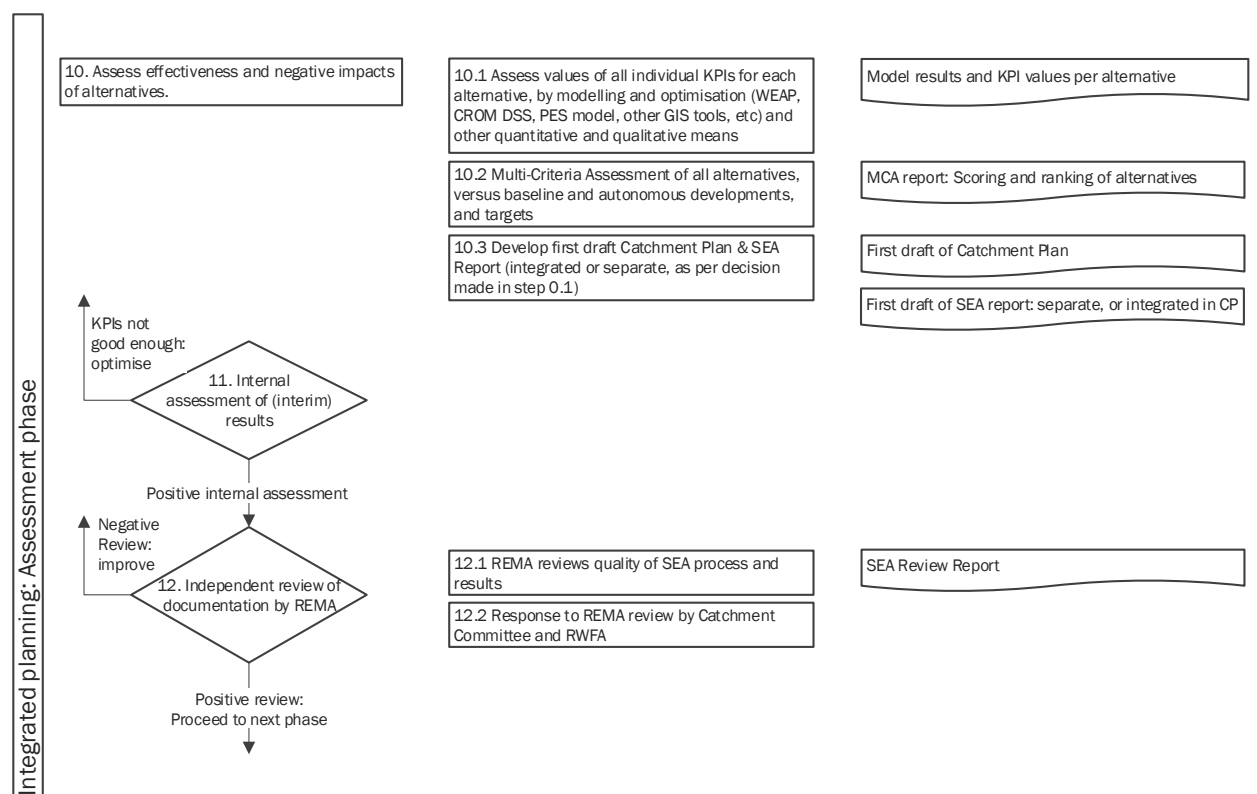


Figure 10: Integrated planning: assessment phase (steps, sub-steps, outputs)

6.2 Step 10: Assess effectiveness and negative impacts of alternatives

6.2.1 Step 10.1: assess values of KPIs for each alternative

In this sub-step, results for each of the KPIs need to be quantified, scored, or described in a narrative (depending on the KPI) for each of the alternatives. Typically, the same models that were used in the situation analysis, are now used to simulate different future management options or alternatives. Other models or assessment methods are added as per the ToR, to obtain socio-economic KPI values, values or narratives for hard-to-quantify KPIs, or qualitative criteria. As far as they were not collected or generated

yet in the situation analysis phase, KPI values or narratives will also be established for the baseline and autonomous developments up to the end date of the catchment plan, and up to 2050.

The **output** of this sub-step is an overview table with KPI values per alternative, supported by reports with results of models and other assessment methods as appropriate, following the ToR.

6.2.2 Sub-step 10.2: Assessment of alternatives

The KPI values of each alternative, obtained in the previous step, are now compared against the baseline and autonomous developments for different time horizons (at least ‘end of plan’ and 2050). Comparison per KPI will inform the assessors if an alternative has a positive, negative, or insignificant / unmeasurable impact on that topic. If a multi-criteria assessment (MCA) was selected as most appropriate assessment methodology in the ToR, individual KPIs may then be combined into overall scores per alternative. If needed for this, intermediate ‘translation’ of raw KPI values into KPI scores or percentages may be required. And for non-quantifiable or qualitative KPIs or criteria, semi-quantitative scores may be generated by classification, supported by expert judgement. It needs to be stressed again here that MCA is often not the most suitable assessment method, even though it seems to provide an aura of objectivity. Criteria under different themes (e.g. hydrological criteria versus economic development versus social development versus ecology) cannot easily be addressed in the same manner, and decision-makers need to have a degree of flexibility to negotiate an ambitious plan with clear direction.

An internal evaluation is first required at this stage, to assess if at least one of the alternatives scores sufficient on all criteria to be potentially selected as preferred alternative. If results of alternatives are not satisfactory after the first round of assessment, iterations may be required in which alternatives are worked out in more ambitious programmes of measures, so that targets are met at least in one alternative. It is important to revise or develop the corresponding programme of measures and associated costs, and to inform decision-makers accordingly. Before going to the next sub-step, at least internally among plan developers there should be consensus that one or more alternatives provide satisfactory results.

The **output** of this sub-step is an Assessment Report with scoring and assessment of individual indicators or criteria, and an overall analysis of pros and cons of alternatives (e.g. expressed in strengths and weaknesses, opportunities and threats), to support transparent decision making in the next phase. Final scores (subject to iterations via step 11 and step 12 if applicable) are reported in the Catchment Plan.

6.3 Sub-step 10.3: Draft first versions of Catchment Plan and SEA report

Now that major content of the Catchment Plan and SEA have been developed, it is time for a review by the wider public. In international SEA best practice, the public at large (insofar they are or feel impacted by the plan) has a right to be informed, and to provide feedback. This is addressed in the next step, Step 11. To facilitate review by the public at large, a draft CP and SEA report (integrated or not) need to be developed, containing a layman summary in Kinyarwanda.

The **outputs** of this sub-step therefore are first drafts of the CP and the SEA report, integrated or as separate documents, with Kinyarwanda summary in easy to read (non-technical) wording.

6.4 Step 11: Public Review of the first draft Catchment Plan and SEA Report

In this step, the plan and SEA developers consult the wider public on their opinion on the Catchment Plan content (REMA does quality control on process and content in the next step). The general audience has the right to be informed on the outcomes of an assessment and to provide the planning team with comments, remarks, suggestions, questions. The final CP and SEA document(s) must contain a section on how plan developers have addressed the comments from respondents.

Output of this step an updated version of the CP/SEA document(s), including an overview (e.g. in a table) of feedback from the wider public and the way this is addressed in the plan.

6.5 Step 12: Independent review of documentation by REMA

6.5.1 Sub-step 12.1: REMA review of quality of SEA process and results

This is the second review moment for REMA. In this review, all documentation that has been produced after approval of the ToR, is reviewed by REMA. REMA will study the assessment report and underlying model studies and other assessments. REMA will also focus on the process that was followed and the extent to which all stakeholders have been consulted, also in the assessment phase and during the public review.

Positioning the second review by REMA before the actual decision making, provides REMA with the option to request clarifications, adaptations, or corrections before any decisions are made.

REMA will produce an SEA Review Report, as **output** of this sub-step.

6.5.2 Sub-step 12.2: Response to REMA

The plan developers receive the review report and – if needed – respond to REMA. This may imply the need to improve the quality of previous steps, if the review comes with a negative advice.

The **output** of this step can simply be a letter to REMA, with clarifications and confirmation of plans to proceed, or the plan developers may need to revert to steps 10 and 11. Subject to the need of eventual iterations, these steps and/or the response by the Water Authority and the Catchment Committee, a positive review is eventually desired⁸ or required to proceed to the next phase.

⁸ This depends on the upcoming SEA regulation. A positive review by REMA might also become a requirement, although international good practice says the plan owner has the final say.

7. Integrated planning phase- decision-making

7.1 Introduction

The initial chapters of the catchment plan and the results of the assessment phase form input for the final decision-making phase. The start of this phase is the third CC meeting, followed by a series of steps in which remaining elements of the plan are developed, the plan is endorsed by Cabinet, and publicised, as summarised in Figure 11 and elaborated in the sections below.

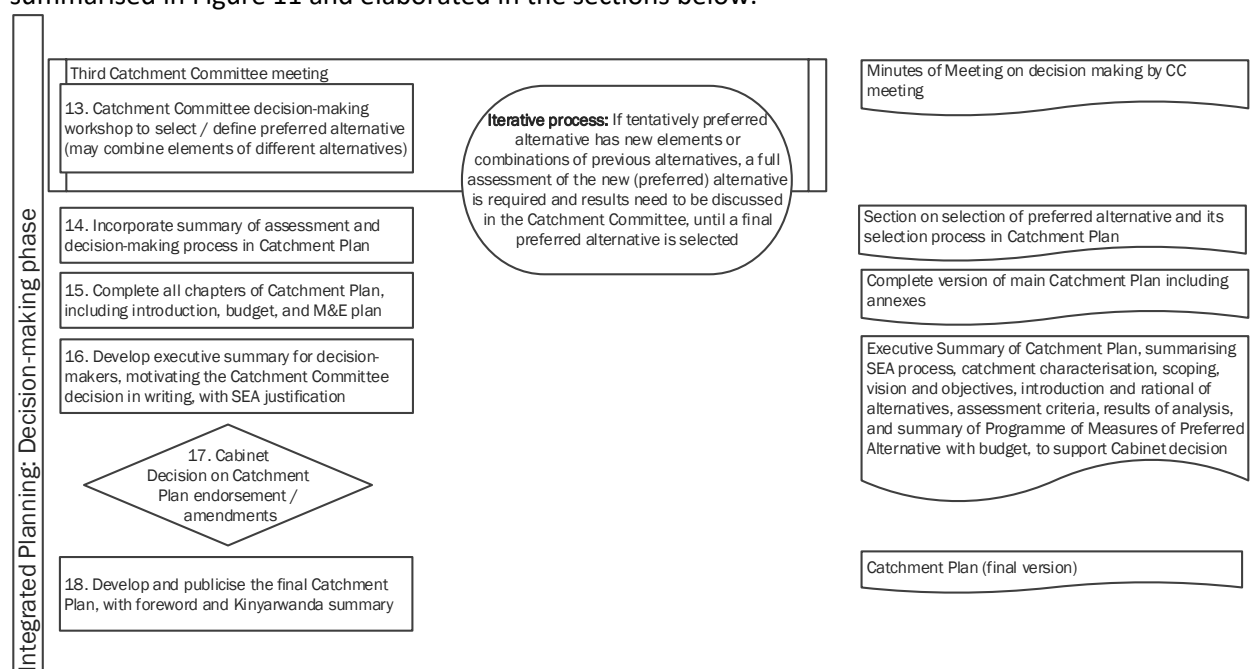


Figure 11: Integrated planning - decision-making phase (steps and outputs)

7.2 Step 13: Catchment Committee decision-making workshop

A third Catchment Committee meeting is organised, for decision making on the preferred alternative. The decision is informed transparently by the multi-criteria assessment report, which will be presented at the start of the CC meeting. Next, decision makers discuss their options. The preferred alternative may be one of the alternatives defined earlier and assessed in the previous phase, or decision-makers may prefer to combine elements of different alternatives. In an extreme case, they might not appreciate the performance of alternatives at all and revert plan developers back to the drawing board. In case such iterations are required, the TSC and the Water Authority go back to step 10 or even further in order to assess the overall effects of updated or new alternatives. In any case of iteration, REMA needs to be consulted on the need to also organise new reviews. These may or may not be required by REMA, depending on the nature of the iteration, but that decision should be made by REMA itself, as mandated authority for SEAs. If no (more) iterations are needed, SEA guidelines still need to be followed to give a proper account of the decision-making process. This is not further subjected to official reviews by REMA, but it is advised to provide REMA with the report from the CC meeting (the current step 13) and the results from subsequent steps.

The **output** of the CC meeting is, in simple form, constituted by the minutes of meeting, capturing the decision. From here, the process is either going forward to step 14, or back to previous steps.

7.3 Step 14: Incorporate summary of assessment and decision-making process in Catchment Plan

The results of the assessment phase and the subsequent selection of the preferred alternative need to be summarised in the Catchment Plan. This serves, among others, to inform Cabinet in step 17 on the quality of the process that was followed.

The **output** of this step is a section in the Catchment Plan, on the selection process that was followed and the outcome thereof: the preferred alternative.

7.4 Step 15: Complete all chapters of the Catchment Plan

This is a production and editing step, to finalise the main content of the plan, including introduction, a clear budget, modalities for plan implementation, a logframe and M&E plan, and all relevant annexes. Close consultation with all districts and other implementing partners is required to develop the logframe and an implementation planning, aligned with DDSs, imihigos, Annual Action Plans, etc. The plan will be developed in a format that can be submitted to Cabinet after completion of step 16.

The **output** then simply is a complete Cabinet version of the main Catchment Plan, including annexes, only lacking the executive summary and a foreword.

7.5 Step 16: Develop executive summary

The executive summary of the catchment plan is one of the last parts to be written. It needs to target decision makers of the Cabinet, who are usually no experts in IWRM. So, the summary should not be too technical, but rather explain the SEA process and main content that leads to decision making, and clearly present the preferred alternative and why this was chosen.

The **output** of this step is an executive summary that should be available in English and in Kinyarwanda, with all the key elements that members of Cabinet would require to support their decision.

7.6 Step 17: Cabinet Decision-making on Catchment Plan endorsement or amendments

Whereas the selection of the preferred alternative lies with the Catchment Committee, the official endorsement thereof, and of the entire plan, lies with Cabinet. This is also where the funds are allocated to implement the plan. Cabinet may decide to endorse the plan as it was submitted, or to request changes. Depending on the type of changes, the process may revert a few steps or even phases.

The **output** of this step is the decision regarding endorsement and/or requests for amendments of the plan. The decision is recorded in the minutes or proceedings of the Cabinet meeting.

7.7 Step 18: Develop and publicise the final Catchment Plan

Upon endorsement of the Catchment Plan by Cabinet, a foreword needs to be added, any last amendments that were requested by Cabinet can be made and subsequently the plan can be prepared for publication. An update is needed of the non-technical summary in the plan. The audience for this summary is distinctly different from that of the executive summary. In addition, a separate, dedicated short summary of the main content of the plan should be made available in Kinyarwanda, targeted at local stakeholders. The final plan version is not so much directed at decision-makers of the plan as such, but at implementation partners: local government, national agencies, development partners, private sector, NGOs, inhabitants, etcetera.

The **outputs** of this final step of catchment plan development are thus the publication of a full public version of the catchment plan, and if desired, a short summary of the main content in Kinyarwanda.

8. Implementation phase

Once the Catchment Plan is endorsed by Cabinet and gazetted, the implementation phase commences. Whereas the main scope of this document is the development phase of the Catchment Plan and SEA, a series of annexes is included to provide guidance on planning for implementation of the catchment plan and on the development of a Monitoring and Evaluation Plan for the implementation phase (Monitoring is considered a key element of the IWRM cycle as well as of SEA). Both should be addressed jointly by plan partners at national and local level and aligned with sectoral and district imihigos.

The annexes of interest are the following.

- Annex 4: Plan implementation
- Annex 5: Monitoring & Evaluation
- Annex 6: Annual Implementation Planning

An M&E plan shall be developed in the first year of catchment plan implementation, in which reporting structures and frequencies, as well as roles and responsibilities will be stipulated. Target values, which depend strongly on district level mapping of individual projects, will be set in the Annual Implementation Plan (AIP) and subsequently incorporated in M&E reports and M&E plan updates. The first AIP is likely to be developed for an ongoing fiscal year, as initial exercise for joint implementation planning and to form the basis for the first Annual M&E Report. In subsequent years, joint development of AIPs should inform sectoral and district planning, as per the process flow charts in Annex 6

Annex 1. Integrated process of Catchment Planning and SEA in W4GR

1.1 SEA methodology as adhered to for the first four Catchment Plans

SEA process steps

The Strategic Environmental Assessment (SEA) methodology for the first four catchment plans in Rwanda followed international best practice. The process involved implementation of five main steps and nine sub-steps (see below). Independent advice and coaching on the process was provided by the Netherlands Commission for Environmental Assessment (NCEA) in the framework of Water for Growth Rwanda, the Netherlands-funded IWRM programme Rwanda (2015-2019).

The steps from international best practice are as follows.

1. Screening:
 - a. Reach consensus on the need for SEA and its link to planning;
 - b. Find stakeholders and announce start of the plan process;
2. Scoping:
 - a. Develop a shared vision on problems and opportunities, define plan objectives, and draft alternative ways to reach these objectives;
 - b. Do a consistency analysis for relevant (national) policies that have consequences for each catchment;
 - c. Set ToR for the technical assessment, based on scoping results;
3. Assessment:
 - a. Assess the impacts of alternatives and document this;
 - b. Review: organise (independent) quality assurance of documentation (preferably involving stakeholders);
4. Formal decision-making:
 - a. Discuss with all stakeholders the alternative to prefer;
 - b. Motivate the (political) decision in writing;
5. Monitoring: Monitor the implementation and discuss the results.

Integration of IWRM and SEA process steps

IWRM and SEA share the same principles of stakeholder participation and informed, transparent decision-making, but both instruments have a complementary scope of work. Where IWRM provides in-depth water sector knowledge and a comprehensive framework to develop relevant knowledge, SEA is best equipped to facilitate a process to inform political decision-making. For the development of catchment plans in the framework of Water for Growth Rwanda, IWRM and SEA elements were combined into an integrated IWRM / SEA plan process.

The desire of the Governments of Rwanda and the Netherlands to integrate both processes were captured in an MoU between both countries, laying the foundations for the IWRM Programme, commonly referred to as Water for Growth Rwanda. In order to help shape the process, coaching was provided by the Netherlands Commission for Environmental Assessment (NCEA). The process steps of IWRM, as followed within Water for Growth Rwanda, are presented in the IWRM Planning Cycle (Figure 1).

Table 1 links the process steps of IWRM and SEA to each other. This side-by-side comparison formed the basis for the integrated CP&SEA development process presented in this manual and depicted in Figure 3 to Figure 5.

Table 1: Combining process steps of IWRM and SEA

Steps in IWRM ⁹	Elements	Phases in SEA ¹⁰	Steps in SEA
N/a	N/a	Screening	<ol style="list-style-type: none"> 1. Reach consensus on the need for SEA and its link to planning; 2. Find stakeholders and announce start of the plan process;
Situation analysis	<p>Develop catchment characterisation report with analysis of important aspects of the catchment:</p> <ul style="list-style-type: none"> ▪ Physical characteristics; ▪ Water resources characteristics; ▪ Socio-economic analysis; ▪ Stakeholders analysis (of SEA step 2). <p>Consistency analysis of existing policies, plans, programmes (SEA step 4).</p>	Scoping	<ol style="list-style-type: none"> 3. Develop a shared vision on challenges and opportunities, define plan objectives and draft alternative ways to reach these objectives; 4. Do a consistency analysis for relevant (national) policies that have consequences for each catchment; 5. Set ToR for the technical assessment, based on scoping results;
Vision development	<p>Creating a vision for the medium to longer term future (SEA step 3) with Catchment Task Force, kicking off in a joint scoping workshop, and developing a ToR for the plan development and assessment (SEA step 5).</p>		
Integrated planning	<p>Develop catchment plan considering competing land and water interests and comprising:</p> <ul style="list-style-type: none"> ▪ water allocation; ▪ water resources protection / conservation; ▪ land use / catchment rehabilitation. <p>Assessment of development alternatives (SEA step 6).</p> <p>Independent quality assurance of documentation (for this version of the CP) by the FPG and Catchment Task Force (SEA step 7). A separate review of the whole process by REMA is planned in fiscal year 2018-2019, for learning purposes mainly.</p>	Assessment	<ol style="list-style-type: none"> 6. Assess the impacts of alternatives and document this; 7. Review: organise (independent) quality assurance of documentation (preferably involving stakeholders);
		Formal decision making	<ol style="list-style-type: none"> 8. Discuss with all stakeholders the alternative to prefer; 9. Motivate the (political) decision in writing;

⁹ Source: Integrated Water Resources Management Programme Rwanda 2015 – 2019. Project document 15 October 2014.

¹⁰ Source: Netherlands Commission for Environmental Assessment.

Steps in IWRM ⁹	Elements	Phases in SEA ¹⁰	Steps in SEA
	<p>Participatory decision making involving local and central levels (SEA step 8).</p> <p>The resulting plan will include:</p> <ul style="list-style-type: none"> ▪ a summary of the plan development process, assessment of alternatives, and motivation of decisions (SEA step 9); ▪ infrastructure development measures; ▪ governance measures (stakeholders’ engagement, institutional framework); ▪ M&E plan (design of SEA step 10). 		
Sector and agency planning	Planned activities assigned to implementing entities, often sector agencies or District administrations, and included in sectoral and district Imihigos and annual work plans; EIPs planned within the IWRM Programme.	N/a	N/a
Co-ordinated implementation	Implementation of sector and agency plans respecting time schedules and designs formulated in integrated catchment plan; EIPs implemented within the IWRM Programme.	N/a	N/a
Joint monitoring	Monitoring of implementation is assured by stakeholders in the catchment, together with regular monitoring procedures of implementing organisations, resulting in annual catchment plan implementation M&E reports (implementation of SEA step 10).	Monitoring	10. Monitor the implementation and discuss the results

Annex 2. Table of Contents of Catchment Plan

List of Abbreviations

Summary

- 1. Introduction**
 - 1.1 The integrated catchment planning and SEA process
 - 1.2 Institutional embedding
 - 1.3 Joint catchment plan implementation
 - 1.4 Plan structure
- 2. Integrated situation analysis**
 - 2.1 Catchment characteristics
 - 2.1.1 Physiography
 - 2.1.2 Socio-economic profile
 - 2.2 Catchment issues and opportunities
 - 2.2.1 Issues
 - 2.2.2 Opportunities
- 3. Vision and objectives**
 - 3.1 Vision and objectives development process
 - 3.2 Vision statement
 - 3.3 Overall objective and specific objectives
- 4. Alternatives**
 - 3.2 DPSIR analysis: defining potential responses to issues and opportunities
 - 3.2 Definition of plan alternatives
 - 3.3 Comparing plan alternatives
 - 3.3 Justification of preferred alternative
- 5. Programme of Measures (PoM) for preferred alternative**
 - 5.1 Institutional measures
 - 5.1.1 Water governance
 - 5.1.2 Water allocation
 - 5.1.3 Development of water-related economy
 - 5.2 Knowledge measures
 - 5.3 Infrastructure measures
 - 5.3.1 Catchment restoration
 - 5.3.2 Other infrastructural interventions
- 6. Implementation arrangements**
 - 6.1 Implementing the Catchment Plan
 - 6.2 Sector and agency planning
 - 6.3 Coordinated implementation
 - 6.4 Looking ahead – Catchment Plan 2024-2030
- 7. Intervention logic and Monitoring & Evaluation**
- 8. SEA Report**

Annex 3. SEA guidelines REMA

In order to facilitate review of the SEA by the competent authority (REMA), it is recommended to summarise the SEA process according to the steps from REMA's SEA guidelines or any update thereof¹¹. It may help to incorporate available SEA reviews from REMA on other catchment plans or similar policies, plans, or programmes.

The REMA SEA guidelines of 2011 comprise the 10 steps below, but these are likely to be superseded in the near future, with the publication of a Ministerial Order on SEA. The latter may further incorporate international best practice and therewith be more similar to the detailed integrated IWRM/SEA process developed for catchment planning.

STEP 1. Identifying the Main Characteristics of the Policy, Plan, or Programme

STEP 2. Analysing the PPP Formulation Process

STEP 3. Determining the Need for SEA for a PPP

STEP 4. Determining the Nature and Extent of Impacts

STEP 5. Determining Content and Level of Detail in SEA Report

STEP 6. Consultation with Relevant Authorities

STEP 7. Public Consultation

STEP 8. Ensuring SEA Integration in the PPP Process

STEP 9. Coordinating SEA within the PPP Process

STEP 10. Monitoring SEA within the PPP Process

¹¹ General Guidelines and Procedures for Strategic Environmental Assessment (SEA), REMA, June 2011; or subsequent Ministerial Orders or guidelines replacing the version of 2011.

Annex 4. Plan implementation

4.1 Implementing the Catchment Plan

A catchment plan is a joint plan of many stakeholders. Each of these stakeholders has their own mandate and interests, but in the first three process steps of the IWRM and catchment planning cycle (Figure 1), they have merged these into a coherent and integrated spatial plan (the catchment plan). This is the starting point for sector and agency planning (Step 4 in the cycle) and subsequently coordinated implementation (Step 5). This annex presents implementation arrangements for these two steps.

4.2 Sector and agency planning

Planning for implementation will take place yearly, resulting in annual implementation plans (AIPs). Figure 12 demonstrates links between long- and mid-term strategies (the framework of NST1 and related Sector Strategic Plans (SSPs), Cross Cutting Areas (CCAs), and District Development Strategies (DDSs)), mid-term plans (operational plans of districts and sector ministries, as well as catchment plans), and AIPs and Imihigos. Catchment plans bridge the gap between strategic and operational planning and are an innovative instrument to help central and local government to manage natural resources most sustainably, at the natural level of catchments.

The first AIP may need to consider the fact that a fiscal year already commenced. This AIP will set the stage for subsequent years. Plan partners need to provide geo-information (GIS maps) of their activities in the catchment (often at district level). Subsequently, a geographical analysis can be made to arrive at an overview of concrete activities within catchment boundaries, for each district with a significant area within the catchment. Combined, these activities will form the programme of measures for the ongoing year. The development of subsequent implementation plans will follow the normal annual budget development procedures. Local level detailed planning and design may follow the process of Micro-Catchment Action Planning, for micro-catchments of circa 500 ha. This is the final step of the CROM-DSS flow chart (W4GR TR83, 2018). The authority in charge of water resources management may assist implementing partners in IWRM-proofing their intended projects.

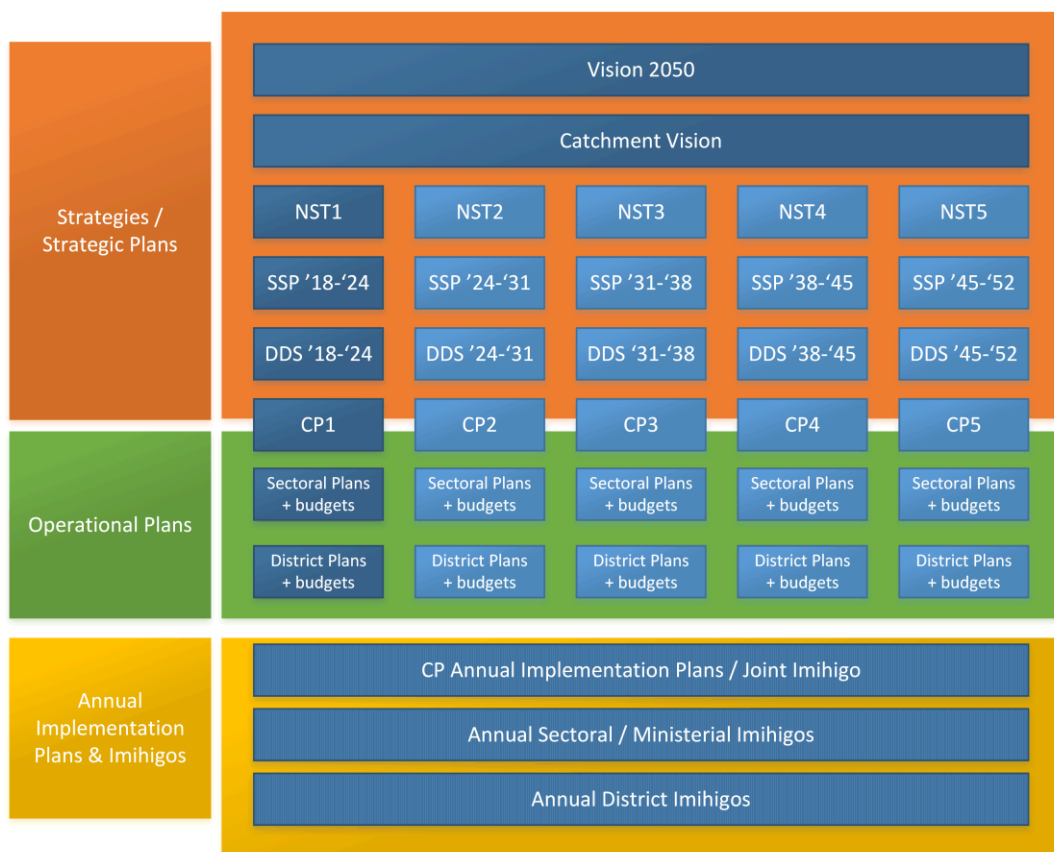


Figure 12: Overview of strategies, plans, and Imihigos

4.3 Coordinated implementation

With many stakeholders involved in implementation of projects on the ground, either as singular entities or in collaboration between agencies (as per the needs of each project), coordination is needed at district and catchment level. This is to ensure consistency of individual projects with the catchment plan, as well as overall coherence between projects in the same area (e.g. within one IWRM package area), especially those that rely on the same natural resources (water, land, and related resources).

Key arrangements for coordination consist of the formalisation of catchment committees and the Technical Support Committee, in turn supported by the Water Authority and where needed, consultants.

The support given by central and local staff will include logistical and organisational support to regular meetings of catchment committees and their support teams, but also for more complex tasks, like developing AIPs, annual and mid-term M&E reports, and support to the development of subsequent catchment plans (initially, 2024-2031). During implementation, the team might also be tasked with oversight of all implementation projects and organisation of regular coordination meetings.

A coordinated approach is also required for funding of AIPs. As projects become more integrated, funds will need to be combined from different budget lines. The projects geo-database, proposed as one of the knowledge management and capacity building measures for catchment plans, can play a key role in joint development of integrated projects, and in assessing overall investment needs. MINECOFIN will need to play a key role in making funds available for catchment plan implementation and plan partners will need to analyse budget requirements and identify funding gaps. Well-coordinated budget requests to MINECOFIN and development partners will subsequently enhance possibilities of securing funds.

Annex 5. Monitoring & Evaluation

5.1 Strategic intervention logic

Catchment plans are vital instruments for development and implementation of integrated spatial planning along hydrological boundaries which create and build on horizontal and vertical linkages between different sectors and administrative entities. As per its institutional embedding, the intervention logic for this catchment plan comprises a geographically focused selection of IWRM-relevant interventions by all national and local plan partners active in the catchment. The intervention logic is not necessarily therefore, a typical one-dimensional project-style logical framework or log frame, but rather a multi-dimensional, integrated plan-style strategic intervention logic. It is a coherent set of relevant outcomes and outputs of plan partners, much like the selection of sector outcomes in NST1. An overview of potentially relevant outcomes and outputs is presented in **Error! Reference source not found.**

Indicators were selected from all levels of strategic planning documents (NST1, CCAs, SSPs, and DDSs), and augmented with specific ones from the first four catchment plans. During analysis of the different documents, it was found that many of the indicators used across different strategies were the same, or very similar, and that a selection of them were also suitable for undertaking the monitoring and evaluation of catchment plan implementation as well.

Alignment of indicators provided several benefits:

- 1 Spatial aggregation: Using the same indicators from national, sector, district, and catchment plans provides an opportunity to monitor progress of all of these within the same spatial area, i.e. the catchment;
- 2 Integrated evaluation: Using the same set of indicators allows for benchmarking progress and quality both between catchments and at district, sector and national levels. Progress in one catchment, district, sector etc. can be compared against progress in others. In addition, in-depth evaluation of progress, quality etc. for combinations of indicators, may reveal underlying systemic factors conducive to, or hindering, integrated sustainable development;
- 3 Efficiency gains through information sharing: Aligning indicators at the different levels provides an impetus for data sharing and coordination between the various institutions responsible for their monitoring, leading to potential reduced duplication of effort, as well as greater opportunities to improve linkages between the various levels of intervention. Aggregating spatial data can also be used in GIS to show physical progress of the different planning processes;
- 4 Demonstration of added value of IWRM approach: Integrated assessment of progress on implementation of IWRM relevant indicators from all four strategic planning levels allows for quantification of the added value of IWRM, to development of the nations. The contribution of the Catchment Plan, DDSs, SSPs, and NST1 to each other and to achieving national, district and catchment goals and visions demonstrates the added value of an integrated (IWRM) approach to spatial planning and management.

Analysis of IWRM relevant indicators throughout the set of strategic plans reveals that the same or a similar indicator may function as output indicator in one strategy, and as outcome indicator in another. This results from the scope of the document of origin, as DDSs are rather output orientated, NST1 only considers outcomes, and SSPs cover both. For this reason, and for the reason of aggregation to any spatial or strategic level, this Catchment Plan's strategic intervention logic does not break its set of indicators down into specific outputs, outcomes, or even impacts.

In the overview in **Error! Reference source not found.**, outcomes, outputs, and indicators are grouped according to the main structure of NST1 pillars and priority areas, to help identify the contribution of the

Catchment Plan to achieving goals of NST1, SSPs, CCAs, and DDSs. To facilitate evaluation from an IWRM perspective, indicators can furthermore be reported on according to the catchment plan's related specific objectives, for example, by analysing all indicators that relate to water quality management, or to equitable allocation of water to different water users.

In Annual Implementation Plans, activities will be defined and target values (laid down in Joint Imihigos) set for each.

5.2 Joint monitoring and evaluation of catchment plan implementation

A catchment plan is a joint plan of multiple stakeholders. As explained in the IWRM and catchment planning cycle (Figure 1), joint monitoring and evaluation constitute a crucial, last step to learn from implementation of the plan. Such learning is needed to enhance understanding of the catchment and its stakeholders, and to develop an even better plan for the next plan period. The Technical Support Committee, with support from the Water Authority, will play a vital role in M&E. This team will be charged with reporting on all catchment plan indicators, collating catchment-specific information on project implementation from all districts and plan partners, evaluating progress made, and reporting to the catchment committee and national partners.

An M&E plan shall be developed in the first year of catchment plan implementation, in which reporting structures and frequencies, as well as roles and responsibilities will be stipulated. Target values, which depend strongly on district level mapping of individual projects, will be set in the Annual Implementation Plan and subsequently incorporated in M&E reports and M&E plan updates.

An overview of indicators derived from NST1, Sector Strategic Plans, and District Development Strategies is presented on the following pages.

Legend

Abbreviation	Meaning
Agri	Agriculture
CAAPD	Comprehensive Africa Agriculture. Development Programme
CP	Catchment Plan
DDS	District Development Strategy
ENR	Environment and Natural Resources
Gov & Dec	Governance and Decentralisation
NST1	National Strategy for Transformation 1
SDG	Sustainable Development Goal
SSP	Sector Strategy Plan
U&RD	Urban & Rural Settlement
WATSAN	Water and Sanitation

Intervention logic and M&E framework

NST1 Pillar	NST1 Priority Area	Outcomes From NST1, SSP, or CP	Outputs From SSP, CP, or DDS	Indicators From NST1, SSP, CP, or DDS
Economic transformation	Accelerate sustainable urbanisation from 17.3% (2013/14) to 35% by 2024	<ul style="list-style-type: none"> Developed and integrated cities (NST1); Integrated human settlement planning and coordination (U&RS SSP). 	<ul style="list-style-type: none"> Development of rural settlement well-managed (SSP: U&RS); Development of urban planning areas well-managed (SSP: U&RS). 	<ul style="list-style-type: none"> Number of new urban planning documents (SSP: U&RS); Percent of rural households living in integrated, planned, green rural settlements (SSP: U&RS); Average share of the built-up area of cities that is open and green space for public use for all (SDG) (SSP: U&RS).
	Promote industrialisation and attain a structural shift in the export base to high-value goods and services with the aim of growing exports by 17% annually	<ul style="list-style-type: none"> Increased exports of value-added goods (NST1); Vibrant Local Economies contributing to jobs creation and to the national economy developed (SSP: Gov & Dec); Upgraded minerals, oil & gas sector (NST1); Vibrant, efficient and responsible mining spurring sustainable development (SSP: ENR); 	<ul style="list-style-type: none"> Increased water use efficiency in main economic sectors (CP); Water demand for main economic sectors met by supply (industry & irrigation) (CP); Profitable public-private partnership projects increased (CP); Increased productivity of mines through consolidating small mines into big 	<ul style="list-style-type: none"> Increased water use efficiency in main economic sectors per unit produced in irrigation and industry (m³/production unit) (CP); % of water allocation per sector regulated through water permits (CP); # IWRM relevant public-private partnership projects successfully implemented at Catchment Level (CP); Annual value of mining sector to export revenues in USD (\$) (SSP: ENR);

NST1 Pillar	NST1 Priority Area	Outcomes From NST1, SSP, or CP	Outputs From SSP, CP, or DDS	Indicators From NST1, SSP, CP, or DDS
		<ul style="list-style-type: none"> ▪ Developed hard infrastructure for trade competitiveness (NST1). 	<ul style="list-style-type: none"> mining blocks to meet best practices (SSP: ENR); ▪ Mining standards compliance (Environment protection and Occupational health and safety) increased (SSP: ENR); ▪ Rural roadsides protected with drainage of excess water (CP); ▪ Feeder roads constructed and maintained (DDS); ▪ Development of rural settlement well-managed (SSP: U&RS). 	<ul style="list-style-type: none"> ▪ % mines complying with environmental and mining standards (SSP: ENR); ▪ # km of rural roadsides protected with drainage of excess water (CP); ▪ # km of feeder roads transformed into an asphalt road which will link the district road to national road (DDS); ▪ % of EIA conducted in constructing drainage channels along the feeder roads (DDS); ▪ # bridges related to feeder road constructed in all sectors (DDS); ▪ % rural settlements with safe year-round access within 45 minutes to a) primary schools, b) tarmac roads, c) markets, d) hospitals, e) financial institutions (SSP: U&RS).
	<p>Modernise and increase productivity of agriculture and livestock</p>	<ul style="list-style-type: none"> ▪ Increased productivity, quality and sustainability of crop (NST1); ▪ Land area under irrigation (hillside and marshland) (NST1); ▪ Farmers and rural value chain actors are engaged in innovative agricultural practices and improved business management (SSP: Agri); ▪ Increased exports of crops and livestock products (NST1); ▪ Increased financing and infrastructure for agriculture (NST1); ▪ Increased competitiveness and value addition of diversified agricultural commodities for more inclusive domestic and international markets (SSP: Agri); ▪ Effective and efficient public services delivery and enabling environment in the agriculture sector (SSP: Agri); 	<ul style="list-style-type: none"> ▪ Skills developed for agriculture value chain actors, including farmer organisations, women and youth (SSP: Agri); ▪ Productivity of selected crops increased (DDS); ▪ Improved research capacity developed and innovative research findings produced (SSP: Agri); ▪ Animal resources (including fisheries) production systems improved (SSP: Agri); ▪ Agricultural market risk management systems and financial services developed (SSP: Agri); ▪ Commercialisation of value chains in the agriculture sector (SSP: Agri); ▪ Effective planning, coordination, and budgeting (SSP: Agri); 	<ul style="list-style-type: none"> ▪ # ha under irrigation (hillside and marshland); ▪ % farmers adopting appropriate technology and improved practices (gender and age disaggregated); ▪ # farmers accessing extension services through private sector incentive scheme; ▪ # value chain actors (including farmers) trained and supported in business/cooperative management (disaggregated by age and gender) (cum.); ▪ # women and youth supported in setting up an agri-business (cum.); ▪ # farmers trained on productivity; ▪ # new technologies, crops varieties and breeds released; ▪ Quantity (MT) of coffee production; ▪ Quantity (MT) of tea production; ▪ % farmers using improved feed / fodder and technologies (hay, silage, improved pasture); ▪ Amount of credit to agriculture sector as % total loans; ▪ % men and women engaged in agriculture that have access to financial services to be able to transact agriculture business - CAADP Indicator;

NST1 Pillar	NST1 Priority Area	Outcomes From NST1, SSP, or CP	Outputs From SSP, CP, or DDS	Indicators From NST1, SSP, CP, or DDS
		<ul style="list-style-type: none"> ▪ Increased resilience of agriculture to climate change (NST1); ▪ Increased productivity and value addition of animal production (NST1); ▪ Increased productivity, nutritional value and resilience through sustainable, diversified, and integrated crop, livestock, and fish production systems (SSP: Agri). 	<ul style="list-style-type: none"> ▪ Sustainable, diversified, and climate smart crop practices implemented (SSP: Agri); ▪ Effective extension services established and implemented (SSP: Agri). 	<ul style="list-style-type: none"> ▪ # agricultural financial services and insurance products provided through SACCOS and coops; ▪ % private investment to public investment in agriculture; ▪ # registered private investment and PPPs in agricultural sector; ▪ % decentralised project integrating cross-cutting components; ▪ # ha land area covered by radical terraces; ▪ # ha land area covered by progressive terraces; ▪ #ha under erosion control measures (cum.): <ul style="list-style-type: none"> a) Radical terraces; b) Progressive terraces; c) Other erosion control measures; d) Biological soil conservation practices development; e) Agro-forestry; ▪ # farmer field schools training farmers in climate smart agriculture practices; ▪ % farmers who practise integrated pest management; ▪ % farmers who received extension and/or advisory services in the previous year (disaggregate by gender) including climate smart and nutrition sensitive agriculture; ▪ % increase in water use efficiency.
	<p>Promote sustainable management of natural resources and environment to transition Rwanda towards a green economy</p>	<ul style="list-style-type: none"> ▪ Increased sustainability and profitability of forestry management (NST1); ▪ Increased sustainability and profitability of forests (SSP: ENR); ▪ Forest management planning and its implementation are enhanced to ensure SFM (SSP: Forestry); ▪ Agroforestry practices are adopted by farmers (SSP: Forestry); ▪ Increased energy security and low carbon energy supply (NST1); ▪ Increased electricity generation capacity (SSP: Energy); 	<ul style="list-style-type: none"> ▪ Forest cover increased and maintained (SSP: ENR); ▪ Land under agro-forestry Increased (SSP: ENR); ▪ Public forest whose management is transferred to private operators (SSP: ENR); ▪ Improved tree seed species provided to farmers (SSP: ENR); ▪ Wood biomass energy is reduced through use of improved efficient technologies. (SSP: ENR); ▪ Degraded forests rehabilitated (SSP: ENR); 	<ul style="list-style-type: none"> ▪ % forest coverage of total surface areas (NST1); ▪ % level of forest cover (SSP: ENR); ▪ Average tree plantation productivity m³/ha/y (SSP: Forestry); ▪ # ha of land under agro-forestry (SSP: ENR); ▪ % public forest plantations allocated to private female and male operators (SSP: ENR); ▪ # ha of small natural forests under participatory management (SSP: ENR); ▪ % improved seeds provided to female and male farmers (SSP: ENR); ▪ % charcoal produced by certified "green charcoal" of women's and men's companies and cooperatives (SSP: ENR); ▪ # ha of degraded forests rehabilitated (SSP: ENR); ▪ FMP implementation in progress (SSP: Forestry);

NST1 Pillar	NST1 Priority Area	Outcomes From NST1, SSP, or CP	Outputs From SSP, CP, or DDS	Indicators From NST1, SSP, CP, or DDS
		<ul style="list-style-type: none"> ▪ Increased sustainability of land use system (NST1). ▪ Integrated and sustainable land management to maximise reliable, efficient and productive investments. (SSP: ENR); ▪ Integrated water resource management (NST1); ▪ Integrated and sustainable water resources management to maximise reliable, efficient and productive investments (SSP: ENR); ▪ Catchment protected against adverse impact of floods (CP); ▪ Catchment protected against adverse impact of droughts (CP); ▪ Increased green industry and services (NST1); ▪ Reduced disaster risk and vulnerability to climate change (NST1); ▪ Enhanced environmental management and resilience to climate change (SSP: ENR). 	<ul style="list-style-type: none"> ▪ Progress of implementation of district, state and private forest management plans (SSP: Forestry); ▪ Integrated and harmonised land information in a paperless land register for an optimised land management (SSP: ENR); ▪ Efficient implementation and monitoring of land use plans to ensure sustainable development (SSP: ENR); ▪ Mapping and surveying tools modernised and operationalised (SSP: ENR); ▪ GIS skills enhanced at district level to enhance spatial planning and catchment plan implementation (CP); ▪ Qualitative urban and rural settlement planning documents available for urban and rural settlements (SSP: U&RS); ▪ Gullies and degraded old mines rehabilitated (CP); ▪ Enhanced protection of ecosystems (DDS); ▪ Degraded ecosystems rehabilitated (DDS); ▪ Buffer zones along rivers, reservoirs, and wetlands demarcated and protected (CP); ▪ Riverbanks and buffer zones protected (DDS); ▪ Effective governance of water resources at catchment, national and transboundary level (SSP: ENR); 	<ul style="list-style-type: none"> ▪ % national agro-forestry tree cover (SSP: Forestry); ▪ # trees additionally planted (SSP: Forestry). ▪ Tree density (SSP: Forestry); ▪ Urban forest ha (SSP: Forestry); ▪ % households using firewood as cooking fuel (NST1); ▪ MW electricity installed (SSP: Energy); ▪ Share of renewable energy in power generation mix (SDG) (SSP: Energy); ▪ % complete national land use management information system (including spatial data infrastructure) building on LAIS (NST1); ▪ # Sector and district land plans (cumulatively) integrated into a paperless land register (SSP: ENR); ▪ % Land use plan harmonised with NLUDEMP (SSP: ENR); ▪ % compliance of land use development plans to the NLUDEMP (SSP: ENR); ▪ % agriculture and premium land protected (SSP: ENR); ▪ % increased coverage in surveying and mapping (SSP: ENR); ▪ National Spatial Data Infrastructure established and operational (SSP: ENR); ▪ # district staff equipped with GIS and trained in use of GIS (CP); ▪ # existing urban and rural planning documents reviewed and completed to comply with the National Land Use and Development Master Plan and existing legal framework (SSP: U&RS); ▪ # gullies and degraded old mines rehabilitated (CP); ▪ % degraded mines and quarries rehabilitated (DDS); ▪ # studies completed for rehabilitated mines/quarries (DDS); ▪ # km buffer zones along rivers, reservoirs, and wetlands demarcated and protected (CP); ▪ km riverbank protection through buffer zones (DDS); ▪ Renewable water resources availability per capita per annum (m³/capita/annum) (SSP: ENR);

NST1 Pillar	NST1 Priority Area	Outcomes From NST1, SSP, or CP	Outputs From SSP, CP, or DDS	Indicators From NST1, SSP, CP, or DDS
			<ul style="list-style-type: none"> ▪ Water related disasters mitigated and degraded catchments rehabilitated (SSP: ENR); ▪ Equitable Water Allocation and Efficient Water Utilisation (SSP: ENR); ▪ Enhanced water storage (SSP: ENR); ▪ Proportion of catchments with a functioning WRM committee (CP); ▪ Proportion of catchments with adaptive management plans (CP); ▪ Effective and efficient irrigation developed under an IWRM framework (SSP: Agri); ▪ Water use in irrigation regularly monitored (CP); ▪ Established and operational water users' associations for irrigation schemes(CP); ▪ Operational water permit system (CP); ▪ Industries and Hotels supported to adopt Resource Efficient and Cleaner Production (RECP) technologies (CP); ▪ Off-farm jobs created to reduce pressure on natural resources (CP); ▪ Environmental, education, awareness and mainstreaming sustainably improved (SSP: ENR); ▪ Pollution control and environmental compliance effectively enhanced (SSP: ENR); ▪ Vulnerability to climate change reduced (SSP: ENR); 	<ul style="list-style-type: none"> ▪ % catchments with management committees Task Forces of women and men (SSP: ENR); ▪ # shared basins/catchments with cooperation frameworks (SSP: ENR); ▪ % implementation of approved catchment management plans (SSP: ENR); ▪ % districts aligning their annual work plan and (joint) Imihigos with CP Annual Implementation Plans (CP); ▪ % degraded areas in 4 priority catchments rehabilitated (SSP: ENR); ▪ % waterbodies with ambient water quality (SSP: ENR); ▪ % flood control investment measures implemented (SSP: ENR); ▪ % female and male water users with water permits (SSP: ENR); ▪ Artificial water storage in m³ per capita¹ (SSP: ENR); ▪ %f households with RWH systems (SSP: ENR); ▪ # meetings of Catchment Committee, per year (CP); ▪ # meetings of catchment management support team (technical secretariat), per year (CP); ▪ Availability of CP Annual Implementation Plan (for ongoing fiscal year) (CP); ▪ # floods per year with significant social and economic damage and losses (CP); ▪ # droughts per year with significant social and economic damage and losses (CP); ▪ # ha of irrigation developed within an Integrated Water Resources Management Framework (cum.): <ul style="list-style-type: none"> a) Hillside (medium-large scale); b) Marshland medium-large scale); c) Small-scale hillside (SSP: Agri); ▪ # and % irrigation schemes with operational water monitoring (CP);

¹ Water storage capacity in dams, valley dams and large ponds (in m³) divided by the total population

NST1 Pillar	NST1 Priority Area	Outcomes From NST1, SSP, or CP	Outputs From SSP, CP, or DDS	Indicators From NST1, SSP, CP, or DDS
			<ul style="list-style-type: none"> ▪ Private sector mobilised to implement Green/SMART city pilot (SSP: ENR); ▪ Cumulative volume of finance [US\$ millions] mobilised for climate and environment purposes. (SSP: ENR). 	<ul style="list-style-type: none"> ▪ % irrigation schemes with operational water users' association (CP); ▪ % water users with water abstraction permits (gender-disaggregated data) (CP); ▪ % approved capital projects in compliance (85% or above) with EIAs, EAs Studies and Conditions of approval (NST1); ▪ % hazardous/toxic waste safely handled (NST1); ▪ % functioning reporting weather stations meeting WMO standards (NST1); ▪ # / % industries/hotels adopting efficient clean technology (CP); ▪ % industries with wastewater treatment systems (SSP: WATSAN); ▪ # off-farm jobs created to reduce farming pressure on protected/high risk areas (CP); ▪ # timely and accurate weather forecasts provided across administrative levels (NST1); ▪ % sectors' policies, plans and programmes (concerned by SEA legal instrument) undertaking SEA (SSP: ENR); ▪ # sectors with approved SEA monitored (SSP: ENR); ▪ % approved EIA and EA certified projects in compliance (75% or above) with EIAs, EAs Studies and Conditions of approval (SSP: ENR); ▪ % hazardous/toxic waste safely managed (SSP: ENR); ▪ # circular economy initiatives supported (SSP: ENR); ▪ # degraded wetlands ecosystems rehabilitated (focus on fully protected wetlands and complex wetlands) (SSP: ENR); ▪ % Nationally Determined Contributions (NDC) programmatic targets achieved (SSP: ENR); ▪ # initiatives undertaken to engage private sector (SSP: ENR); ▪ Volume (USD Millions) of finance mobilised (SSP: ENR); ▪ m³ water in ponds and dams constructed to collect rain water for hillside irrigation (CP).

NST1 Pillar	NST1 Priority Area	Outcomes From NST1, SSP, or CP	Outputs From SSP, CP, or DDS	Indicators From NST1, SSP, CP, or DDS
Social Transformation	<p>Enhancing graduation from poverty and extreme poverty and promoting resilience</p>	<ul style="list-style-type: none"> ▪ Increased resilience of the poor against shocks (NST1); ▪ Enhanced reliability of weather and climate services and products for Rwanda’s socio-economic development (SSP: ENR). 	<ul style="list-style-type: none"> ▪ Improved safety of life and property through better application of weather and climate warnings and forecasts (SSP: ENR); ▪ Improved access and use of weather and climate information by key sectors and actors (domestic and foreign) for improved socio-economic sustainable development (SSP: ENR); ▪ Improved availability and accessibility of quality weather information and climate data and advisories for research, planning and decision making (SSP: ENR); ▪ Mechanisms for increased resilience developed and implemented (SSP: Agri); ▪ Mechanisms for increased resilience developed and implemented (SSP: Agri); ▪ Flood Early Warning System (CP); ▪ Households relocated from high risk zones (CP). 	<ul style="list-style-type: none"> ▪ # districts supported to develop and update District Disaster Management plans (NST1); ▪ % VUP Classic Public Works expenditure contributing to Disaster Risk Reduction (NST1); ▪ # weather and climate products and services timely produced and disseminated by major type of channel (SSP: ENR); ▪ % occurred extreme weather events for which advance warning was provided at least 30 min in advance (SSP: ENR); ▪ % polled female and male users of weather & climate information from Meteo Rwanda who are satisfied or very satisfied with the service (SSP: ENR); ▪ A functioning Rwanda Meteorological Training and Research Centre (RwaMet) (SSP: ENR); ▪ # research reports/studies and policy advisory documents produced (SSP: ENR); ▪ % demand of Meteo Rwanda weather data by channels (SSP: ENR); ▪ % forecasts by level of accuracy (SSP: ENR); ▪ % farmers receiving weather and climate information products/services (SSP: Agri); ▪ # vulnerable farmers who have benefitted from asset building programmes (disaggregated by male/female headed HH) (SSP: Agri); ▪ # ha protected by FEWS (CP); ▪ # households relocated from high risk zones (CP).
	<p>Moving towards a modern Rwandan household</p>	<ul style="list-style-type: none"> ▪ Universal access to basic infrastructure (water, sanitation, electricity, ICT, shelter) achieved (NST1); ▪ Improved and sustained household access to basic sanitation services (SSP: WATSAN); 	<ul style="list-style-type: none"> ▪ Development of rural settlement well-managed (SSP: U&RS); ▪ Increased access to safe water (DDS); ▪ Efficient household water consumption (CP); ▪ Establishment of waste management facilities using faecal sludge management and modern land fill (DDS); 	<ul style="list-style-type: none"> ▪ % population using an improved water source (NST1); ▪ % rural households settled in integrated, planned rural settlements (NST1); ▪ % households with improved water source in dwellings /yard in Rwanda (SSP: WATSAN); ▪ % population using an improved water source in Rwanda (SSP: WATSAN); ▪ % households with improved water source in dwellings /yard in rural areas (SSP: WATSAN);

NST1 Pillar	NST1 Priority Area	Outcomes From NST1, SSP, or CP	Outputs From SSP, CP, or DDS	Indicators From NST1, SSP, CP, or DDS
		<ul style="list-style-type: none"> ▪ Water pollution from urban and village areas caused by solid and liquid waste reduced (CP); ▪ Improved and promoted basic sanitation for other public institutions and locations (SSP: WATSAN); ▪ Sustained safe and reliable water supply services for schools, health facilities and public places (SSP: WATSAN); ▪ Liveable, well-serviced, connected, compact, green and productive urban and rural settlements with a cultural identity (SSP: U&RS). 	<ul style="list-style-type: none"> ▪ Spring water in rural areas constructed, extended and rehabilitated (DDS); ▪ Development of urban planning areas well-managed (SSP: U&RS); ▪ Basic infrastructure provided in government supported affordable housing projects supporting (DDS). 	<ul style="list-style-type: none"> ▪ % households with clean drinking water available when needed in rural areas (SSP: WATSAN); ▪ % rural HHs within 100 m of an improved water source (SSP: U&RS); ▪ % rural households using an improved water source within 500 m (SSP: WATSAN); ▪ % population using an improved water source within 30 minutes round-trip in rural areas (SSP: WATSAN); ▪ % population using an improved water source in rural areas (SSP: WATSAN); ▪ % male and female headed HHs with access to improved drinking water (DDS); ▪ Average consumption per household connection (m³/y) (CP); ▪ % solid waste collected and recycled (SSP: WATSAN); ▪ % households sorting waste (SSP: WATSAN); ▪ % households contracted with service providers collecting and transporting waste in urban areas (SSP: WATSAN); ▪ % Districts with appropriate solid waste disposal facilities/modern Landfills (SSP: WATSAN); ▪ % urban population covered by master plans with storm water considerations (SSP: WATSAN); ▪ % reduction in solid waste discharges into rivers (CP); ▪ % works executed in the installation of dustbins and transit sites (solid waste collection) (DDS); ▪ % works executed in Sanitation Master Plan (DDS); ▪ % Districts with appropriate solid waste disposal facilities/modern Landfills (DDS); ▪ % health centres with improved Water Supply facilities (SSP: WATSAN); ▪ % schools with improved WS facilities (SSP: WATSAN); ▪ # new water supply networks; % executed in rehabilitation of all water supply networks (DDS); ▪ % fully functional water supply system in urban areas (SSP: WATSAN);

NST1 Pillar	NST1 Priority Area	Outcomes From NST1, SSP, or CP	Outputs From SSP, CP, or DDS	Indicators From NST1, SSP, CP, or DDS
				<ul style="list-style-type: none"> ▪ % urban HHs within 100 m of an improved water source (SSP: U&RS); ▪ % households with improved water source in dwellings /yard in urban areas\ (SSP: WATSAN); ▪ % urban households using an improved water source within 200m (SSP: WATSAN); ▪ % population using an improved water source in urban areas (SSP: WATSAN); ▪ % population using an improved water source within 30 minutes round-trip in urban areas (SSP: WATSAN); ▪ % urban HHs with improved sanitation facilities (SSP: U&RS); ▪ % households contracted with service providers collecting and transporting waste in urban areas (SSP: WATSAN); ▪ Total urban water production capacity (000'm³ per day) (SSP: WATSAN); ▪ % green infrastructure established (solid waste management) (DDS).
Transformational Governance	Strengthen capacity, service delivery and accountability of public institutions	<ul style="list-style-type: none"> ▪ Enhanced accountability across public institutions (NST1); ▪ Transparency and accountability at individual and institutional level enforced by public and non-public stakeholders (SSP: Gov & Dec); ▪ Equitable allocation of water resources ensured to sector users (CP); ▪ Reinforced efficient service delivery (NST1); ▪ Improved service delivery across all sectors (SSP: Gov & Dec); ▪ Enhanced effective Public Financial Management System (NST1); 	<ul style="list-style-type: none"> ▪ Enhanced citizen participation and inclusiveness for transformation (CP); ▪ Institutional capacity strengthened, and government institutions coordination enhanced (CP); ▪ Capacity development strategies designed at institutional level (CP); ▪ Conflicts among water users identified, discussed & solved (CP); ▪ Develop WASH action plans (SSP: WATSAN); ▪ Increased satisfaction in public service delivery (CP); ▪ Improve functionality and sustainability of Rural WS infrastructure (SSP: WATSAN). 	<ul style="list-style-type: none"> ▪ # stakeholders applying mechanism to enhance transparency (SSP: Gov & Dec); ▪ % population who believe decision-making is inclusive, by gender (SSP: Gov & Dec); ▪ % level of transparency in public sector (SSP: Gov & Dec); ▪ % population that perceive district administration as transparent (SSP: Gov & Dec); ▪ % catchments with water allocation plans (CP); ▪ Average % of non-government stakeholder representatives (NGO/CSO/CBO/FBO/NWC/PSF) in Catchment Committees (CP); ▪ # Catchment Committees meetings per year (CP); ▪ % specialists with expertise in IWRM (CP); ▪ % water conflicts raised and solved annually (CP); ▪ % level of quality service delivery; (SSP: Gov & Dec); ▪ % citizen's satisfaction with service delivery (SSP: Gov & Dec);

NST1 Pillar	NST1 Priority Area	Outcomes From NST1, SSP, or CP	Outputs From SSP, CP, or DDS	Indicators From NST1, SSP, CP, or DDS
		<ul style="list-style-type: none"> ▪ Improve functionality and sustainability of rural WS infrastructure (SSP: WATSAN). 		<ul style="list-style-type: none"> ▪ # districts with functional District WASH Boards (SSP: WATSAN); ▪ % water permit online portal users satisfied with service (CP); ▪ % non-revenue water (WASAC) (SSP: WATSAN); ▪ % cost recovery (revenue / O&M costs) for rural piped water schemes (SSP: WATSAN); ▪ % public rural water supply systems managed by a contracted private operator (SSP: WATSAN).
	<p>Increased citizens participation and engagement in development</p>	<ul style="list-style-type: none"> ▪ Enhanced decentralisation system (NST1); ▪ Improved scores for citizen participation (NST1); ▪ Citizen participation, empowerment and inclusiveness enhanced (SSP: Gov & Dec). 	<ul style="list-style-type: none"> ▪ Catchment management committees are established, and permanent secretariat is established (CP). 	<ul style="list-style-type: none"> ▪ Average level of participation of CSO representatives in CTF meetings by gender (CP); ▪ % citizens satisfied in their participation in catchment planning and/or implementation of catchment plan (SSP: Gov & Dec); ▪ % women represented in key positions of water users' committees (SSP: WATSAN); ▪ % females occupying key positions in Water and Sanitation Sector institutions (SSP: WATSAN).

Annex 6. Annual Implementation Planning

The following pages contain draft flow charts for joint development of Catchment Plan Annual Implementation Plans (AIPs), which form the basis for annual M&E of plan implementation.

AIPs are developed by a team comprising the Catchment Management Officer of the Water Resources Board, the Technical Support Committee, and technical and planning staff from Districts in the catchment. The latter should increasingly incorporate GIS skills to transform to a spatial planning approach. The team should consult and collaborate with line ministries and their implementing agencies (e.g. RAB and REG) for optimal alignment of interventions each year.

The AIPs for 2018-2019 have been developed on the basis of existing commitments in District Imihigos. In subsequent years, timely start of the process at catchment level provides all plan partners (local and national) with the opportunity to align planning around water management and water use at catchment scale, providing valuable inputs to (joint) Imihigos at all levels.

6.1 Flow chart AIP development 2018-2019

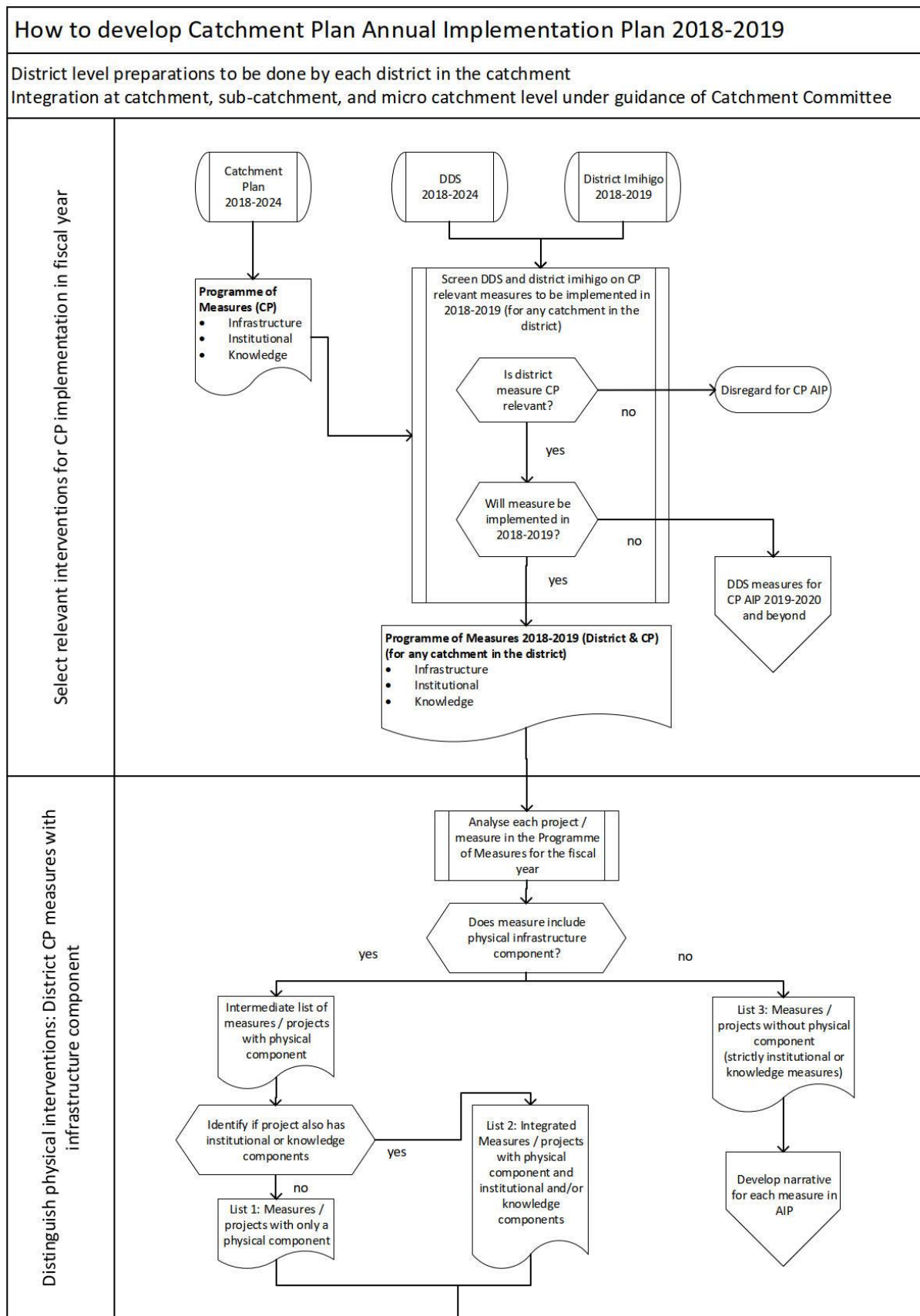


Figure 13: Flow chart AIP development 2018-2019, page 1/3

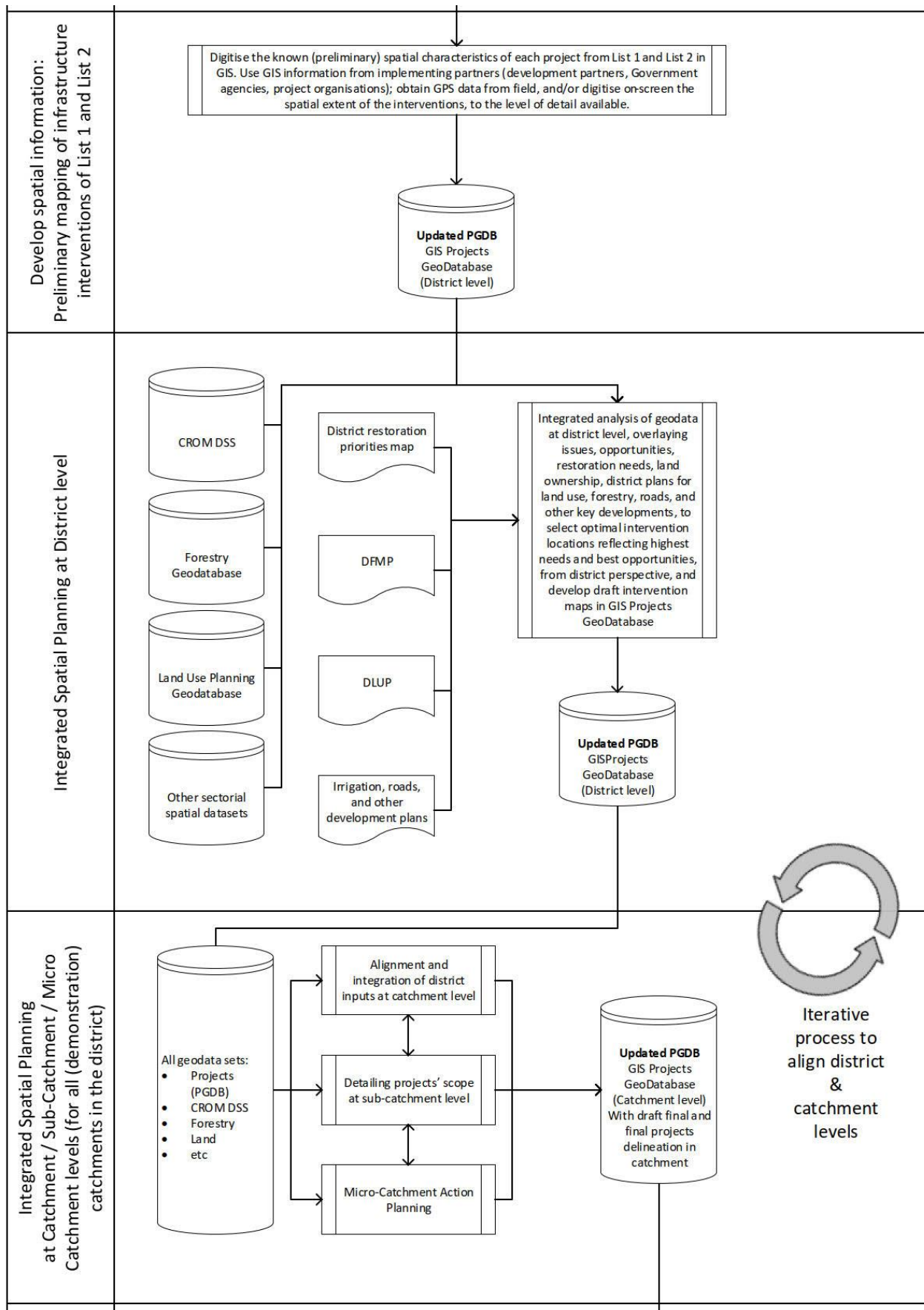


Figure 14: Flow chart AIP development 2018-2019, page 2/3

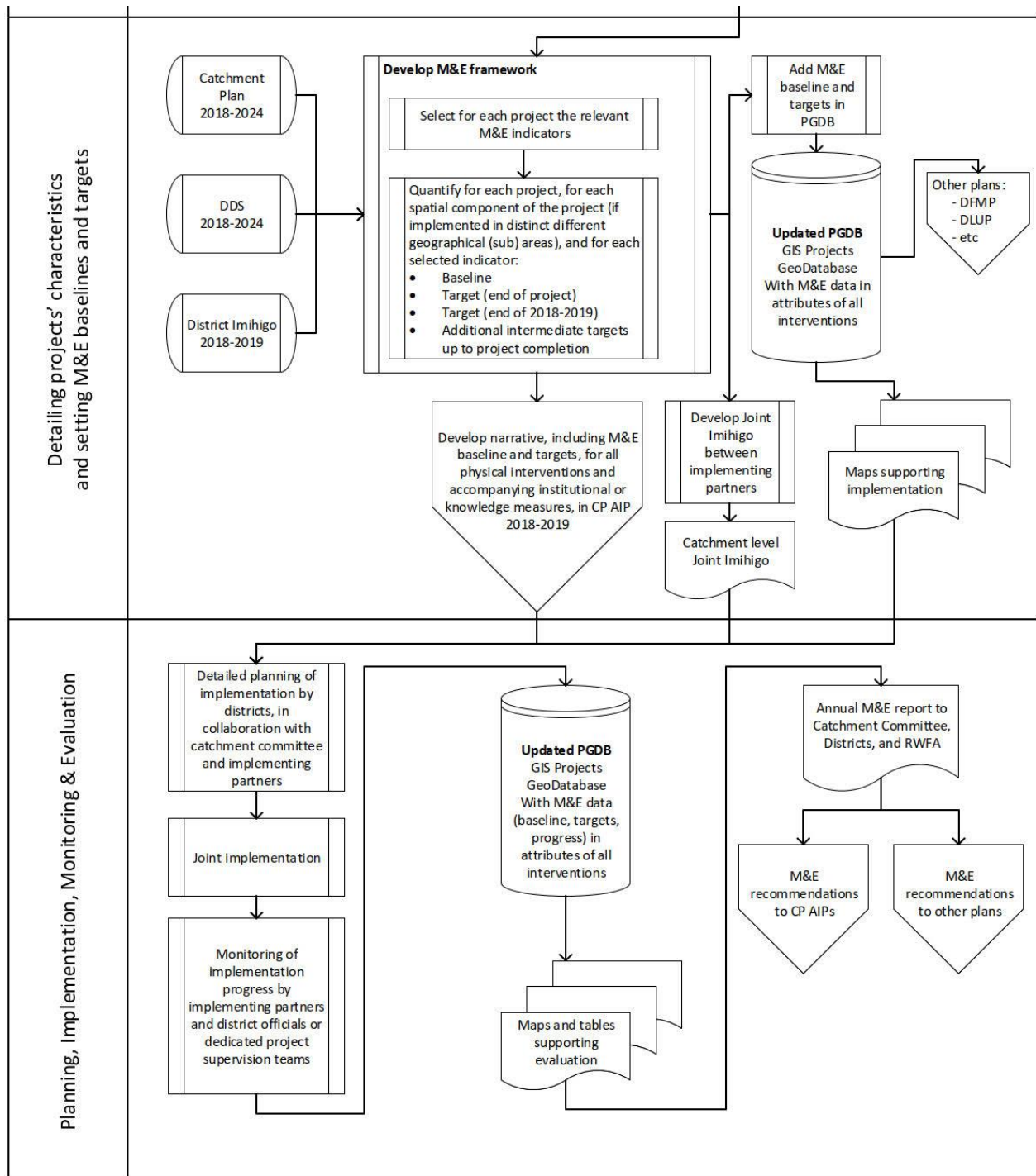


Figure 15: Flow chart AIP development 2018-2019, page 3/3

6.2 Flow chart AIP development subsequent fiscal years

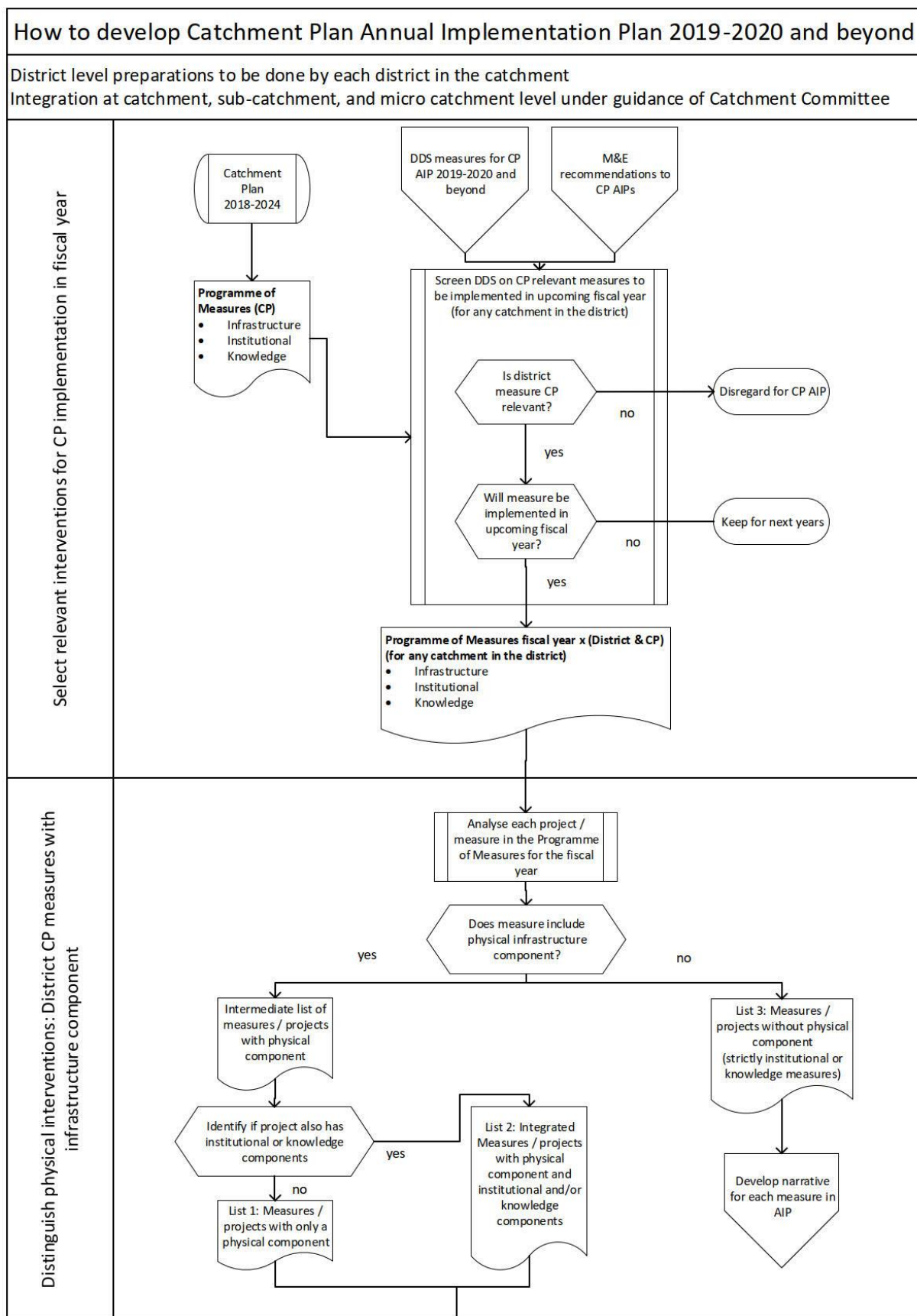


Figure 16: Flow chart AIP development subsequent fiscal years, page 1/3

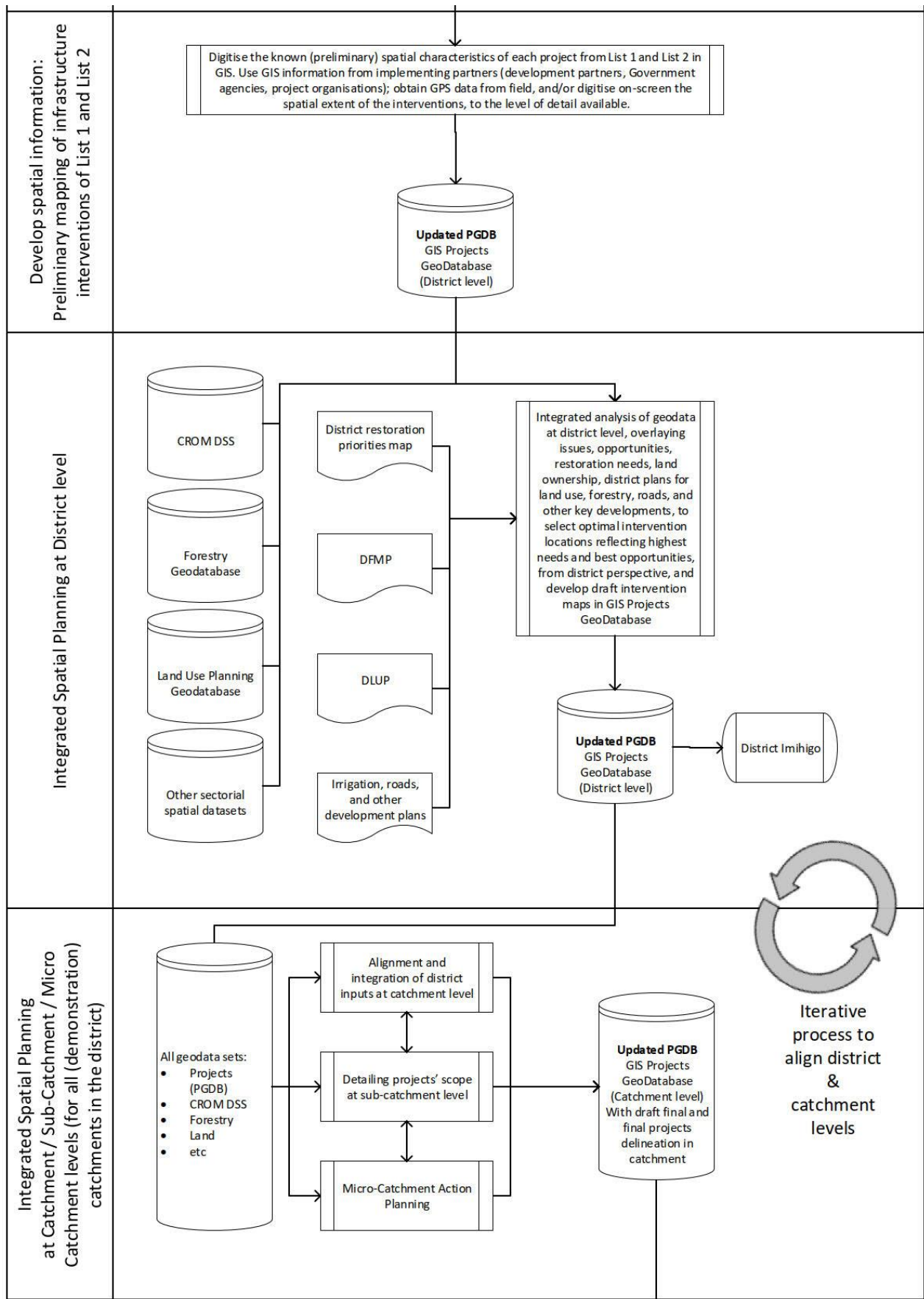


Figure 17: Flow chart AIP development subsequent fiscal years, page 2/3

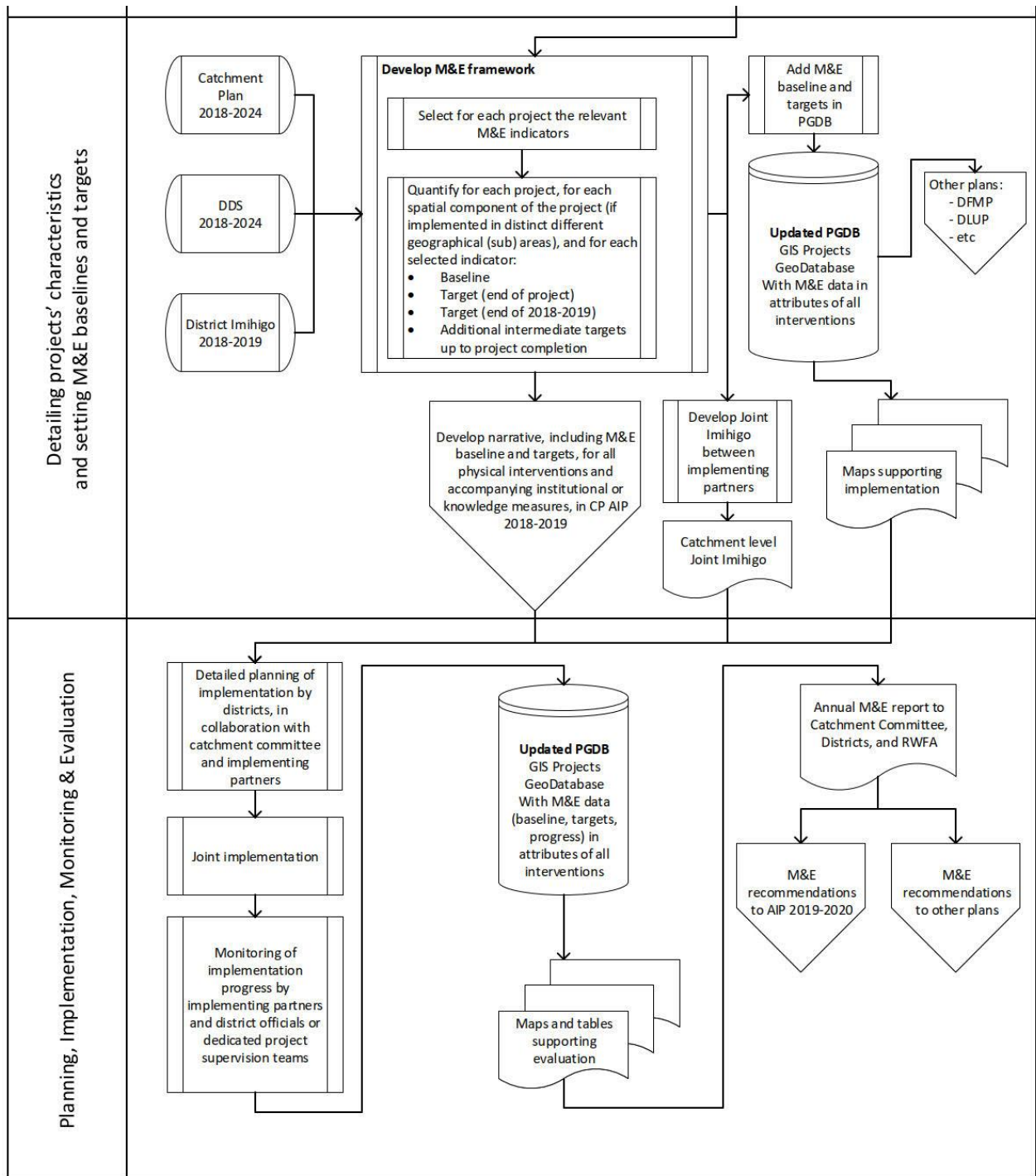


Figure 18: Flow chart AIP development subsequent fiscal years, page 3/3

Annex 7. Feedback NCEA on draft manual

The following pages provide the observations of a quality assessment of SEA integration in the first draft version of this Catchment Plan development manual by the Netherlands Commission for Environmental Assessment (provided to the Head of the Water Resources Management Department by letter, dated 10 April 2019, with reference 7015-05. The observations and detailed feedback in track changes have been incorporated in this final version of the Catchment Plan and SEA development manual

François Tetero
Head Integrated Water Resources Management Department
Rwanda Forest and Water Authority

our reference
7015-05
enquiries to
GvB/NA
direct phone no.
+31 30 234 76 13

Date: 10 April 2019
Subject: Quality assessment of SEA integration in Catchment
Plan development manual

Dear Mr Tetero, Dear François,

Per email of 29 March 2019, you requested the NCEA to assess the quality of the catchment planning manual that your department is in the process of developing as output of the Water for Growth programme. In particular, you asked us to look at the integration of Strategic Environmental Assessment (SEA) in the planning process and SEA guidance in the manual.

The manual was analysed by the NCEA with the help of IWRM/SEA expert Roel Slootweg, my colleague Technical Secretary Pieter Jongejans and myself. With this letter, we present our main observations and an overview of our findings on some general issues. Attached to the letter, we included an annotated version of the manual, with comments and remarks in the text, which we will also send separately in a word file to enable easy editing. We hope that this is a convenient way of working for you.

In case of any unclarities or questions, please do not hesitate to contact me.

We wish you the best in finalising this important document, which will be of great use for future catchment planning and SEA in Rwanda.

Yours sincerely,



Gwen van Boven
Technical Secretary

CC: Timmo Gaasbeek, EKN Kigali
Eliot Taylor and Rob Nieuwenhuis, Water for Growth Rwanda

Main observations

The manual provides a complete, yet concise overview of the integrated catchment planning and SEA process. A consistent stepwise approach is presented, supported by well-developed flowcharts with defined outputs of each step. The manual does not copy paste the process of the pilot catchment planning efforts, but shows serious learning of the pilot exercise, has maintained the things that worked well and left out what didn't.

The way in which SEA has been integrated into the planning process is not the easiest way to introduce SEA in a country. It consequently resulted in a steep learning curve. Yet, in its present form it can serve as an example for many countries.

The manual would benefit from some adjustments in relation to SEA, which have been listed in the following chapter. Note that recommendations have been given from the point of view of international good practice for SEA, as the Rwandan SEA regulation is still under development.

General findings

1. It would be nice to have *an overview of lessons learnt* from the pilot planning phase. Obviously, some things worked better than others, and maybe some things didn't work at all. From NCEA perspective it was obvious that two SEA concepts were difficult:
 - a. the consistency analysis: conceptually not very complicated but in Rwandan context difficult as it was perceived as criticism on existing policies that are considered to be made for the benefit of the country.
 - b. strategic alternatives: catchment planning was (and to a large extent still is) conceived as a way to solve a long list of local issues. Taking a step back to think in terms of a long-term development vision for the catchment and defining ways to get there was difficult.

For future catchment planners it might be handy to get a feeling of what has been tried earlier, where problems arose and the ways to get around such problems.

2. The document is written from an insiders' perspective. The flowcharts do not describe who is in charge of each step, where information documents can be found, what departments or institutions have experience in the application of methodologies, etc. Perhaps at this point this is clear to everybody; yet, if new catchment plans will be made the manual will also be used by district authorities without catchment planning experience. It would be good to include *information on roles and responsibilities* of different actors: Catchment Committee, Technical Committee, who is the plan owner, etc. Similarly, it is unclear who is in the lead of the catchment planning and SEA process; where lies decision making power during the plan process design (such as who determines the composition of the Catchment Committee)?
3. The manual does not include *a public review phase*; only review by REMA. In good practice SEA, an SEA report should be made available to the public at large who should be given



the opportunity to react. The finally approved document has to contain a section on how it has addressed the comments from respondents. While REMA does quality control on process and content; the general audience has the right to be informed on the outcomes of an assessment and to provide the planning team with comments, remarks, suggestions, questions. The publication of the final catchment plan also does not have this option. Although it is not yet known what the Rwandan SEA regulation will prescribe, but the integrated SEA + catchment plan should preferably have a public review procedure.

4. A recurring observation made by the NCEA during the catchment planning process can also be made for the manual, in that it remains unclear about ***the focus of catchment planning***. It is a lot about water (quantity), occasionally about “land use” or “other natural resources”. It is considered a special case of spatial planning, but simultaneously it says it is based on principles of IWRM. It may be that this results in a water-biased focus, whereas the stakeholder consultation workshops did demonstrate the need to focus on management of land and land use issues for sustainable management of the catchment and its water resources.
5. ***Scoping*** for SEA and catchment planning (chapter 4): even though opportunities are mentioned the impression remains that scoping is rather problem-focussed. This is a reactive way of planning, which is not necessarily wrong, but it possibly somewhat counterproductive when defining a development vision for the catchment.
6. There is a potential problem with the assessment using ***key performance indicators*** (KPI's). KPI's are derived from plan objectives and thus are relevant for assessment. Yet, do these KPI's also cover unintended / undesirable impacts? The NCEA recalls that KPI's were defined in terms of sustainable use, so unsustainable use should also be covered. Yet, for example if reduction of downstream flow will affect a downstream catchment, it doesn't necessarily surface in the KPI's.
7. Although the manual will provide a good basis for future SEA for catchment planning, if it is the first (or even second) time for people to do SEA, they may require ***additional guidance*** beyond this manual. It would be useful to add references on international good practice SEA, as have been provided by the NCEA during workshops and training sessions. Also, specific guidance has been developed during the course of these SEAs which may be useful, such as on consistency analysis and stakeholder identification and analysis.
8. ***Monitoring and evaluation*** is part of the IWRM cycle but is entirely lacking in the main text. Annex 4 provides relevant information but is not linked to the main document. Since M&E are essential parts of both IWRM cycle and SEA procedure this is an omission. Only at the end of the annex 4 it is mentioned that an M&E plan will be part of the implementation phase.
9. In relation to point 9: Annex 5: Intervention logic and M&E framework is missing.
10. An observation on presentation would be that the layout of the ***flow charts*** can be better. As they are, they read badly (use black font; no coloured boxes) and they contain a lot of abbreviations. We are not sure whether all of these are explained in the text.



11. Suggestion: create an Annex with easy to read process information and infographics, *in Kinyarwanda*, explaining the steps in the process, to be used as *a handout for all non-expert participants* in the process. It can work as a reminder at each step in the process of where they are now and can be linked to a time frame, to better manage expectations of participants.

For more detailed comments in the text, please refer to the annotated version of the catchment plan development manual that is attached to this letter (Annex 1).



Annex 8. Participants of validation workshop