



ICAO

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Navigation and Surveillance Sub-group (CNS SG/28)
of APANPIRG**

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Agenda Item 11: Capacity Building, including Human Factors and Air Traffic Safety Electronics Personnel (ATSEPs) related training

SUPERVISORY AND MANAGERIAL ROLES OF ATSEP – PROPOSED

(Presented by IFATSEA)

SUMMARY

This paper presents the human factors issues and their counter measures pertaining to ATSEP while playing the supervisory and managerial roles. This paper presents an attachment on the topic for considering to be added in the regional ATSEP human factor guidance material as an additional chapter.

1. INTRODUCTION

- 1.1 The Ad-hoc work group of experts from Eight (8) member states (China, Hong Kong China, India, Indonesia, Japan, Republic of Korea, Singapore, and Thailand) and One International Organization namely International Federation of Air Traffic Safety Electronics Associations (IFATSEA) was established in April 2021 in response to the Conclusion APANPIRG/31/15-Addressing Human Factor Issues of ATSEP recommended by CNS SG/24 meeting and subsequent to the action taken up by the ICAO APAC Office through the State Letter Ref.: T 3/9.9- AP022/21 (CNS) dated 26 January 2021 on subject Addressing Human Factor Issues of ATSEP.
- 1.2 The Ad-hoc work group has deliberated extensively and presented the updates regularly in the subsequent CNS SG meetings.
- 1.3 Finally the Ad-hoc group has presented the regional guidance material after receiving the comments from APAC states in CNS SG/27 meeting for adoption. The meeting has adopted the guidance material, and the guidance material was published through a state letter Ref: T 8/2.15 – AP137/23 (CNS) dated 20th September 2023.
- 1.4 Further, in the meeting, Hong Kong China suggested and IFATSEA agreed to update the guidance document's contents continuously.

- 1.5 Accordingly, and as per the action point 27/13 of CNS SG/27 an additional chapter is proposed on supervisory and managerial roles of ATSEP (Engineers) who work for ANSP and coordinate with service providers and ensure their performance within the scope of activities as defined in DOC 10057.

2. DISCUSSION

Topic relevance with the existing guidance material

- 2.1 The chapters of the guidance material that have relevance to this topic are (3) People Resourcing, (4) Job, Role and Skills Analysis and Competency Modelling, (5) Knowledge Management, Talent Management, Learning and Development, (6) Induction of New Systems and Maintenance Philosophy, and (9) Behavioral and Role Specific Competencies.

Information added to this proposed chapter.

- 2.2 Reference of DOC 10057 is taken for the scope of activities of ATSEP. The supervisory roles and managerial roles are analysed keeping the operation and maintenance tasks in the centre.
- 2.3 The roles and key activities performed are briefly listed with examples. And the specific responsibilities of ATSEP towards the contractors, suppliers and service providers are listed.
- 2.4 Human factor issues, actions to be taken by ANSP & ATSEP, benefits to ANSP & ATSEP, most influential counter measures, human factor issues addressed, and resilience and cost benefits are presented in this proposed new chapter.

3. ACTION BY THE MEETING

- 3.1 The meeting is invited to:
- (a) note the information on the proposed new chapter.
 - b) approve for the addition of this chapter into the guidance material.
 - b) discuss any other matter as appropriate

ATSEP human factors guidance material – Supervisory and Managerial Role of ATSEP

1. Supervisory and Managerial Role of ATSEP

1.1. Introduction

In addition to the technical activities, ATSEP play supervisory and managerial roles towards contractors, suppliers, and service providers. Based on the degree of responsibility given to ATSEP and the model through which ANSP ensures the service and regulatory compliance, in addition to technical competencies, behavioural competencies to play supervisory and managerial roles towards the contractors, suppliers and service providers also needed and these competencies play crucial part in the safety chain.

The following figure illustrates the possible scope of ATSEP activities from system conception through design, operation and, lastly, decommissioning. [Doc 10057].

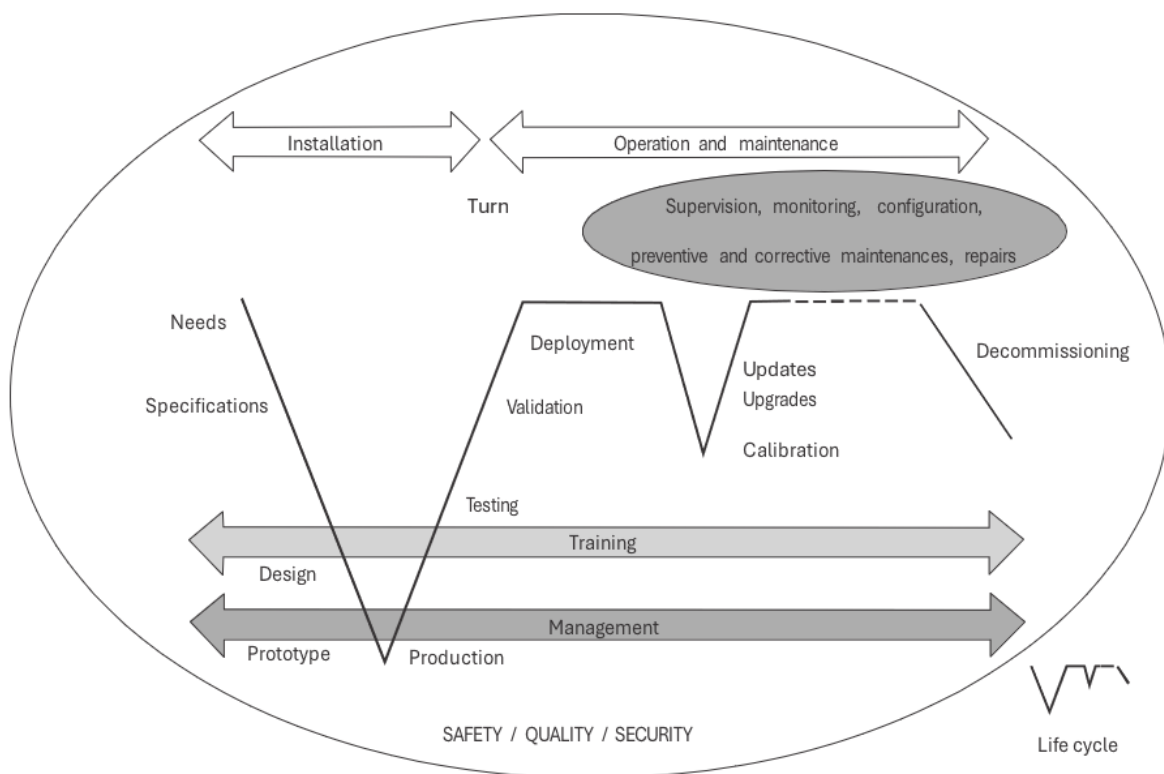


Figure 1: Scope of activities [DOC 10057]

Prior to operations and maintenance, there are additional crucial tasks including system and service implementation, provisioning, and installation. Tasks related to augmentation, adaptation, and upgrading are carried out while the system and services are in operation. At the final stage of a system's life, planning, phasing out, and introducing new systems and services are done.

All these activities are centred around operations and maintenance and on closed loops as shown in the figure 2.

All these activities are directly contributing the safety assurance and regulatory compliance for any given ANSP. These accountabilities necessitates the different competencies of supervisory and managerial role. Hiring right people and services, preliminary and detailed design

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evaluation, training and developing team, and building relationship with stakeholders are some of the competencies that are essential for the supervisory and managerial roles.

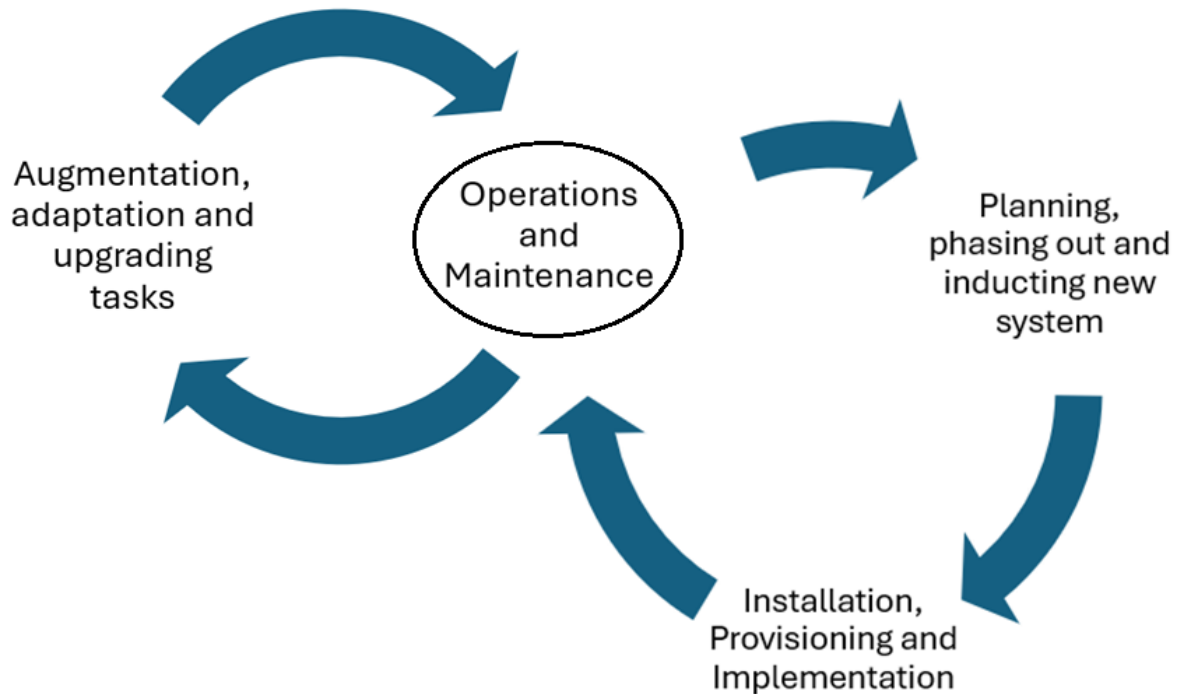


Figure 2: Supervisory and Managerial role beyond operations and maintenance.

Thus, the varied and crucial functions that ATSEP plays in administrative and supervisory roles are essential to the effective deployment of systems and services as well as the successful completion of projects. They guarantee that projects are finished on schedule, within budget, and to the greatest possible levels of quality by managing contractors, suppliers, and service providers skilfully.

1.1.1 Roles and responsibilities

The tables 1, 2, & 3 are depicting the key differences among supervisory and managerial roles played by ATSEP, key activities under both the roles with examples, and specific responsibilities towards the contractor, suppliers, and service providers, respectively.

Table 1: Supervisory roles and managerial roles

Supervisory roles	Managerial Roles
overseeing the daily activities Immediate Problem-Solving	Strategic Oversight high-level decisions Risk Management
close and direct interactions monitor individual performance.	focus on the big picture. evaluate the overall performance.
assign specific tasks. ensure that the team adheres.	develop the project plan. allocate resources.

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communicate daily instructions. facilitate communication within the team.	communicate with stakeholders. prepare detailed reports.
Tactical Decisions Quality Control	Strategic Decisions Innovation

Table 2: Activities and examples

Role	Activities	Examples
Supervisory roles	<p>Technical supervision -Compliance -Quality control</p> <p>Project Coordination -Ensuring milestones -Liaison</p> <p>Resource management -Material availability -human resources for assigned tasks</p>	<p>Oversee the installation and testing.</p> <p>Function as a liaison between different parties.</p> <p>Monitor and manage inventory levels.</p>
Managerial roles	<p>Strategic Planning -Project plan -Risk management</p> <p>Contract Management -Cost estimation and fund provision -Procurement of services and goods -Cost negotiation -Contract performance compliance -Fund management</p> <p>Relationship Building -Stakeholders relationship</p> <p>Training and Development -Team development - knowledge and skill update</p>	<p>Define the scope of projects. Engage with stakeholders in project planning. Identify and mitigate project risks.</p> <p>Manage the procurement process. Select contractors and suppliers. Prepare detailed cost estimates for the project. Track and monitor project expenses.</p> <p>Build and maintain strong relationships with stakeholders.</p> <p>Organizing and conducting workshops or seminars. Implementing on-the-job training programs</p>

Table 3: Specific responsibilities

Stakeholder	Specific responsibilities
Contractor	Selection and awarding Contract performance compliance. Regulatory compliance
Suppliers	Selection and awarding

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	Timely delivery of right material Adherence to the specifications
Service providers	Service level agreements. Performance Compliance Regulatory compliance

The tables mentioned above provide a more comprehensive view of the diverse and important tasks that ATSEP plays inside a given ANSP. According to their strategic objectives, ANSPs will differ in the same way. Different extra tasks will be assigned to ATSEP by ANSPs with research, design, and development activities than by ANSPs without those activities. Similar to this, the tasks that an ANSP that outsources some services to assign to ATSEP will differ from those that another ANSP handles internally.

However, irrespective of the model of the ANSP, with reference to the scope of activities described in DOC 10057, whoever play the roles to carry or manage those activities partially or entirely are ATSEP proven competent to carry those tasks. On the other hand, ANSPs those who assign different tasks to ATSEP are expected to ensure their competency and address any human factor issues that affect their safety performances.

1.1.2 Human factor issues.

The chapters of the guidance material that have relevance to this topic are listed here.

(3) People Resourcing, (4) Job, Role and Skills Analysis and Competency Modelling, (5) Knowledge Management, Talent Management, Learning and Development, (6) Induction of New Systems and Maintenance Philosophy, and (9) Behavioural and Role Specific Competencies.

Key issues are listed briefly for ready reference:

1. Effective people resourcing to add value to the organization and to meet strategic goals.
2. The analysis of job, role, skill, and competency modelling to match the roles requirements.
3. Knowledge management, Talent management, and Learning and Development for sharing the knowledge, availability of talent, and to ensure that people in the organization acquire and develop the knowledge, skills, and competencies.
4. Development of behavioural competencies along with the technical competencies.

1.2. Benefits to ANSP

Some of the benefits discussed on the chapters 3,4,5,6, & 9 are applicable here as well. Key benefits are listed below.

1. Optimum human resource requirements are worked out through workforce planning based on the projected changes in the types of activities conducted by the ANSP and the scale of those activities.
2. ANSP achieves competitive advantage by recruiting, retaining, and developing more capable people and retains the talent.

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3. Matching human resources to the ANSP's culture, strategic goals, and operational needs ANSP ensures optimal use of those resources.
4. Individuals and teams perform better because both behavioural and functional competencies are well defined.

1.3. Benefits to ATSEP

Some of the benefits discussed on the chapters 3,4,5,6, & 9 are applicable here as well. Key benefits are listed below.

1. Reduced stress due to unambiguous job profile, clear communication on accountabilities and expected outcome.
2. Defined key result areas facilitate the motivation towards knowledge and skills update to achieve an acceptable level of performance.
3. Reduced stress and annoyance due to readily available knowledge and expertise.

1.4. Actions by ANSP

The actions discussed on the chapters 3,4,5,6, & 9 will themselves address all the human factor issues arises on this topic.

1.5. Actions by ATSEP

The actions discussed on the chapters 3,4,5,6, & 9 will themselves address all the human factor issues arises on this topic.

1.6. Most Influential Countermeasures

The stress and fatigue levels of ATSEP can be reduced and safety goals can be met with regular optimum augmentation of human resources based on existing tasks, expected retirements, and expected additional facilities.

Assessing optimal manpower requirements, recruiting competent people, training, deploying, and promoting accordingly.

ANSP level scientific knowledge management on operations, maintenance, projects, and emergencies will reduce the stress significantly as ATSEP are continuously learning the latest problems and solutions and be ready with the proven techniques.

Pro-active procurement and replacement policies in managing the out-lived equipment will reduce the stress among the key stake holders of ANSP due to their safety commitment.

Roadblocks on procurement process can be reduced by training selected ATSEP on government compliance requirements by experts having background on the financial regulation.

Adopting procurement policies that facilitates buying quality systems.

Train ATSEP on the Engineering module as per DOC 10057 that suits the ANSP roles on projects and procurements.

Training on planning and procurement, project, and contract management.

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Training on factory and site acceptance tests of major systems for verifying the performance of the system compliance of user requirements and tender terms and conditions.

Developing competency for preparing upcoming complex CNS/ATM systems specifications.

Developing Communication skills for effective communications with internal and external stakeholders.

Developing skills for preparing detailed project reports and technical reports.

1.7. Human Factors Issues Addressed

1.7.1 Directly Addressed Factors.

1	Preparing technical specification for a new system without knowing the local government guidelines and latest technology available.
2	No clear demarcation of technical and managerial responsibilities among the junior ATSEP and senior ATSEP.
3	Compromising qualities, essential OEM documentations, training and after acquisition supports on new systems against the cost (Lowest quote).
4	Lack of project management skills and competencies at the same time, simultaneous operation and projects tasks given with unrealistic timelines.
5	Lack of knowledge in managing the available scarce human resources for maximum performance due to lack of soft skills.
6	Simultaneous project supervision and maintenance activities without additional manpower.
7	Non-utilization of technologies and machines for the installation and maintenance works and planning.
8	Approval of projects without looking into the resource's requirements like human, vehicles, and other support. Workload increases on coordinating for essential supporting resources and prevents the concentration on core project activities as well as to skip the maintenance activities of ongoing operational facilities.
9	User requirements defined not met with the supplied system.
10	Continuous works including weekends during the demanding situations for meeting the special maintenance and project works along with routine operational works.
11	Timeline pressure from boss, management, ATCOs, and other stakeholders.
12	Sense of expectation on out-lived equipment failures even while conducting preventive maintenance.
13	Often project deadlines are set without freezing the scopes and augmenting with necessary resources.
14	Lack of leadership in building relationships and establishing communication or coordination frameworks with internal as well as external stakeholders

1.8. Resilience And Cost Benefits

Some of the benefits discussed on the chapters 3,4,5,6, & 9 are applicable here as well. Key benefits are listed below.

1. optimum human resources are made available only in accordance with their safety and service strategy, and they are fully used on the core areas.

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2. Ensures competitive advantage by developing and retaining safety-critical talent.
3. With increased employee commitment, the organisation transforms into a high-performing one.
4. In terms of organizational resilience, ANSP can reach the level of adaptive innovation.
5. Organizations transform into high-performing organisations by developing the key workforce's behavioural and functional competencies.