



An ISO-Certified System for Quality and Environmental Management in the Municipality of Nacka, Sweden

1 The ISO-certified System for Quality and Environmental Management

Intentions of the Management System

A part of the municipal administration in Nacka, situated just east of Stockholm, has since April 2005 implemented an ISO-certified system for quality and environmental management. The system also includes management of the work environment at the administration. The most important intentions with the management system are:

- To fulfil the requests from the customers (mostly the inhabitants in the municipality) and other interested partners to process requests, registrations, enquiries etc., to take decisions, and to execute inspections and control in an efficient and legally correct and service-minded way, and finally to secure a continuous improvement of work.
- To be a tool and inspiration for improvement of work and keep quality and environmental management alive.
- To better coordinate common resources within the administration.
- To simplify and improve the introduction of new personnel.
- To reduce the impact on the environment.
- To give the employees greater satisfaction with their work and give them a possibility to participate in management and influence their own situation.

Quality management (according to ISO 9001:2000) and environmental management (ISO 14001:2004) have been integrated in a total management system, coordinated with management of the work environment.

Departments of Administration Included in the System

The system includes the main processes in the municipality for the areas of 1) urban planning 2) environmental management 3) public health and safety, and 4) technical support. The following six departments at the municipality are responsible for carrying out work in these areas. They are:

1. *Department for authorisation of building sites.* It manages the legal authorisation of new buildings and registration of such buildings and other matters within the law of building and planning.
2. *Department of exploitation.* It manages matters of economy and new projects in the municipality, for development of new residential areas and industrial or office sites. The officers of the department work as project leaders in the implementation phase. Typical questions for the department are agreements and contracts, costs of infrastructure such as streets, and expansion of municipal services, for example waste and water.

3. *The department of infrastructure.* It manages traffic planning and traffic safety, parking permits, parks and areas of nature, running and maintaining water and waste water infrastructure and pumping stations.
4. *Department of land survey.* Main responsibilities are the establishment of new properties, registration of properties and production of maps.
5. *Department of environment, public health and safety.* This department manages authorisation and legal permits in the areas of environment and protection of the public health, food safety and alcohol, as well as special programmes in the area of public health, prevention of crime, prevention of drug abuse, environmental protection, information and strategic environmental issues. The department also manages the Nature School of the municipality.
6. *Department of planning.* It manages the general plan and detailed plans of the municipality, from the initial proposals and reports to the accepted plan. In addition the department provides information and service in all planning issues to property owners, developers, and the general public.

Presently the total number of personnel of these departments is about 90. Almost all of them have their work places on the ground floor in the city hall. The only work place outside the city hall is Nacka Nature School at the Velamsund Nature Reserve.

Important and often occurring tasks of these departments are matters of authorisation, inspection and control as well as coordination meetings with other partners. Much of this work takes place in many other localities in Nacka – at small enter-

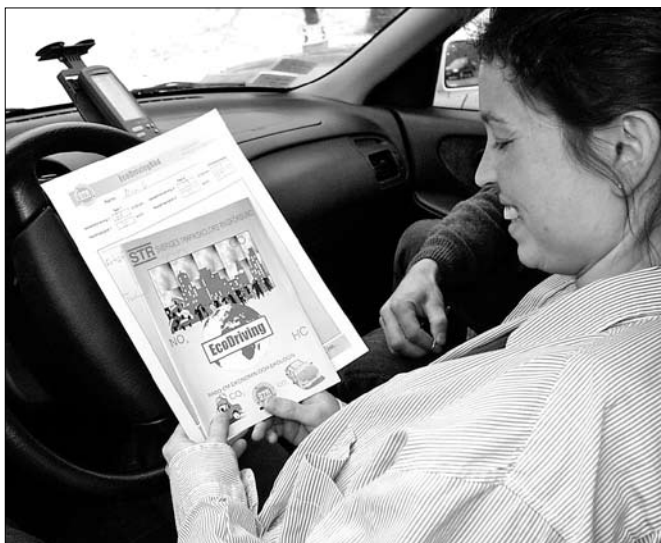


Figure 6.1 Management of the work environment. A lesson in eco-driving with an employee of the municipal administration.

prises, in nature reserves, at traffic sites etc.; the work places are thus varied and found both in the city hall and elsewhere.

The directors of the six departments at the ground floor in the city hall meet regularly to discuss practicalities concerning the work with the management system.

Management of the Municipality – from Policy to Daily Routines

The management and control of the operations of the municipality is complex. Since the municipality is an organisation dependent on political decision the management system needs to be able to show how the work routines in the administration are connected to the goals and decisions made on the political level in the municipality (the city board, city council and several committees).

Many of the tasks of the administration are in addition regulated by law. Some examples of such tasks are inspection and control of food, inspection and control of the environment, public consultation regarding the general and detailed plan, and public participation in decisions regarding the plan as well as decisions regarding building permits.

In a modern administration, it is self-evident that the *customers* – the inhabitants of the municipality, internal customers and others – should be given real possibilities to influence how the work is done.

The city has tried to make clear how the management mechanisms are connected to political decision, by using a series of documents. These are the vision, the policy and the list of goals.

The *vision* describes the general direction of the work. The vision for the management system relies on the vision of the municipality as a whole, and the overriding goals and documents developed and accepted at the political level.

The *policy* shows in which direction the leadership of the administration wants the work with quality, environment and the work environment to be developed. The underlying documents include a survey of requests from the customers, a report on the outer environment, and a report on the work environment. Both the reports and the policy itself were developed with participation of all the employees at the departments.

The *prioritised goals* for quality, outer environment and work environment include common plans of action. These have been divided into action plans for each department.

Policy and Goal Documents

The goals and direction of the work for the certified operations in Nacka are described in a number of documents. The basic texts are the vision, the policy, the common goals, and the plans of action.

The *vision* is to develop a mutual confidence between the employees at the administration – in their professional roles – and the citizens, customers, and partners. It is basic that both sides are willing to take responsibility.

The intention is that the established *policy* should be useful both as an internal document and externally. Both the vision and the policy should be “living documents” to be discussed, debated and perhaps changed from time to time. In spite of the fact that the work with the work environment is not certified, the work environment is included in the policy. This thus embraces the whole area of quality, environment and work environment. The fundamental components of the policy are the following:

1. The departments of urban planning, technical support and environment, public health and safety will develop and care for the life environment in Nacka. They will execute the tasks as authorities within the areas of community development and environment.

2. In a professional and service minded way the employees are responsible for providing the competence and information asked for by the leadership of the municipality and its commissions, by the inhabitants of the municipality and other interested parties.
3. To create conditions for developing health and sustainable development by creative thinking, systems understanding and knowledge about the situation in Nacka. To contribute to the work for a good environment and to prevent pollution through inspection and control, communication and by being a role model.
4. It should be simple to reach the administration and everyone should be met with interest and concern. To express themselves so that the customers understand and have a real possibility to influence. To develop the activities by developing an understanding of the surrounding world, by internal assessments and continuous improvements. To respect the laws and directives which are relevant to the work.

Table 6.1 *Establishing goals and objectives for each department of the city.*

Quality objectives					
An increasing number of customers experience that they have been helped to fulfil their objectives and their needs taken care of.					
Common	Department of Building permits	Department of exploitation	Department of land survey	Department of environment, public health and safety	Department of planning
Develop a process short-hand for customers processes.		Street costs on Internet	Develop a check list for customers contacts when producing maps of new areas	Questionnaires coupled to different home pages	Map over ongoing plans; info to the politicians
Environmental objectives					
An increasing number of politicians in the municipality consider that the information and material for community development shows more clearly the consequences for health, a good life environment and sustainable community development.					
Common	Department of Building permits	Department of exploitation	Department of land survey	Department of environment, public health and safety	Department of planning
Carbon dioxide emissions from the activities should decrease. Everyone working on the ground level in the city hall should know how to drive their cars in an environmentally friendly way. All municipality cars should be environmentally friendly cars. An investigation on the heating of the city hall should be made.	Which material for decision is based on laws and directives	Review short hands and routines for contract of exploitation and for buying land, building etc.	Politicians should have clear and correct material available in GIS format for decision making regarding environment and health consequences.	Health consequences should be developed and included in environmental impact assessments.	

5. The work environment should be characterised by an open and supporting atmosphere stimulating cooperation, and provide for opportunities to learn.

Goals (Objectives) and Measures

The goals are divided between the areas of quality (Q) environment (E) and work environment (W). An important property for the goals are that they have to be measurable (this is not always easy to fulfil). Each goal is connected to a series of measures/plans of actions. Some of these are common to all parts of the system, while others only are specific for some of the departments. To carry out and follow-up these measures is an important part of the work with the goals. How the objectives should be monitored is described in the documentation.

In the certification there are *four common goals of quality, four goals of environment and one goal for the work environment*. The numbers of measures which are coupled to the goals are much larger and increasing. In the area of quality, the cer-

tification includes more than 100 measures which should be carried out. Table 6.1 gives a few examples of these goals and measures.

2 Three Years of Work to Build up the System

Conditions for Developing the Project

The project which resulted in the ISO certified management system had strong commitment from the leadership of the city administration, and large engagement from the personnel. Here we will briefly describe this project.

The project, called the KompassN, started in autumn 2002, and continued up to August 2004. Then it gradually transformed into the daily work of the administration. The project was from its beginning divided into a series of stages.

One of the challenges of the project was to stimulate and maintain the interest of all personnel with their different professional backgrounds and work tasks. Originally this includ-

Nacka municipality – Facts

Nacka, situated just east of Stockholm, is a municipality of 78,000 inhabitants. The built environment varies from turn-of-the-century villas to newly built multifamily houses. All parts of the municipality are close to large and untouched nature reserves at the shore of the Baltic Sea, with the archipelago of Stockholm close by.

The municipality, just over 100 km², consists of land and water, including some 20 islands and 38 lakes. The landscape is hilly. The highest elevations and moraine areas are dominated by pine forests, while the valleys have fields and deciduous forests. Nacka is bordering the southern parts of Stockholm, and is one of the main sea passages to the capital.

More than hundred years ago the area of Nacka was agricultural and most people lived by producing food for the capital. Already then Nacka had a long local tradition of industry with roots in the mid 18th century, and the city eventually became one of the most typical industrial cities in the country. Several industries moved from Stockholm to a more advantageous location in Nacka. In 1890 the steam powered mill, AB Saltjökvärn, was built by the sea approach to Stockholm. AB Diesel Motors, later Atlas Copco, opened its factory in Sickla in 1898.

Today industry employs only a smaller part of the workforce in Nacka. Many of the former industrial buildings are still there but are now used for new activities. Trade and service has become the main part of the economy. The closing of factories accelerated in Nacka in the 1980s.

Atlas Copco stayed in the area up to the 1990s. Politicians did for a long time not see the environmental damages that industries had caused. The economic benefits they brought were so much more important. Today many of these earlier industrial sites have to be cleaned up.

In 1890 there were some 2000 people, 152 horses, and almost 1000 cows in the area that is today Nacka. About 400 individuals, mostly living in Stockholm, were employed in the factories. Today just over 78,000 persons live in the municipality. The number of horses is back to the same level as during the 1890s, although they are used almost exclusively for recreation. The buildings in Nacka were at the end of the 1940s dominated by single houses. From the 1950s several larger residential areas were built and new companies established themselves in the old industrial buildings.

Nacka has today about 22,000 places of work, of which only some 10% are in the manufacturing industry. Agriculture, forestry and fishing, formerly very important, employ today only about 60 individuals. The population in Nacka is projected to increase with a total of 6,995 individuals during the four coming years and will be 85,710, an increase of 9%. In 2007 about 700 apartments are planned to be build in the municipality. The age group 7-15 will decrease by 2%, while the age group 16-19 will increase by 26% as will the older group of 65-74 years of age.

*Edited and abbreviated from the homepage:
<http://www.nacka.se>*

ed about 70 persons, but it increased to about 90 individuals through different re-organisations during the period. It was important to keep up the work during the whole period, and develop the issues to a reasonable degree during the different stages.

The organisation of the project contributed to this by the following means:

- The KompassN was directed by the head of the whole unit (later the process owners) together with all heads of departments.
- One person was assigned to be a full-time project leader.
- Personnel from all departments took part in a project group bridging over the traditional borders in the organisation.
- All employees could use 5% of their working hours for the project.
- All employees took part in a training programme on environmental management according to the ISO system.
- All project work was regularly coordinated and discussed with the most important groups of customers.

Consultancy

The project had support from an external consultant. The consultant had the task to train the employees, in particular the project group members, to plan the different stages in the process in cooperation with the project group, and to be a discussion partner through the entire process. In order not to make the normal work and the customers suffer, the departments were given extra resources (some additional personnel) during the most intense period.

The original time plan was postponed since some of the stages took more time than originally planned for. In addition, a reorganisation of the city administration during the project period made several employees and work areas, that were not originally included, to be added to the project.

The project was conducted through a number of stages. Some of these are described below.

Reviewing Customers and Customers Demands

All employees worked in groups to identify which customers they had and which demands these had on the administration. The questions were: Who wanted something from us? With whom did you sign contracts? Who contacted us most often? etc. The answers to these questions were collected and analysed.

In addition, some of the employees listed the most common questions which were asked during a time period. These questions were subdivided according to type of customers, and



Figure 6.2 Nature School in Velamsund. Citizens in the municipality are invited to the Nature School to get expert advice in the identification of mushrooms found during the day.

demand. The demands were subdivided into the following categories:

- General political, the goal of the municipality (political requests).
- Demands of a general character, independent of the customers.
- Demands specific for a certain group of customers, independent of the issue.
- Demands specific both for the group of customers and the issues.

The most important, overriding, goals relevant for the work, were the following:

- A strong influence from the citizens.
- A good living environment and a long-term sustainable development.
- A secure and safe municipality.

The general demands, independent of the group of customers, could be summarised as:

- Service
- Legally secured rights
- Competence

The demands from the customers received a central role when goals and action plans regarding quality later were developed. Three of the four common quality goals used were dealing directly with how satisfied the customers were with the administration. The qualities to be monitored became the



Figure 6.3 Part of the municipality of Nacka seen from the south. In the background the major entrance to Stockholm harbour from the Baltic Sea.

capacity to *give guidance*, to meet the demands of the customers, to be *accessible* and to be *professional*.

Report on the Environment

All employees were divided into working groups, also for the work with environmental issues. The first task in the groups was to list the environmental aspects caused by the work of the department – how dangerous is a certain factor for the environment (risk, sensitivity, consuming limited resources, etc.) how large is the impact (kg, numbers, etc.). The lists were established, discussed, and finally approved of by the project groups.

The project group assessed the environmental aspects and declared and discussed the results with all employees. A much debated issue was how to assess the environmental impacts caused by a specific project, planning mission etc. In the long-term a project may have a large impact on the flora, fauna, water quality, and much else in the municipality, but the administration and its employees would not be able to control the impacts in the same way, as when one decides on how to

sort waste after a lunch in the city hall or how to travel to the work place.

The results finally were that both sides of the environmental impact should be part of the environmental management system. The report concluded that the most important environmental issues of the latter type are *emissions of carbon dioxide*, (through heating, transport and waste management) and *use of non-renewable resources*. In areas where the decision base deals with environmental impact, it is possible to influence the development through *permits, inspections and control, information and education*. The plans of actions and measures which later have been approved for environmental work have their base in these priorities.

Mapping the Processes

All employees drew an outline of their most important work tasks as a flow chart in accordance with a set model. The flow charts were then discussed in the project group, which tried to find similarities between them and formed a picture of how the

different tasks could gear into each other as cogs. The discussions in the group then dealt much with which processes could be described in the same way and which were unique.

Seven *work processes* and ten *management or supporting processes* were identified and are now part of the management system. The final agreement on what to imply by a process and a routine developed as the discussions proceeded.

- Processes show *what* is being done and in *which order*.
- Routines show *how* something is being done.

In addition to the management system there are established examples of how a process should be correctly described when it is fully developed (a link provided on the home page).

Constructing and Implementing the System

All employees worked with the task to establish and modify their own routines. During this stage a computer system for managing all quality documents was installed. It made the work with the routines much more systematic and more concrete for several of the personnel.

In the work with the routines it was requested that a new proposed routine had to be discussed with at least one more person (for those being alone with the routine) or discussed and accepted in the group concerned. The person who introduces a new routine had to appoint a person to be the controller of the routine. The controller had the job to check that the routine was constructed in the “correct” way and that the text was easily comprehensible and well written. The closest head of unit or process owner finally had to approve the routine. These different stages were all managed by the computer system.

The first internal audit both for the auditors and other colleagues became a process of learning. In practice the audits speeded up the work with the routines, introduced corrections and removed inconsequential components and other mishaps.

Creating Commitment and Establishment

The working methods used were designed to create as much participation as possible in the introduction of the management system (as follows).

The project started with a large conference with all employees. Here they could:

- Describe activities which needed improvements; these were later included in the project.
- Influence how the project was shaped.
- Receive an introduction of what a management system is.

Great emphasis was put on group discussions, where personnel from different departments in the administration were mixed.

An additional three conferences with all employees were then carried out.

- A *first conference* was conducted halfway into the project; at this occasion it was obligatory for all employees to participate in the work with common policies and goals.
- A *second conference* was carried out in the end of the project. Here the project was further established and information was given on how it should be finalised. Explanations were also given on how the future management system should be maintained. Great emphasis was put on being playful. The explanations were to a large extent made as a theatre performance, in which the project group members demonstrated what had been done and made jokes with everyone involved.
- A *third conference* finally was a mixture of environmental education and a forum for discussion about the project and experiences from the work.

Each stage was introduced in the project group during a half or a full day together with the *consultants*. Here the project group members learned about the work during that stage and got the opportunity to try the methods to be used. The project group also planned how the work should be introduced into the different departments. This always began in a grand fashion in order to involve everyone, and then decreased to a more modest scale, to be concluded with a firm establishment of that stage in the entire administration.

A *plan for communication* was made in an early phase of the work. Here it was decided how the information should be given to the different target groups and how the different groups should be involved. It was established that:

- The main information should be channelled from the project group to the various departments during their normal meetings.
- All written information should be distributed by means of a home page on the Intranet, and by electronic newsletters.
- All employees should be involved in working groups during the different stages.

The *steering group* met once every second week in order to together with the project leader evaluate how the work continued and plan for the next step.

Certification

After receiving several offers, a contract was signed with BMG Trada Certification Ltd. as the certifying body. The requirements demanded of the company to be awarded the order, included to be accredited (according to standard norms), to be experienced with both quality management and environmental



Figure 6.4 Proud receivers of certificates for environmental management ISO 14001 and quality management ISO 9001 in Nacka municipality administration.

management certification, and be well acquainted with public authorities and their work.

The computer system “the Compass”, in which our own documentation as well as links to e.g. all relevant legal documents were collected, was developed specially to suit the work with the system according to ISO standards. It was purchased from AddSystems International Ltd.

3 How the System Works

Work Processes in the Administration

The most important *processes* in the work at the city administration were mapped. These indicate what is being done and in which order.

Examples on *work processes* are:

- Authority processes (work with e.g. inspection and control according to certain legal documents).
- Planning process (the work with the detailed plan).
- Contractual and project related processes.

Examples on the *support and management processes* are:

- Management of the work and economic management.
- Decision-making.
- Competence support.
- Purchase and procurement.

Daily work assignments are most often part of one of the processes. The work processes are described in terms of *routines*, sometimes with checklists and forms (patterns). Routines show how the assignments are being done.

Routines are there to guarantee the quality of work and to be a help:

- When several independent persons have the same assignment; routines then show how to carry out the job, to secure that the job will be done in the same and proper way independent of who is doing it.
- When assignments are done very seldom.
- When the ordinary person is on sick leave or away for some other reason.
- When a new employee is introduced and when the work is reorganised in the administration.

There are several different kinds of routines. Routines may also refer to other checklists and forms.

The Computerised Documentation System – KompassN

All documentation is collected in a computer system. This guarantees that we can use the latest version of the documents,

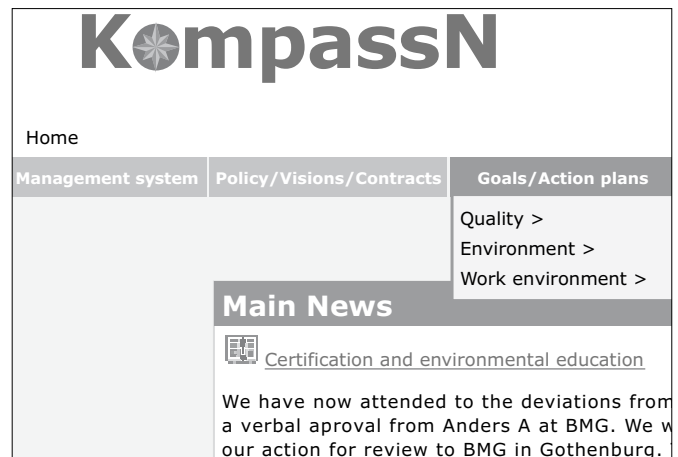


Figure 6.5 Goals and action plans. In KompassN all goals (objectives) and action plans (measures) are available. It is possible to get an overview of the goals under each of the main management areas (quality, environment, work environment), as well as the measures action plans belonging to each goal. By clicking on a goal you will get all details, including who is responsible for the goal or measure, how it should be implemented, and monitored.

as these have to be up-to-date. Figures 6.5-6.7 give some examples on the content and design of the system.

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Routines. To make it easier to find your way among the many routines we have sorted them according to who should use them. We also differentiate between “work routines” and “support routines” (see Figure 6.6).

Processes give an overview of which and in which order the routines belonging to an activity are carried out. Figure 6.7 shows one process in the KompassN system. Symbols are as follows:

- A small document shows that there are routines belonging to the activity. The user may click on it and see the routines on the screen.
- A green arrow shows that further flows of activities are available. If the arrow is outside the box – for example for the activity “initiation of a planning commission” – the arrow shows that the activity also belongs to an activity which is part of a different process.

Methods of Improvement

Continuous improvement probably is the most common concept in all management systems of this kind – also in the KompassN. The improvement work is divided into “preventive” and “follow-up”.

Preventive. Once a year the results and accounts from the previous year are analysed. The risks observed are assessed and changes which may be needed in the future are outlined. The results are discussed during a meeting with the directory of the unit.

Follow-up. In the KompassN system there are a series of tools to follow the activities, such as inquiries for the customers, inquiries for the personnel, follow-up of environmental aspects etc. These may be used as appropriate. In addition, everyone should report on errors and problems, which are identified as deviations during the work and which need to be corrected. Also all proposals for improvements could be added directly into the KompassN system.

The *recurring audits* offer both possibilities to improve the activities and control the work of the administration from the outside. External audits will to begin with, be made twice a year by the same company, which made the audit for certifica-

Routines	Proposals/Errors/Deviations	Result
Support routines >		
Work routines >		Work independant
Areas which may be... >		Building permission
	Mi	Development
		Infrastructure
al education	Ma	Surveying
eviations from the certificati		MFS >
at BMG. We will be continuin		Plan >
Gothenburg. The certificatio		

Figure 6.6 Routines. To make it easier to find your way among the many routines we have sorted them according to who should use them. We also differentiate between “work routines” and “support routines”.

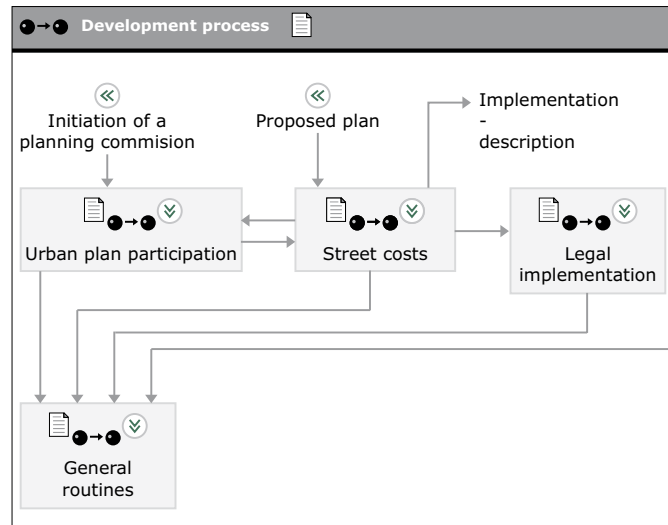


Figure 6.7 Processes. They give an overview of which and in which order the routines belonging to an activity are carried out. Above, one process in the KompassN system is shown. Symbols are as follows:
 - A small document shows that there are routines belonging to the activity. The user may click on it and see the routines on the screen.
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tion in January 2005. The audits are based on sampling activities, documents and interviews with the employees.

After an external audit the municipalities' own auditors make regular internal audits. During one year, the whole management system should have been audited.

The Organisation

The *steering group* for the system consists of the process owners for urban planning, for environment, public health and technical support, and heads of departments of the units which are part of the management system. The group has assigned a "representative for the general management of the administration". This person has a special responsibility to secure that the management system is working in a good and efficient manner. He sees to that the quality and environmental issues are all present in the organisation, and is responsible for that the set standards are implemented and maintained in the management system.

Common quality and environmental coordinator. The common coordinator has several central tasks, which should contribute to that the system is properly used in the entire organisation. She should continuously inform the employees about the quality work, and support the internal auditors and coordinators. The coordinator is also managing the auditing programme. The work time for this task is 25% of full time.

Internal auditors are employees at the administration, who have received special training in how to audit quality and environmental management. They conduct internal audits in other departments than the one where they are working and give advice about improvements needed with those being responsible for the issues in case.

Each department has a *coordinator for the quality and environmental work*. She has the job to see that deviations are corrected and improvement proposals for the department are implemented. She also keeps track of the need to introduce new routines. The coordinator has an important role when it comes to distributing information, and share experiences between the different departments.

Each department also has appointed a person *responsible for environmental matters*. These persons should i.a. organize and lead the work with environmental improvements in the department and keep and update the list of essential environmental aspects in the work.

Exchange of experiences with other companies and authorities is part of the work with recurring improvements.

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