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STRATEGIC ACTION PROGRAMME

GUIDELINES

EVALUATION OF THE EFFECTIVENESS OF THE STRATEGIC ACTION PROGRAMME FOR THE MEDITERRANEAN REGION

In cooperation with



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INTRODUCTION

The Contracting parties to the Barcelona Convention have adopted the Strategic Action Programme (SAP) to support the formulation, adoption and implementation of relevant national action plans to combat pollution from land based sources. That means that each of the Mediterranean countries should prepare a National Action Plan (NAP) consisting of technical, financial and administrative components in the coming years, which will enable decision makers to introduce those measures and activities needed to gradually meet the set SAP targets of pollution reduction. This NAP will be the main instrument and driving force for the practical implementation of SAP.

An operational document needed as guide for the definition of all these aspects has been prepared by MAP/MEDPOL Secretariat, in order to help the countries to comply with SAP requirements and targets and better define their needs and priorities. In this document, amongst others, a “**control**” function is foreseen for the supervision of the progress to be gradually achieved in the process of compliance of the industrial releases with the set SAP requirements. This function consists of the following 4 main components:

- **progress monitoring/supervision** of the implementation of NAP activities
- **compliance monitoring** of the quantitative targets set by SAP
- **evaluation of performance**, which is a combination of both, progress and compliance
- **public information** on the progress achieved so far

Additionally a **reporting mechanism** has also to be formulated, in order to allow the Mediterranean countries to track all these elements and report to the Secretariat accordingly.

Within this framework, the minimisation and/or prevention of pollutants release from **industrial activities** is a major task asking for the combination of various elements as part of the overall national action plans namely:

- the analysis/assessment of the **existing situation** through an inventory of all industrial sectors releasing SAP priority pollutants according to the provisions of the land based Protocol (LBS)
- the definition of the major **environmental problems** caused from these releases
- the development of a national **baseline budget** of pollutants releases as reference to measure progress in the forthcoming years
- setting of a **priority list of actions** leading to the relevant programmes/projects needed to control these releases
- the organisation/building-up of the necessary **administrative infra-structure** as back-up for the practical implementation.

Additionally, an analysis of the NAP elements dealing with **urban environment** activities will complete an integrated overview of the main SAP components generating pollution loads. The main categories to be considered within urban environment are the following:

- **municipal sewage**
- **urban solid waste**
- **air pollution**

This document is trying to define the content of all these functions mainly focusing on **industrial development** and the release of the relevant priority pollutants (as defined in the SAP main document), since it has to analyse several activities and relevant SAP **quantitative** targets. In the contrary, SAP is proposing general directions concerning pollution reduction originating from **urban environment** activities, without quantitative

targets. Therefore, the relevant components have to be described in a rather qualitative form in NAP and in the relevant reporting tables. A short description of each control function and of the necessary information requirements forms the first part of the document whereas the second part is devoted to the design of the **reporting formats** to be used by the national authorities to report to the Secretariat. The overall philosophy is to keep the necessary sets of information as simple as possible without neglecting the needs for a comprehensive and complete/ integrated assessment of the existing situation and progress tracking. Therefore any simplification of information components, formats etc. is beyond the scope of this document and has, if any, to be undertaken by the countries in cooperation with the Secretariat.

1. PROGRESS MONITORING AND SUPERVISION

1.1 Introduction

Progress monitoring will be based on the assessment by **National Authority** of the level of implementation of all those activities needed for the preparation of national action plans (NAP). As a consequence, various elements/components of NAP have to be described here, in order to define the rough framework of NAP on which monitoring, evaluation and reporting will be based. Progress monitoring has a qualitative character, since it is focusing on the progress of the implementation of activities envisaged in NAP whereas monitoring of the quantitative targets (reduction of pollutants) will be dealt under the following chapter (compliance monitoring). This description by no means implies any prescription to the national authorities to follow certain directions, obligations and phases needed to prepare the respective NAP, it is only an indication of the major elements described in SAP as guidelines for the preparation of NAP.

According to the decisions taken, the states should, in accordance with their policies, priorities and resources, develop NAP and take action to implement these plans by the end of 2003 at the latest. This implies the adoption of targets and activities identified in SAP.

1.2 NAP components

1.2.1 National Diagnostic Analysis (NDA)

NDA is the first step needed as basis for the preparation of NAP, since it helps identifying the existing situation in the country thus serving as reference for assessing any progress in the future (baseline). NDA will be used for the identification of:

- the major areas (hot spots) of concern regarding the release of priority pollutants from industrial installations as defined in SAP as well as the discharge of considerable quantities of municipal sewage (from settlements with more than 100.000 inhabitants) and the improper management of urban solid waste (e.g. uncontrolled landfill sites)
- the quantitative level of releases from sectors as basis for the preparation of the national baseline budget (NBB)
- the existing practices applied by pollution generators (industries, sewage/solid waste management companies) and environmental national/local authorities concerning the control of pollution (audits, certification, permits)
- the major problems of concern in terms of pollutants' quantities and degradation of the physical environment

For the elaboration of NDA a thorough inventory of pollution sources has to be conducted focusing primarily on the **hot spot** areas already defined by the countries and the actual level of emissions of the **substances**, which are prioritised in SAP: TPB (including Hg, Cd, Pb), other heavy metals, organohalogen compounds, radioactive substances, nutrients and

suspended solids, hazardous wastes. Within each hot spot area, the major settlements discharging municipal sewage and producing considerable quantities of solid waste should also be registered especially those with improper management.

1.2.2 National Baseline Budget (NBB)

A reference basis for the quantitative measurement of the progress towards the reduction of releases of pollutants is the NBB, namely the level of actual releases of SAP priority pollutants of the year 2003. The details for the preparation of NBB can be found in the reference literature whereas the basic methodology can be schematically presented by the following equation:

$$WQ_j = A_j \times WF$$

Where:

WQ_j = quantity (kg/year) of each pollutant generated by the production process j

A_j = quantity of raw material (kg/year) used in the production process j

WF = waste factor (kg of pollutant/kg of raw material) associated with the production process j

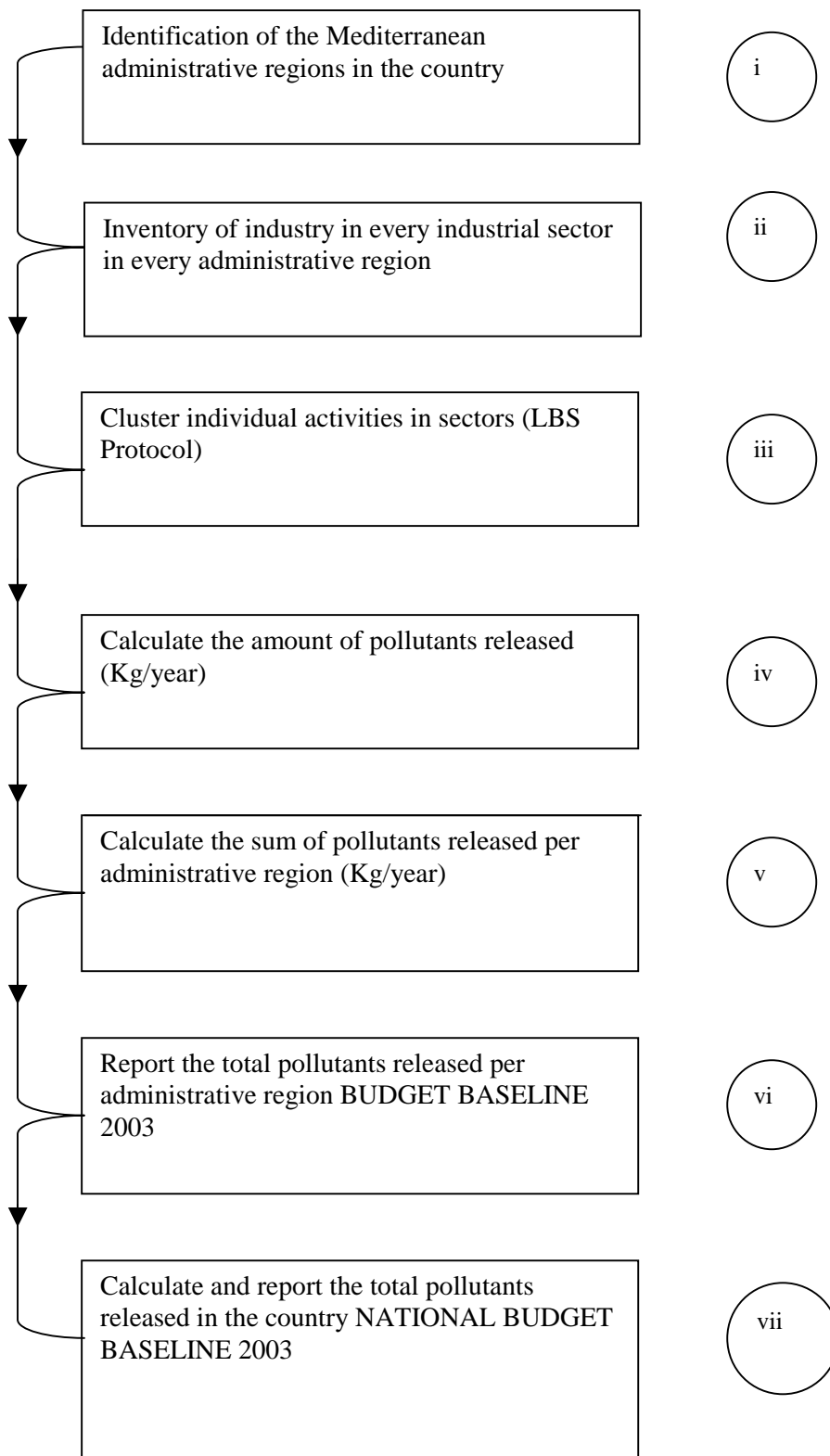
Having defined each waste factor, the waste quantities from similar plants and operations can be calculated if the quantities of raw materials used in the relevant production process are known.

It must be pointed out that these waste factors are derived from the literature and from experimental results, taking into account the prevailing conditions/processes in each country.

The necessary steps for NBB preparation are summarised in Figure 1.

For the preparation of NBB and its phase-wise approach, the prioritisation of the administrative regions to be considered for the analysis has to follow a clear pattern similar to the one for the preparation of NDA: hot spot areas with installations (public and private) releasing the SAP priority pollutants, sensitive areas, other regions including drainage areas with outflow into the Mediterranean Sea. In this way a well focused analysis and assessment of activities, sectors and pollutants relevant to SAP can be elaborated thus avoiding a widely diverse, too detailed and resource consuming inventory.

Figure 1 Preparation of NBB



1.2.3 National priorities for action

Based on the results of **NDA and NBB**, a prioritisation of the encountered environmental issues should be made by weighting/ranking the degree of potential impacts of emitted substances on environmental quality, health etc. In doing so, SAP targets/principles and national environmental and socio-economic priorities have to be also considered. For each major priority issue, the necessary actions and sectoral programmes to be executed should be described, which would lead to the reduction of releases of relevant pollutants. These programmes include:

- the establishment of the relevant legislative/regulatory framework
- the conduction of all studies (technical, environmental) needed to define the programmes (e.g. waste minimization/prevention plans) and the technical projects to be later executed
- the assessment of relevant costs/benefits and feasibility of options for action
- a computation of costs associated with the elaboration of the necessary studies and projects' definition
- description of implementation phases and time table

1.2.4 Institutional building-up

It includes the enforcement of the existing legislative/regulatory framework and the expansion of the institutional infrastructure, in order to cope with the priorities set up in NAP namely:

- review/modification of existing legislative requirements concerning industrial pollution control, municipal sewage and solid waste management (authorization/permits)
- formulation of policy objectives and targets
- setting of ambient quality criteria, emission limit values and environmental management systems for industrial installations, sewage/solid waste management facilities (sewage treatment plants and solid waste treatment/disposal sites) establishment of pollution control inspectorates and programmes
- introduction/promotion of waste minimisation initiatives
- management of industrial facilities, sewage treatment plants and solid waste treatment/ disposal sites (landfills, incineration plants)
- monitoring/control of coastal waters and effluents
- validation of collected information and feedback/re-adjustment of control mechanisms

1.2.5 Evaluation

A mechanism for the periodical evaluation of the actual NAP performance should also be foreseen as a feedback to decision makers for eventual adjustments in the future. This evaluation has to analyse any drawbacks encountered in meeting NAP targets and should highlight those aspects, which are crucial for success e.g. level of introduction of environmental management systems in industries, issuing of permits etc. Additionally, proposals for action to reverse any negative elements should be included in this analysis.

1.3 Information required for progress monitoring

Qualitative and quantitative information has to be collected, in order to assess the level of implementation and practical application of all those activities included in SAP NAP. This information flow has to start from a general level of inquiry about the political decisions concerning NAP preparation or the review of existing plans but it should also give answers to the level of preparation of each of the NAP components e.g. NDA, NBB, priority actions etc. In particular the type of information needed looks as follows:

1.3.1 Decision about the preparation of NAP

- review of existing NAP if any, harmonisation with SAP requirements
- decisions taken for new NAP in conformity with SAP requirements
- description of objectives, principles and targets
- setting-up the coordinating unit responsible for SAP/NAP preparation and implementation
- budget, time table for the preparatory phase
- budget, time table for NAP implementation

1.3.2 NDA

- definition of hot spots, sensitive areas, drainage basins into the Mediterranean Sea
- inventory of installations releasing SAP priority pollutants (according to the sectors listed in Annex I of LBS Protocol)
- identification of areas of concern (major pollution sources, level of degradation of physical environment)

1.3.3 NBB

- level of preparation on national level
- level of preparation on local level (administrative regions)
- expected date to be finalised
- procedures for NBB up-dating (every 5 years)

1.3.4 Priority list of actions

- identification of major environmental issues of concern (industrial installations, sewage/solid waste management facilities, level of pollutants released, potential environmental impacts caused, environmental degradation)
- establishment of national priorities taking into account relevant environmental and socio-economic priorities
- level of preparation of sectoral programmes for the public/private industrial sector (according to Annex I of LBS Protocol)
- content of sectoral programmes (guidelines, setting of quality criteria and of emission limit values, studies to be conducted, feasibility analysis of options, formulation of alternatives)
- content of an integrated national programme to combat pollution from industrial installations releasing SAP priority pollutants
- content of an integrated national programme to combat pollution from sewage/solid waste management facilities
- description of priority projects to be implemented
- budget, time table for the execution of all sectoral programmes
- budget, time table for the execution of the national programme
- budget, time table for the implementation of all priority projects

1.3.5 Institutional building-up

- legislation/regulations to be issued for releases from industrial installations, municipal sewage treatment plants and solid waste treatment/disposal sites
- actions taken to improve the existing control/monitoring mechanism (inspectorates, monitoring programmes, on-spot inspections/inventories)
- setting-up a national accredited body and the mechanism to monitor/verify the cases of compliance/non-compliance with SAP targets
- supporting mechanisms set at national/regional level to tackle environmental problems in industrial installations (application of BEP/BAT, re-organisation of small-medium

enterprises, financial instruments) but also to effectively control pollutants' discharges into the aquatic environment from municipal sewage treatment plants (effluents, sewage sludge) and solid waste disposal sites (leachates from landfills)

- level of introduction of environmental management systems (EMAS, ISO 14000) in industrial enterprises

1.3.6 Evaluation

- actions taken for the evaluation of targets and content of NAP (feedback from monitoring programmes and the implementation of priority actions)
- changes based on this evaluation (e.g. new effluent standards)

1.4 Summary table

All elements and information needed for tracking the progress achieved are summarised in Table 1.

Table 1 Progress monitoring

Component	Activity	Indicator	Conformity with SAP requirements
NAP	Overall level of preparation (new NAP)	year of completion	2003
	Modification of existing NAP	year of completion	2003

Component	Activity	Indicator	Conformity with SAP requirements
	Objectives, principles, targets	description	<ul style="list-style-type: none"> • conformity of point source discharges and air emissions with LBS requirements (2025) • 50% reduction of TPB within 10 years (starting date: 2003) • 50% reduction of pollutants in hot spots and areas of concern (starting date: 2003) • coastal cities and major agglomerations (> 100.000 inhabitants) to be connected to a sewer system (till 2005) • appropriate solid waste collection/disposal systems for agglomerations > 100.000 inhabitants (till 2005) • initiatives for air pollution reduction from mobile sources
	Setting-up the national SAP coordinating unit	Members, date of establishment	
	Definition of budget and time table for NAP preparation	\$, year	
	Definition of budget and time table for NAP implementation	\$, year	
NDA	Administrative regions	Hot spots, sensitive areas	
	Elaboration of inventory	Number, size of industrial installations and sewage/solid waste management facilities in each area	

Component	Activity	Indicator	Conformity with SAP requirements
	Description of areas of concern	Major pollution sources, degradation of physical environment	
NBB	Overall level of preparation	Year of completion (national level)	2003
		Year of completion (local level)	
	Up-dating	Procedures, time table	
Priority list of actions	Identification of major environmental issues	Sectors/ installations/ pollutants released (quantities), env. impacts	
	Establishment of national priorities	socio-economic, environmental criteria considered	
		list of priorities	
	Level of preparation of sectoral programmes	Starting/final date for each programme	Sectors mentioned in Annex I of LBS Protocol
	Content of each sectoral programme	Guidelines, ambient quality criteria, emission limit values (effluent standards), studies, options/alternatives	
	Level of preparation of an integrated national programme	Public sector enterprises, private enterprises: sectors, installations in each area of concern, time table, budget foreseen	
		Description, time table, budget for each priority project	

Component	Activity	Indicator	Conformity with SAP requirements
Institutional building-up	Permits in place for industrial pollution reduction for SAP pollutants (existing, to be modified), sewage treatment plants, solid waste treatment/disposal sites	Effluent standards, water recipient quality criteria	National accredited body
	Adequacy of controlling mechanism	Number of authorisations to total number of installations per sector (%)	
		Number of installations in conformity to set permits	
	Application of pollution prevention/ minimisation programmes	Description of programmes for the re-organisation of SMEs, number of installations applying BEP/BAT	
	Financial instruments	Description of applicable financial instruments	
		Sectors/enterprises benefiting from these instruments	
	Introduction of environmental management systems	Number of sectors/ enterprises applying ISO 14000, EMAS	
Evaluation	Actions taken for NAP modification	Description of actions, new targets/permits/ standards	

2. COMPLIANCE MONITORING

2.1 Introduction

As **compliance monitoring** is meant the supervision and registration of the quantitative values of the releases of SAP priority pollutants into the Mediterranean Sea from land-based sources. It is the second part of the controlling function to be executed by the **National Accredited Laboratory and/or Independent Laboratory in cooperation with the national authority**, to comply with SAP provisions: the first part, as discussed above, is dealing with the assessment of the progress achieved by formulating NAP, so that a rather qualitative registration of the level of implementation of NAP activities is foreseen there, whereas the level of meeting the quantitative targets set in SAP has also to be known. Therefore this

chapter is dealing with the analysis of the elements needed for the registration of the level of release of SAP priority pollutants. Within this context, the preparation of **NBB** as basis for the assessment of the existing situation is a key factor for the success of this monitoring process, since it will enable all components concerned on national and regional level to define the baseline to start with.

As said above, the level of preparation of NBB as such will be assessed by the progress monitoring process. Here, each pollutant mentioned under “industrial development” in SAP will be tracked in terms of its “starting position” (baseline situation) and the actually released quantities over the years and compared with the set SAP targets. For this purpose, the information needed to be assessed for tracking compliance will be outlined.

2.2 Elements of compliance monitoring

2.2.1 NBB

The **NBB for each SAP priority pollutant** has to be prepared in the year **2003** at national level as basis for measuring the progress to be achieved in the successive years. In doing so, the cumulative releases of each pollutant have to be calculated by using the approach mentioned above (see chapter progress monitoring). For better tracking of the releases, NBB should be prepared for each administrative region, in which the sectors releasing the respective pollutants will be inventoried and clustered. Furthermore, in each administrative region the classification of the relevant activities in hot spot, sensitive and other areas of concern has to be elaborated. A further distinction between public and private installations will enable decision makers (national authorities) to easier set the priorities for pollution reduction by starting, as mentioned in SAP, from the state companies. Clustering of installations according to sectors will also help to better focus on the magnitude of the pollution problem caused and prioritise the measures to be undertaken for its reduction. This structured approach is necessary at a later stage, in order to gradually define the projects needed to combat pollutants releases according to each area’s environmental “importance”.

2.2.2 Progress track

National authorities should be able to track the fate of each pollutant in the next years after the completion of NBB till the various reference years mentioned in SAP for the reduction of priority pollutants. In doing so, each pollution source, the level of release and the water recipient of the pollutant should be registered. Additionally, the accompanying measures such as regulations and plans applied so far, which have led to the progress achieved, should also be described, in order to allow the assessment of the effectiveness of actions taken and to eventually introduce corrective activities.

2.3 Information required for compliance monitoring

2.3.1 NBB

for each pollutant:

- total quantities in hot spots, sensitive areas, other areas of concern
- total quantities in each administrative region
- water recipients in the administrative region in which the pollutant is discharged
- cumulative quantities on national level
- pollution sources and relative releases

2.3.2 Progress track

for each pollutant:

- total quantities in hot spots, sensitive areas, other areas of concern
- total quantities in each administrative region
- water recipients in the administrative region in which the pollutant is discharged
- cumulative quantities on national level
- pollution sources and relative releases
- reduction of quantities released (% to those referred in NBB)

2.4 Summary table

All elements needed for tracking the compliance of pollutants releases with SAP targets are summarised in Table 2.

Table 2 Compliance monitoring

Component	Activity	Indicator	Conformity with SAP requirements
NBB	Cluster of enterprises in sectors for each hot spot/ sensitive area/ drainage basin/ administrative region	Number of sectors and enterprises: public + private sectors	Annex I of LBS Protocol
	Total amounts of TPB pollutants released in each administrative area from each sector	Tonnes/year	
	Total amounts of all pollutants in hot spot areas and areas of concern	Tonnes/year	
	Total amounts of all pollutants released on national level (clustered in hot spot areas, administrative regions accordingly)	Tonnes/year	NBB
	Water recipients affected by the pollutants (direct discharge into the Mediterranean Sea, to rivers, lakes)		
Progress track	Total amounts of all pollutants in hot spot areas and areas of concern	Tonnes/year, % of reduction (NBB)	50% till 2010

Component	Activity	Indicator	Conformity with SAP requirements
	Total amounts of TPB pollutants released on national level (clustered in hot spot areas, administrative regions accordingly)	Tonnes/year, % of reduction (NBB)	50% till 2010
	Water recipients affected by the pollutants (discharge into the Mediterranean Sea, to rivers, lakes)		

3. EVALUATION

3.1 Introduction

On the basis of the results of both process and compliance monitoring, an **evaluation** of the prevailing situation at national level has to be undertaken by a **group of experts representing Barcelona Convention Bureau Member in the period of evaluation with the assistance of the MEDPOL**, in order to define the country's performance towards meeting the SAP targets. This function contains information about the level of NAP preparation and the resulting reduction of pollutants release into the environment. In doing so, the use of appropriate **indicators** will significantly help the national authorities but also MED POL Secretariat to assess the existing situation. Indicators are sets of "condensed" information, which describe in qualitative and quantitative terms the actual situation concerning an environmental issue. A wide variety of environmental indicators is presently in use. These indicators reflect trends and monitor the progress made in realising environmental policy targets. In general indicators quantify information by aggregating different and multiple data.

This combined and rather complicated function is devoted to examine the compatibility of all programmes foreseen in NAP with the actual success of pollutants reduction. As guide for this positive or negative performance will act the results of compliance monitoring, since the achieved levels of quantitative reduction of pollutants determine the level of compliance with SAP targets.

There are 2 key levels of information to be collected, in order to have an overall comprehensive picture of the country's performance: a **comparative table** of actual releases with those envisaged by the set regulatory framework (predicted quantities according to effluent standards) and compliance with SAP targets and a **review** of the introduction of the various NAP elements such as environmental management systems envisaged in the various sectoral programmes, priority actions etc., namely to which extent their application has contributed to the registered progress (i.e. reduction of pollutants releases). Both sets of information give an insight into the overall country's effort to meet the SAP requirements, which prescribe, except the quantitative reduction of pollutants releases, the implementation of various programmes, especially for industrial installations, needed for their modernisation (introduction of environmental management systems, BAT). These review becomes more obvious for those activities under "urban environment" for which no concrete quantitative

targets are set or are difficult to be tracked: primarily for air pollution activities and secondarily solid waste and municipal sewage management.

3.2 Elements of the evaluation

3.2.1 Comparative table

- actual towards foreseen/expected (according to set effluent standards) quantities released
- level of compliance with SAP targets of releases according to permits

3.2.2 Review of the application of NAP elements (sectoral programmes, priority actions, environmental management systems)

- matching of set objectives to SAP targets
- to which extent sectoral inventories have been performed
- examination of the calculated initial (reference) quantities of pollutants in NBB
- level of preparation and implementation of sectoral programmes
- efficiency of the institutional infra-structure
- performance of the authorisation/monitoring mechanism and any feedback to the planning process for corrections/modifications of actions
- how environmental management systems and waste prevention programmes have performed in industry and especially in SMEs
- organisation of the sewage/solid waste management
- to which extent initiatives are introduced for the reduction of air pollution from mobile sources

3.3 Information required for the evaluation of performance

3.3.1 Comparative table

for each pollutant released:

- actual quantities released (tonnes/year)
- maximum permissible quantities according to authorisation/permit (tonnes/year)
- degree of deviation of actual releases from maximum permissible quantities (%)
- deviation from stated SAP target (%)

3.3.2 Review of the application of NAP elements (sectoral programmes, priority actions, environmental management systems)

for each sector:

- compliance of set targets to SAP requirements
- reliability of inventories performed (methods applied, number of plants visited)
- accuracy of initial pollutants quantities calculated in NBB (random sampling/checking of effluent concentrations)
- description of the level of completion of all activities mentioned in the sectoral programmes and of the projects listed in the priority list of actions (% of total budget consumed, deviations from initial time table)
- effectiveness of monitoring system (number of plants inspected/total plants in sector, plants deviating from permits)
- legislative/regulatory framework applied so far leading to the reduction achieved (e.g. environmental permits/effluent standards)
- any changes in planning/decision making process as a response to fact findings from the monitoring process (number of permits changed)

- extent of application of environmental management and waste prevention/minimisation/ treatment systems (number of industrial plants applying these systems)
- initiatives applied for air pollution reduction from mobile sources

3.4 Summary table

All elements needed for the evaluation of the achieved progress are summarised in Table 3.

Table 3 Evaluation of performance

Component	Activity	Indicator	Conformity with SAP requirements
Comparative table	Actual quantities released	Tonnes/year	
	Max. permissible quantities according to permits	Tonnes/year	
	Deviation of actual to max. permissible quantities	%	
	Deviation from SAP target	%	50% reduction of all pollutants in hot spot areas till 2010, 50% of TPB pollutants on national level till 2010
NAP elements	Objectives/targets (quantitative values)	% of reduction of SAP priority pollutants	50% reduction of all pollutants in hot spot areas till 2010, 50% of TPB pollutants on national level till 2010
	inventories performed: visits/sampling, calculation of loads using NBB emission factors without on-spot inspection	plants visited/total plants per sector	
	check of NBB: emission factors checked (on-spot sampling)	emission factors per sector checked	
	implementation of sectoral programmes and technical projects: design phase implementation phase	% of total budget consumed, months delayed	

Component	Activity	Indicator	Conformity with SAP requirements
	effectiveness of monitoring system	% of plants inspected per sector, plants deviating from permit's standards, standards changed after inspection (new/ old effluent standards)	
	environmental management + waste minimisation systems	number of plants/ total plants per sector applying ISO 14000, EMAS, BEP/BAT	
	municipal sewage/solid waste management	% of major cities applying management systems	cities with > 100000 inhabitants till 2005
	programmes for the reduction of air pollution from mobile sources		various initiatives

4. PUBLIC INFORMATION

4.1 Introduction

Progress and results achieved at national and regional level should be prepared in a comprehensive set of information and regularly published aiming at the information of the general public, NGOs etc. The objective of this function will be to **stimulate public awareness and sensitivity** of all those involved in environmental protection including donors, the scientific community and key players in the decision making process (economical, industrial associations, non governmental organisations etc.), in order to faster accelerate the mechanisms needed to promote waste reduction measures. This function is also part of the democratic process by enabling the general opinion, journalists etc. to track the progress achieved so far, ask for clarifications and "represent" the society's views to the whole process of SAP implementation. In response to that, decision makers could easier introduce those structural changes needed for further development of the programme, e.g. harder legislation, re-location of industries, additional financial resources, if the society is well informed about the scope and the benefits of the envisaged measures.

In order to fulfil these requirements, the information to be provided has to be condensed and attractive by avoiding too many details and technical/scientific conclusions. It has to extract from all other functions (progress/compliance/evaluation) those simple, key messages needed to serve the purposes listed above. Therefore it has to contain some **technical** and **financial** aspects, as well as a short description of the **problems** encountered during the implementation of NAP in the previous years and **proposals** for additional measures.

4.2 Elements of the public information

4.2.1 Technical aspects

- hot spots, sensitive areas in each administrative region
- achieved progress in the reduction of pollutants releases
- measures applied so far (NAP, sectoral programmes, technical projects)

4.2.2 Financial aspects

- total budget and time table needed for the completion of the technical projects
- spent financial resources for the implementation of the various projects so far

4.2.3 Problems - proposals

- inadequate legislative/regulatory framework
- delays in the preparation/execution of actions needed
- difficulties in fund raising and cash flow
- comments on the existing situation
- proposals for amelioration actions

4.3 Information required for public information

4.3.1 Technical aspects

for each administrative region:

- total loads of SAP priority pollutants released (actual)
- max. permissible total loads of SAP priority pollutants (according to set effluent standards)
- sectors causing pollutants releases (number of plants)
- existing situation concerning municipal sewage/solid waste management and air pollution level in major cities
- description of programmes and projects in progress

4.3.2 Financial aspects

for each programme/project:

- total budget foreseen and % spent so far
- time table for work completion

4.3.3 Problems – proposals

- affected water recipients
- description of the existing legislative framework (authorisation/permits, values of effluent standards)
- explanation of technical and/or financial difficulties encountered during the execution of programmes/projects
- proposals for action

4.4 Summary table

All elements needed for the information of the public are summarised in Table 4.

Table 4 Public information

Component	Activity	Indicator
Technical aspects	Total loads of pollutants released	tonnes/year in each administrative region and on national level
		% of deviation from max. permissible quantities (according to permits)
	Sectors causing major pollution problems	names of sectors and area concerned
	Programmes/ projects in progress	environmental benefits expected, % of completion
Financial aspects	Budget, time table of programmes/ projects	\$ (total for each one), time table for completion
Problems – proposals	Legislative framework and conformity with SAP requirements	description of authorisation procedures/standards
	Technical/ financial difficulties	description of relevant projects
	Proposals	revised budgets and time tables, additional projects

5. REPORTING

5.1 Introduction

This chapter deals with the preparation of the reporting formats needed to track the various elements mentioned above (progress/compliance monitoring, evaluation of performance, public information). They will be used by the national authorities to track these elements on local/national level and to report to SAP/MED POL Secretariat, in order to enable it to prepare the regional reports. As a matter of fact, these formats are needed for the reporting obligations of the countries towards the Secretariat during SAP implementation, however they can be used as the “core” for the development of each national reporting system, which, inevitably should contain much more detailed elements for tracking progress at national level.

Due to the complexity of the various issues to be reported and to the necessity to obtain a comprehensive picture of the stages of implementation of SAP by the Contracting Parties, the relevant questionnaires are structured according to each function/element of reporting, whereas some relevant SAP requirements are listed parallel to the questions to be answered as **reference/guide**. A short **explanatory pre-amble** needed by the authorities for filling-in the questionnaires are put as introductory part to each of them.

It must be pointed out, that any simplification of the questionnaires cannot be made at this stage where the extent of information needed to track progress towards SAP implementation is being just defined and prescribed. The Secretariat, in agreement/consultation with the Contracting parties, can undertake its own modifications, in order to serve the countries' needs and the existing data availability.

5.2 Progress monitoring

5.2.1 Pre-amble

The following questions refer to the level of preparation of a National Action Plan (NAP). The answers should give concrete information about the progress of preparation of these NAP components at all levels (administrative regions, national level).

For your help, the requirements stated in the Strategic Action Programme (SAP) are listed as your reference, in order to enable you to better describe the information to be presented by your answers.

You have to provide information on the following items:

- if a **NAP** has been already been prepared and if it contains all SAP elements such as:
 1. setting of quantitative objectives/targets (short description)
 2. preparation of a National Diagnostic Analysis (NDA) for the identification of problems caused by industrial pollution, municipal sewage discharge, solid waste disposal
 3. preparation of a National Baseline Budget (NBB)
 4. compilation of the priority list of actions
 5. existing institutional infra-structure
 6. mechanisms for NAP modification
- a **NDA** should contain for each hot spot and sensitive area within a region:
 1. the sectors and the public/private owned units (inventory of all units in each administrative region, hot spot or sensitive area and clustered accordingly)
 2. a short description of major environmental problem caused (e.g. deterioration of coastal water quality)
 3. which installations are included in a national list of priority actions on the basis of the gravity of the environmental problem caused
- a general information about the preparation of **NBB** is needed:
 1. level of preparation at national level
 2. level of preparation of a baseline budget (BB) in each administrative region
- for the preparation of the national **priority list of actions** the following information has to be compiled:
 1. which units and for which SAP priority pollutants they are included in the list
 2. the status of these units (public/private) since the public sector has to fulfil SAP requirements first
 3. time table for the preparation of sectoral programmes for the reduction of SAP pollutants releases
 4. technical projects deriving from each sectoral programme for each installation concerned (e.g. waste minimisation programmes, management facilities, new permits etc.)
 5. expected reduction (%) of releases
- information about **NAP evaluation** should contain the following:
 1. which actions (e.g. monitoring of effluents) led to NAP modification
 2. changes of permits and whether the SAP requirements can be hereby achieved (50% reduction of relevant pollutants in each area of concern)

5.2.2 NAP preparation

Component	Response (Yes/No, short explanation)	Finalised/to be finalised (year)	SAP targets
Has a plan (NAP) for the reduction of pollution from industrial installations and from major cities (>100000 inhabitants) been prepared on national level?			2003
on local/ administrative level?			
Has an existing NAP been modified to meet SAP targets?			2003
If YES: Objectives/targets (3-4 lines description)			
Setting-up the national SAP coordinating unit for NAP preparation/ implementation (Yes/No, year)			
If NO: has a decision been taken for NAP preparation? (Yes/No, year)			
Budget for NAP preparation (\$)			
Budget–time table for NAP implementation (\$, years)			

NDA:

Has a NDA been elaborated? (yes/no)			
For which hot spots? (names)			
For which other areas of concern? (names)			
Major environmental problems caused by industrial pollution in each area (short description)			
Major environmental problems caused by municipal sewage discharge in each area (short description)			
Major environmental problems caused by solid waste disposal in each area (short description)			

NBB:

Has NBB been prepared (national level)?			2003
Has BB been prepared (administrative level)?			

Institutional infra-structure:

Are national/regional/local pollution control inspectorates being established?			
Any activities (e.g. re-			priority to SMEs,

organisation of SMEs, common initiatives, application of financial instruments) in place for the promotion of waste minimisation in industries?			introduction of BEP/BAT, environmental management systems (ISO 14000 etc.)
Any activities for reduction/recycling of solid waste from cities (>100000 inhabitants)?			promotion of separate collection, recycling etc. (till 2005)
Any initiatives for the reduction of air pollution from mobile sources			promotion of public transport, use of natural gas, lead-free petrol etc.

5.2.3 Inventory of industries – sewage/solid waste management facilities

Administrative region/hot spot/sensitive area (name)

Sectors	Total nr of installations (P = public, PR=private)	Nr of authorizations to total nr of installations (%)	Nr of installations in conformity with the effluent standards of the authorizations (%)	Nr of installations included in priority list of actions
Energy production				
Fertilizer production				
Production of biocides				
Pharmaceutical industry				
Petroleum refining				
Paper and paper-pulp industry				
Cement production				
Tanning industry				
Metal industry (processing and/or finishing)				
Mining				
Shipbuilding/repairing				

Sectors	Total nr of installations (P = public, PR=private)	Nr of authorizations to total nr of installations (%)	Nr of installations in conformity with the effluent standards of the authorizations (%)	Nr of installations included in priority list of actions
Textile industry				
Electronic industry				
Recycling industry				
Other sectors of the organic chemical industry				
Other sectors of the inorganic chemical industry				
Food processing				
Treatment/disposal of hazardous wastes				
Management of municipal solid waste (landfill)				
Incineration of waste				
Municipal sewage treatment plants (effluents + sludge)				

5.2.4 Priority list of actions

Name of sector (public/private)	Quantities of SAP pollutants released (tonnes/year)	Sectoral programme (yes/no, year of completion)	Technical projects/options adopted (description)	Expected reduction of releases (%)	Conformity with SAP requirements (yes/no)
Industrial installations					
For cities with > 100000 inhabitants:					

Name of sector (public/private)	Quantities of SAP pollutants released (tonnes/year)	Sectoral programme (yes/no, year of completion)	Technical projects/options adopted (description)	Expected reduction of releases (%)	Conformity with SAP requirements (yes/no)
Municipal sewage treatment plants (effluents + sludge)					
Solid waste incineration sites					
Landfills					

5.2.5 NAP evaluation

Actions leading to evaluation (description)	New NAP targets	Old NAP targets	Conformity with SAP requirements (yes/no)	Unit/area of concern (hot spot etc.)

5.3 Compliance monitoring

5.3.1 Pre-amble

For filling in the following formats on compliance with the reduction targets stated in SAP, an **inventory** of pollution generating installations in each hot spot area, other area of concern and in each administrative region and finally for the country as a whole has to be elaborated. This inventory can lead to calculation of pollution loads from each plant/sector according to the methodology described in the preparation of NBB (use of emission factors for the calculation of pollution loads from production capacities).

Once the initial loads are estimated for the reference year (2003), progress can be tracked by registering the production changes in each plant over the years and calculate the respective pollution loads accordingly. The level of reduction (%) in hot spots and other areas of concern should also be listed separately, in order to show the progress to be achieved in

these areas (SAP target: 50% reduction of all pollutants). At national level, the 50% reduction of TPB from all industrial installations concerned has to be registered.

In the formats, the pollutants referred in SAP concerning industrial development are listed in details. For each one of them, the total amounts coming out from the different respective sectors will be summed up, clustered for hot spots, sensitive areas, administrative regions and for the country as a whole and registered.

Concerning pollution from municipal sewage, the quantities of nutrients and suspended solids discharged from treatment plants/outlets should be registered. As nutrients are meant the parameters of biochemical oxygen demand (BOD), nitrogen (N) and phosphorus (P) compounds to be found in effluents.

The same applies to leachate from landfills, however, only well monitored sites with leachate collection can provide this information.

5.3.2 NBB (reference year: 2003)

Pollutant	Total release (tonnes/year)	Environmental medium (air/water)	Releases in hot spots (tonnes/year)	Releases in other areas of concern (tonnes/year)
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TPB

POPs				
DDT				
Aldrin				
Dieldrin				
Endrin				
Chlordane				
Heptachlor				
Mirex				
Toxaphene				
Hexachlorobenzene				
PCBs				
Dioxins				
Furans				
PAHs				
Heavy metals and organometallic compounds				
Hg				
Cd				
Pb				
Organomercury compounds				
Organolead compounds				
Organotin compounds				

Other heavy metals

Zn				
Cu				
Cr				

Organohalogen compounds

Halogenated aliphatic hydrocarbons				
Chlorinated solvents				
Chlorinated paraffins				
Halogenated aromatic hydrocarbons				
Chlorobenzenes				
Polychlorinated naphtalenes				
Polybrominated diphenyl ethers + polybrominated biphenyls				
Chlorinated phenolic compounds				
Chlorophenols				
Organohalogenated pesticides				
Lindane				
Chlorophenoxy acids				
Radioactive substances				
Nutrients and suspended solids				

Hazardous wastes

Obsolete chemicals				
Used lubricating oils				
Batteries				

5.3.3 Progress track (reference year: 2013)

Pollutant	Total release (tonnes/year)	Environmental medium (air/water)	Releases in hot spots (tonnes/year)	Releases in other areas of concern (tonnes/year)

TPB

POPs				
DDT				
Aldrin				
Dieldrin				
Endrin				
Chlordane				
Heptachlor				
Mirex				
Toxaphene				
Hexachlorobenzene				
PCBs				
Dioxins				

Furans				
PAHs				
Heavy metals and organometallic compounds				
Hg				
Cd				
Pb				
Organomercury compounds				
Organolead compounds				
Organotin compounds				

Other heavy metals

Zn				
Cu				
Cr				

Organohalogen compounds

Halogenated aliphatic hydrocarbons				
Chlorinated solvents				
Chlorinated paraffins				
Halogenated aromatic hydrocarbons				
Chlorobenzenes				
Polychlorinated naphthalenes				
Polybrominated diphenyl ethers + polybrominated biphenyls				
Chlorinated phenolic compounds				
Chlorophenols				
Organohalogenated pesticides				
Lindane				
Chlorophenoxy acids				
Radioactive substances				
Nutrients and suspended solids				

Hazardous wastes

Obsolete chemicals				
Used lubricating oils				
Batteries				

5.4 Evaluation of performance

5.4.1 Pre-amble

The following formats have to be filled in:

Comparative table:

- besides the actual releases, the releases according to each sector's permits should be calculated and registered, in order to evaluate whether the set permits are adequate to meet SAP targets. They are considered as maximum permissible quantities.
- each pollutant's total quantities should be calculated from all respective industrial sectors

NAP targets – level of compliance with SAP targets

- the quantitative targets set in NAP regarding industrial pollution
- the targets set for the gradual connection of major cities (>100000 inhabitants) to appropriate collection, treatment and disposal systems
- planned initiatives for the promotion of the reuse of effluents and the conservation of water resources
- the targets set for proper solid waste management in major cities (>100000 inhabitants)
- planned initiatives of solid waste separation and recycling at source
- the targets set for the reduction of air pollution from mobile sources

NAP monitoring system

- if there are emission factors different from those suggested in the MAP document (guidelines for the preparation of the baseline budget of pollutants releases) they should be mentioned (these new emission factors can derive from on-spot inspections, better knowledge of the prevailing conditions in local industry and sampling/laboratory analysis of effluent samples)
- due to local conditions, set permits must eventually be redrafted with new effluent standards

Priority list of actions

- a short description of all those projects derived from the sectoral programmes and needed for the reduction of pollution such as technical projects (wastewater treatment plants, re-location of industries etc.), programmes for waste minimisation (clean technologies in industries, introduction of ISO 14000, EMAS, separate collection of solid waste, reuse of effluents, initiatives for the reduction of air pollution etc.), public awareness campaigns etc.
- the total budget foreseen for the completion of the projects and the degree of progress achieved so far expressed in budget consumption so far
- reasons and period of delay as well as the foreseeable date of finalisation

5.4.2 Comparative table

Pollutant	Actual total release (tonnes/year)	Total max. release according to permits (tonnes/year)	Deviation of actual to max. release (%)	Deviation of actual/max. release from SAP targets (%)
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TPB

POPs				
DDT				
Aldrin				
Dieldrin				
Endrin				
Chlordane				
Heptachlor				
Mirex				
Toxaphene				
Hexachlorobenzene				
PCBs				
Dioxins				
Furans				
PAHs				
Heavy metals and organometallic compounds				
Hg				
Cd				
Pb				
Organomercury compounds				
Organolead compounds				
Organotin compounds				

Other heavy metals

Zn				
Cu				
Cr				

Organohalogen compounds

Halogenated aliphatic hydrocarbons				
Chlorinated solvents				
Chlorinated paraffins				
Halogenated aromatic hydrocarbons				
Chlorobenzenes				
Polychlorinated naphthalenes				
Polybrominated diphenyl ethers +				

polybrominated biphenyls				
Chlorinated phenolic compounds				
Chlorophenols				
Organohalogenated pesticides				
Lindane				
Chlorophenoxy acids				
Radioactive substances				
Nutrients and suspended solids				

Hazardous wastes

Obsolete chemicals				
Used lubricating oils				
Batteries				

5.4.3 NAP performance (objectives/targets)

OBJECTIVES	TARGETS	SAP TARGETS	Compliance with SAP targets (Yes/No/Partly)
in hot spots + other areas of concern at national level		50% reduction of all pollutants till 2010	
		<ul style="list-style-type: none"> conformity of all point source discharges/air emissions from industrial installations with LBS Protocol till 2025 50% reduction of TPB till 2010 connection of major cities (>100000 inhabitants) to sewer systems till 2005 proper solid waste management in major cities (>100000 inhabitants) till 2005 promotion of effluent reuse, solid waste separate collection/recycling introduction of initiatives for the reduction of air pollution from mobile sources (use of natural gas, lead-free petrol etc.) 	

5.4.4 NAP performance (monitoring systems)

Sectors	NBB emission factors adopted (yes/no)	New emission factors to be adopted according to local conditions (yes/no)	Permits/ effluent standards changed/to be changed after inspection (yes/no)	Sectoral programmes in progress (yes/no, year of completion)	Nr of installations applying ISO 14000, EMAS, BEP/BAT
Energy production					
Fertilizer production					
Production of biocides					
Pharmaceutical industry					
Petroleum refining					
Paper and paper-pulp industry					
Cement production					
Tanning industry					
Metal industry (processing and/ or finishing)					
Mining					
Shipbuilding/repairing					
Textile industry					
Electronic industry					
Recycling industry					
Other sectors of the organic chemical industry					
Other sectors of the inorganic chemical industry					
Food processing					
Treatment/disposal of hazardous wastes					
Management of municipal solid waste (landfill)					
Incineration of waste					
Treatment/disposal of municipal sewage (effluents + sludge)					

5.4.5 NAP performance (priority list of actions)

Technical projects (name, description)	Budget total (\$)	Budget consumed (%)	Reason for the delay (months)	Expected date for finalisation (year)

5.5 Public information

5.5.1 Pre-ambble

The relevant tables have to be completed as follows:

Technical aspects

- the area of concern: hot spot areas and other areas of concern nationwide
- which sectors and pollutants releases cause environmental problems
- existing situation concerning municipal sewage/solid waste management and air pollution level in major cities
- decided projects and their progress achieved so far
- projects already decided but still in the design process

Financial aspects

- the budget and level of completion of each project should be mentioned
- the expected environmental benefits such as avoidance of deterioration of sea water quality, protection of biotopes etc. should shortly be described

Problems - proposals

- for each project a short description of the technical (e.g. topography) and financial (e.g. disturbed cash flow) difficulties should be presented as well whether the existing legislative framework (authorisation permits/set effluent standards) is adequate to meet the required SAP targets
- which additional projects are needed, in order to meet the requirements and the their characteristics (budget, time table)

5.5.2 Technical aspects

Area of concern	Major environmental problem	Sectors causing the problems	Quantities of pollutants released (tonnes/year)	Projects in progress	Planned projects

5.5.3 Financial aspects

Project	Total budget (\$)	Current state of progress (% of work completion)	Reasons for delay	Date of finalisation	Expected environmental benefits

5.5.4 Problems – proposals

Project	Difficulties encountered	Adequacy of existing legislation/ authorisation to meet SAP targets	Additional projects needed	Foreseen budget and time table (\$, years)

REFERENCES

Strategic Action Programme to address pollution from land-based activities, UNEP/MAP, 1999

Protocol for the protection of the Mediterranean Sea against pollution from land-based sources and activities

Operational document for the implementation of the Strategic Action Programme to address pollution of the Mediterranean Sea from land-based activities, UNEP/MAP, 2001

Guidelines for the preparation of National Action Plans under the provision of the strategic Action Programme for the reduction of pollution of the Mediterranean Sea from land-based sources (draft), UNEP/MAP, 2002

Guidelines for the preparation of the baseline budget of pollutants releases (draft), UNEP/MAP, 2002

National reporting obligations within the framework of the legal component of the Mediterranean Action Plan, UNEP/MAP, 2002