Guide to writing an Environmental Monitoring Plan

Use this guide as a scoping exercise to assist in developing the environmental stress reduction activity monitoring plan. Use this with the national results framework and/or workplan. The toolkit for environmental monitoring includes the following:

Document Name	Purpose
Guidelines and Templates	
Baseline and Monitoring Guidelines (and abridged)	A comprehensive paper that examines the different aspects of monitoring including site selection, schedule, data management and methods.
Guide to Writing and Environmental Monitoring Plan	To assist managers thinking about monitoring objectives, what parameters and methods are most suitable, timing and data management.
Environmental Monitoring Plan Template - Dry Litter Piggery - Restoration	A generic template that can be completed using the guide. Additionally, templates specific to dry litter technology for pig waste management, and restoration
Standard Operating Procedures	
Compost System SOP	Guide monitoring of compost systems, primarily the waste from the dry litter technology, however, can be used in the Ecosan compost
Water Quality Monitoring Guide	Guide monitoring of coastal water sites, primarily for municipal waste reduction and catchment protection activities
Wastewater and Ecosan Monitoring Guide	Guide for monitoring the application of eco sanitation and updated on-site sanitation systems
Multimeter Manufacturer Manuals	Contains specific instruction for the YSI ProDSS and 3900 Photometer
Field Activity Proformas	
Pilot Project Site Description	
On-ground Works – Dry Litter Technology	
On-Ground Works – Regrowth Management	
On-Ground Works – Remnant Enhancement	
On-ground Works – Revegetation	
Water Quality Field Data	
Compost Monitoring Log	

The information provided here is intended as a starting point only. All monitoring plans are unique based on specifications such as location, objectives, activities etc. and additional modification and adaptation of these resources will be applied as necessary.

Step 1

Program design considerations

Existing information

Project Details	
Project Name	
Project Manager	

Study Area Information	
Surrounding land use	
Dominant adjacent land use	
Sources of Pollution	
Human-induced	
Natural variation	
Government Bodies	
Traditional	
District	
Municipal	
Provincial	
National	
Related Non-Government Organisations	
Stewardship Groups	
Other	
Are there other groups (including polluters) conducting monitoring in the area?	
Name and type of monitoring	
Other	

1. What are the geographical sites you want to monitor? (River, stream, lagoon, coast, watershed, forest area etc.)

Click or tap here to enter text.

2. Are there known issues in this area? What are they?

Click or tap here to enter text.

3. Is there existing environmental monitoring data in this area? In adjacent areas? Please describe what and who has this data

Click or tap here to enter text.

Step 2

Purpose

1. What are the activities in this site that the IW project is conducting?

Project component	**Outcome**	**Target**	**Indicator**

Year activities commenced:	(*if not commenced, detail expected date of commencement*)		
Total number of sites within this activity:			

2. Are these activities for restoration, protection, enhancement purposes, or other? Please describe, can be more than one

Click or tap here to enter text.

3. What do you hope to achieve through this activity? What are the overall goals?

Click or tap here to enter text.

4. What are your activity objectives?

Main objective of this activity (*check one most relevant objective*)	☐ Biodiversity conservation/ restoration ☐ Stream bank stabilisation ☐ Improved catchment management ☐ Sustainable farming practices ☐ Fisheries protection	☐ Water quality improvement ☐ Improved domestic animal waste management ☐ Improved human waste management ☐ Other (describe)……
Other objectives (check any that apply)	☐ Biodiversity conservation/ restoration ☐ Stream bank stabilisation ☐ Improved catchment management ☐ Sustainable farming practices ☐ Fisheries protection	☐ Water quality improvement ☐ Improved domestic animal waste management ☐ Improved human waste management ☐ Other (describe)……

5. List the questions you would like to address with the baseline assessment and monitoring of your project activities

Questions or issues to be addressed	Information needed

Step 3

Selecting an activity and monitoring site/s

1. Have the sites for activities been selected already? Please detail the method that has or will be used for choosing sites (*for example was a criterion applied and different sites ranked*)

Click or tap here to enter text.

2. If no site selection criteria have been established, what are some criteria that could be applied for choosing a priority site?

Click or tap here to enter text.

3. Where will you monitor? Including reference and target site as appropriate.

Site name	Brief description of location	Site type (target, reference, pilot)

Things to consider when choosing a site

- *Does the site have access issues? Is it on public or custodial land?*
- *How is the location situated in relation to project activities? Is it a reliable site to show the impact of activities?*
- *Will the site have reliable access at different times of day, of the year?*

Step 4

Maintenance

1. What are the maintenance measures required for this activity? (weed clearing, fencing, compost turning etc.)

Step 5

Selecting monitoring parameters

What parameters and conditions will you monitor? (*Refer to your logframe targets and GEF indicators. Not every country is covering all that is suggested below*)

Water quality

		Why will you monitor this?	Sampling method
☐	Dissolved Oxygen		
☐	Conductivity		
☐	pH		
☐	BOD		
☐	Salinity		
☐	Total Dissolved Solids		
☐	Turbidity		
☐	Temperature		
☐	Chlorophyll		
☐	Blue green algae		
☐	Phosphate		
☐	Nitrate		
☐	Coliform		

☐	Benthic Macroinvertebrates		
☐			

Catchment Revegetation and/or Habitat Restoration

		Sampling method	Why will you monitor this?
☐	Survivorship	Line intercept	
☐	Photo point	photo imaging	
☐	Problem weeds	Line intercept	
☐	Recruitment seedlings	Line intercept	
☐	Special lifeforms	Observation	
☐			

Catchment Protection Measures

		Sampling method	Why will you monitor this?
☐	Native vegetation extent	Line intercept and observation	
☐	Native Vegetation Quality	Line intercept and observation	
☐	Voluntary management activities by stakeholders and/or landowners	Attendance at trainings. Site visits	
☐	On-ground operational works by the catchment authority	Activity tracking and reports	
☐	Community Engagement Activities	Activity tracking and reports	
☐	Planning Controls Implemented	Planning and implementation documents	
☐	Data collection and control	number of continual and complete metadata sets	
☐			

Conserved/protected MPAs, and fish refugia habitat

		Sampling method	Why will you monitor this?
☐	Abundance of juveniles in fishery refugia areas	Line intercept and observation. Creel survey	
☐	Volume and size composition of commercially important fish	Creel survey	

Step 6

Sampling

1. When will you sample?

Site	Parameter	Frequency	Time of year	Time of day	Special weather conditions

To consider in choosing frequency and duration: *Consider these in relation to achieving monitoring goals and objectives

What time of day is best for sampling? (Temperature, for example, can fluctuate naturally as the sun rises)

What time of year is best for sampling?

How frequently should monitoring take place?

2. Who will collect samples and/or data?

Site	Parameter	Person Responsible	Agency

3. What potential partnerships can be established to conduct activity and/or monitoring?

Click or tap here to enter text.

4. What resources will you need to conduct monitoring?

Parameter	Personnel	Training	Equipment

Step 7

Data use and management

1. Who will use data from this monitoring program?

Data user	How will they use data	Level of data required

2. Who will manage and analyse the data?

Click or tap here to enter text.

3. Who will data be available to and how?

Click or tap here to enter text.

4. Where will the data be stored? In what format?

Click or tap here to enter text.

5. Who will transcribe/transfer field data to permanent storage?

Click or tap here to enter text.

6. Where will you keep the hard copies of data?

Click or tap here to enter text.

Step 7

Quality Assurance, quality control and safety

1. What (if any) training is required to conduct sampling? (initial and refresher training requirements)

Click or tap here to enter text.

2. Who will calibrate and/or maintain monitoring equipment? What training is required?

Click or tap here to enter text.

3. Have a site survey and risk assessment been conducted? Were any risks identified? What are they? How will they be mitigated?

Click or tap here to enter text.

4. Is any safety training required?

Click or tap here to enter text.

5. Is any specific equipment or resources required to safely work at the sampling location? (First Aid kit, life jackets, footwear, reflective jackets, MSDS sheets) How will they be provided?

Click or tap here to enter text.

Attachment 1

Municipal Wastewater Pollution Reduction - M&E Workplan

Name:
Project:
Date:

Activity	Year 1				Year 2				Year 3				Year 4				Labour		Materials	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	hr	$/hr*	unit	$/unit
Data Collection and Analysis																				
Develop monitoring tools	x	x	x	x																
Baseline Assessment Data collection (target, reference, management sites)			x	x													16	224		
Revision of survey tools					x								x							
Data Analysis and Management	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	48	672		
Indicator Monitoring					x	x	x	x	x	x	x	x	x	x	x	x	24	336		
Site Condition Surveys							x				x				x		6	84		
Site maintenance (and as required)					x		x		x		x		x		x		18	252		
Report Development																	112	1568		
Develop database & establish reporting system	x	x	x	x					x											
Baseline Assessment Report (target, reference, management sites)				x																
Construction Report				x																
Site Condition Report (target, reference, management sites)															x		5	70		
Quarterly Monitoring Report (management site)					x	x	x	x	x	x	x	x	x	x	x	x	24	336		
Mid-term Evaluation report									x								5	70		
Dissemination			x		x				x				x			x	16	224		
																		700		
Data Management																				
Generating fact sheets and other communication materials					x				x				x							
Assess and consolidate previous existing data	x	x	x	x													40	560		
Populate regional and national database				x		x		x		x		x		x		x				
Data Sharing					x	x	x	x	x	x	x	x	x	x	x	x				

560 *$14/hr

Attachment 2

Habitat Restoration - M&E Workplan

Name:
Project:
Date:

Activity	Year 1				Year 2				Year 3				Year 4				Labour		Materials	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	hr	$/hr*	unit	$/unit
Data Collection																				
Develop monitoring tools	x	x	x	x																
Baseline Assessment data collection (target, reference, management sites)			x	x													10	140	1	1250
Revision of survey tools					x	x								x	x					
Data Analysis and Management	x	x	x	x																
Indicator Monitoring						x				x				x			15	210		
Site Condition Surveys						x				x				x			15	210		
Site maintenance (and as required)						x				x				x		x	20	280		
																	60	840		
Report Development																				
Develop database & establish reporting system	x	x	x	x					x											
Baseline Assessment Report (target, reference, management sites)			x	x																
Activity Report				x																
Site Condition Report (target, reference, management sites)						x									x		10	140		
Half-Yearly Monitoring and/or Maintenance Report (management site)						x		x		x		x		x		x	30	420		
Mid-term Evaluation report									x								10	140		
Dissemination			x		x				x				x			x	25	350		
																	75	1050		
Data Management																				
Generating fact sheets and other communication materials					x				x				x							
Assess and consolidate existing data	x	x	x	x																
Populate regional and national database				x		x		x		x		x		x		x				
Data Sharing						x		x		x		x		x		x				

*$14/hr

Attachment 3

Name:
Project:
Date:

Activity	Budget				Year 1				Year 2				Year 3				Year 4			
	Personnel	Equipment/Material	Analysis	Other (provide detail)	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Data Collection																				
Develop monitoring tools					x	x	x	x												
Baseline Assessment data collection (target, reference, management sites)							x	x												
Revision of survey tools									x	x								x	x	
Data Analysis and Management					x	x	x	x												
Indicator Monitoring										x				x				x		
Site Condition Surveys										x				x				x		
Site maintenance (and as required)										x				x				x		x
Report Development																				
Develop database & establish reporting system					x	x	x	x					x							
Baseline Assessment Report (target, reference, management sites)							x	x												
Activity Report								x												
Site Condition Report (target, reference, management sites)										x									x	
Half-Yearly Monitoring and/or Maintenance Report (management site)										x		x		x		x		x		x
Mid-term Evaluation report													x							

Dissemination				x		x				x				x			x	
Data Management																		
Generating fact sheets and other communication materials						x				x				x				
Assess and consolidate existing data		x	x	x	x													
Populate regional and national database					x		x		x		x		x		x		x	x
Data Sharing							x		x		x		x		x		x	x