



DANGEROUS GOODS PANEL (DGP)

TWENTY-THIRD MEETING

Montréal, 11 to 21 October 2011

Agenda Item 5: Resolution, where possible, of the non-recurrent work items identified by the Air Navigation Commission or the panel:

5.4: Development of performance standards for State employees

COMPETENCY FRAMEWORKS FOR SHIPPERS AND FREIGHT FORWARDERS

(Presented by T. Muller)

SUMMARY

This working paper presents the results of a Secretariat drafting group that was established on developing competency frameworks for personnel of shippers and freight forwarders involved in the regulation and oversight of the air transport of dangerous goods, for consideration by the dangerous goods panel.

Action by the DGP: The DGP is invited to:

- review the competency frameworks for shippers and freight forwarders presented in the appendices to this working paper and provide comments, as appropriate; and
- consider the need for development of additional guidance material to support States in their implementation of the competency frameworks for shippers and freight forwarders;
- instruct the Secretariat on any follow-up action, e.g. the development of a competency framework for operators involved in the transport of dangerous goods.

1. INTRODUCTION

1.1 Following the presentation and discussions at the DGP Working Group of the Whole Meeting in Atlantic City (DGP-WG/11, 4 to 8 April 2011) on the competency framework for State employees, the DGP Secretariat established a small drafting group to develop a proposal on performance standards and requirements for competency-based training of shippers and freight forwarders involved in the air transport of dangerous goods. The task of the group was to develop a competency framework that would support State authorities in adopting national regulations/rules regarding the competencies of shippers and freight forwarders.

2. SECRETARIAT DRAFTING GROUP

2.1 The Secretariat working group consisted of:

Teun Muller,	DGP member nominated by the Netherlands
Kristel Vermeersch	DGP member nominated by Belgium
Nicolle Barrette	ICAO Secretariat
Katherine Rooney	ICAO Secretariat
Lynn McGuigan.	ICAO Secretariat

2.2 The group initiated its work in June 2011 using current ICAO documentation and common practices in some of the participating States. An initial document was drafted with a competency framework for shippers and freight forwarders. Next a preparatory meeting was held on 12 July 2011 in Brussels, attended by the Belgian and Netherlands participants, to discuss the basic principles of the competency framework, specifically to be applied by shippers and freight forwarders, and the format of the document.

2.3 The Secretariat drafting group met in Montreal from 19 to 22 July to review in detail the initial draft document and amend it as appropriate. During this meeting conference calls were held with Janet McLaughlin, DGP member nominated by the United States, and Geoff Leach, DGP member nominated by the United Kingdom, in order to get their specific input and their views on the principles applied in the document.

2.4 The initial task of the meeting was to agree on the principles to be applied in a competency framework, the document structure and the detail in which the task-related competencies need to be reflected in the document. Based on the principles agreed for the State employees, the Secretariat drafting group developed a competency framework at a similar high level of detail.

2.5 The Secretariat drafting group agreed to integrate in the framework different functional levels (strategic, management and operational) and responsibilities related to the safety of the transport of dangerous goods. As agreed for with the competency framework for State employees, the Secretariat drafting group left out “generic competences” of personnel at this stage of development since the issue of what way and to what extent to include these in a competency framework is still under discussion.

2.6 A final meeting was convened on 2 August in Amsterdam, attended by DGP members nominated by the Netherlands and Belgium, to finalize the document on the freight forwarders. During the developing process, the ICAO Secretariat kept monitoring the consistency with the principles established in the *Procedures for Air Navigation Services — Training* (PANS-TRG, Doc 9868).

2.7 The draft competency frameworks, as developed by the Secretariat drafting Group, are presented in Appendix A and B of this working paper for consideration and approval by the DGP.

APPENDIX A

COMPETENCY-BASED TRAINING AND ASSESSMENT FOR PERSONNEL OF ORGANISATIONS ENGAGED IN OFFERING DANGEROUS GOOD FOR TRANSPORT BY AIR AND/OR PROVIDING SERVICES FOR ARRANGING SUCH TRANSPORT

1 INTRODUCTION

1.1.1 The objective of ICAO in publishing this document is to provide guidance to Contracting States, to implement competency-based training and assessment for personnel of organizations engaged in offering dangerous goods for transport by air and/or providing services for arranging such transport. This document has been prepared by the Dangerous Goods Panel (DGP). It includes a basic competency framework for the uniform implementation of training required for Shippers to ensure compliance with their obligations with respect to Annex 18 — *The Safe Transport of Dangerous Goods by Air* and the detailed specifications in the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284). Requirements for the establishment of training programmes for employees engaged in the transport of dangerous goods, having a safety critical function, are contained in the Technical Instructions, Part 1, Chapter 4.

1.1.3 In order to harmonize performance standards of shippers, there is a need to develop a generic competency framework for their employees involved in preparing dangerous good to be offered for transport by air. In turn, this will have a positive impact on the specific employee's function and the ability of the individual to perform the job successfully to the required standards. Whether or not a person is categorized as a shipper is determined by the tasks they perform.

2. TERMINOLOGY

For the purpose of this document, the following terminology applies:

Air operator certificate. A certificate authorizing an operator to carry out specified civil air transport operations.

Appropriate national authority. Any authority designated, or otherwise recognized, by a State to perform specific functions related to Annex 18 or the Technical Instructions.

Cargo aircraft. Any aircraft, other than a passenger aircraft, which is carrying goods or property.

Competency. A combination of skills, knowledge and attitudes required to perform a task to the prescribed standard.

Competency-based training and assessment. Training and assessment that are characterized by a performance orientation, emphasis on standards of performance and their measurement, and the development of training to the specified performance standards.

Competency element. An action that constitutes a task that has a triggering event and a terminating event that clearly defines its limits, and an observable outcome.

Competency unit. A discrete function consisting of a number of competency elements.

Consignment. One or more packages of dangerous goods accepted by an operator from one shipper at one time and at one address, receipted for in one lot and moving to one consignee at one destination address.

Dangerous goods. Articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in the Technical Instructions or which are classified according to those Instructions.

Dangerous goods accident. An occurrence associated with and related to the transport of dangerous goods by air which results in fatal or serious injury to a person or major property or environmental damage.

Dangerous goods incident. An occurrence, other than a dangerous goods accident, associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, which results in injury to a person, property or environmental damage, fire, breakage, spillage, leakage of fluid or radiation or other evidence that the integrity of the packaging has not been maintained. Any occurrence relating to the transport of dangerous goods which seriously jeopardizes the aircraft or its occupants is also deemed to be a dangerous goods incident.

Freight forwarder. A person or organization who offers the service of arranging the transport of cargo by air.

Operator. A person, organization or enterprise engaged in or offering to engage in an aircraft operation.

Overpack. An enclosure used by a single shipper to contain one or more packages and to form one handling unit for convenience of handling and stowage.

Package. The complete product of the packing operation, consisting of the packaging and its contents prepared for transport.

Packaging. One or more receptacles and any other components or materials necessary for the receptacles to perform their containment and other safety functions.

Performance criteria. Simple, evaluative statements on the required outcome of the competency element and a description of the criteria used to judge whether the required level of performance has been achieved.

Shipper. For the purpose of this document, a person, organization or enterprise undertaking any of the shipper's responsibilities of Part 5 of the Technical Instructions.

Technical Instructions. The *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284), approved and issued periodically in accordance with the procedure established by the ICAO Council.

Unit load device. Any type of freight container, aircraft container, aircraft pallet with a net or aircraft pallet with a net over an igloo.

3. SCOPE OF THE COMPETENCY FRAMEWORK

The scope of the competency framework concerns the responsibilities of shippers involved in the preparation of dangerous goods for transport by air in accordance to the Convention on International Civil Aviation:

- The State is responsible to implement an oversight system to determine compliance with Annex 18;
- The application of the basic principles for a competency-based approach determines the performance level for employees of shippers in carrying out their safety critical function to meet their obligations as defined by Annex 18.

The details of the competency framework are based on common practices as applied by States on training, operational procedures, safety oversight.

4. STRUCTURE OF THE DOCUMENT

The basic structure of the competency framework consists of three levels, as applied by ICAO in other aviation areas (definition: see chapter 2):

- a) competency units;
- b) competency elements; and
- c) performance criteria.

Further detailing at these three levels is derived from the relevant shippers' responsibilities at operational and management levels, and the analysis of related tasks as implemented by States. Responsibilities or tasks shippers actually perform will determine which competency elements apply.

Taking into account the above, the competency framework for shippers is based on the following:

- a) Core competencies applicable to all shippers:
 - core competencies and personal attributes; and
 - general awareness, knowledge and skills;
- b) Competency units related to specific activities of shippers:
 - perform pre-packaging assessment of shipment;
 - pack dangerous goods;
 - apply all consignment procedures; and
 - respond to requests.

4a. CORE COMPETENCIES APPLICABLE TO ALL SHIPPERS

Core competencies have not yet been identified for shippers in this document. This will be done once the work of the Next Generation of Aviation Professionals Task Force progresses its work and provides a standardized basis from which to work.

5. COMPETENCIES RELATED TO SPECIFIC ACTIVITIES OF A SHIPPER

A shipper is identified as an entity which offers dangerous goods for commercial air transportation service. The shipper's responsibility, however, may be assigned to an entity which performs tasks or causes a dangerous goods shipment to be offered for transport on the behalf of a third party. It is the shipper's responsibility to ensure that all of the relevant air transport requirements are applied.

Shippers shall take the necessary measures to achieve compliance with Annex 18 and the detailed provisions contained in the Technical Instructions. Before a consignment of dangerous goods is offered for air transport, all relevant persons involved in its preparation must have received training to enable them to carry out their responsibilities.

The transport of dangerous goods is recognized as an integral part of a State's overall safety oversight program. Personnel must be trained in the requirements commensurate with their responsibilities. Training should be designed so that it enables all personnel involved in the transport of dangerous goods to perform their tasks.

A training programme must be established and maintained which incorporates the general provisions for competency-based training and assessment described in Chapter 2 of the *Procedures for Air Navigation Services — Training* (PANS-TRG, Doc 9868). The programme must at least include procedures, which enable the shipping organization to:

- determine the training needs for each employee;
- develop in-house and/or verify external training programme;
- ensure initial and recurrent training is provided on time;
- maintain training records; and
- on-the-job training.

There are references to alleviations from the full requirements of the Technical Instructions throughout this framework. It should be noted that shippers are not required to apply these alleviations; they may chose to comply with the full requirements.

The following paragraphs are intended to identify competencies related to the specific activities conducted by dangerous goods shippers at an operational level.

5.1 Competency unit: Perform pre-packaging assessment of shipment

<i>Competency element</i>	<i>Performance criteria</i>
Classify dangerous goods	<ul style="list-style-type: none"> — determine if an article or substance is listed by name in Table 3-1 and if it is, use information provided — if an article or substance is not listed by name in Table 3-1, classify the article or substance according to the class definition and test criteria and, when applicable, assign the appropriate packing group — determine the class of a substance, mixture or solution having more than one risk and which is not listed by means of the precedence of hazard table — if an article or substance is not listed by name and meets the classification criteria, assign the correct UN number and proper shipping name — verify provided classification information if shipper is not also the manufacturer
Assess restrictions	<ul style="list-style-type: none"> — determine if the article or substance is forbidden — ensure no dangerous goods are transported by post, with the exception of those permitted by the post in the Technical Instructions — apply procedures for exemptions or approvals when applicable

5.2 Pack dangerous goods

<i>Competency element</i>	<i>Performance criteria</i>
Determine packing method	<ul style="list-style-type: none"> — determine whether standard, excepted or limited quantity provisions are permitted — identify any restrictions which apply to the packing methods — identify most appropriate packing method
Apply all relevant packing requirements	<ul style="list-style-type: none"> — select appropriate packaging — ensure measures have been taken to ensure packagings used are compatible with dangerous goods — respect inner packaging quantity limits and maximum quantity per package limits — ensure all applicable packing instruction requirements are met — apply specific air packing requirements such as closures, absorbent material, etc. — when a reused package is used, verify that all packing requirements are complied with — when an overpack is used, verify that all requirements are complied with — when different dangerous goods are packed together, verify that all provisions have been complied with
Ensure only packagings that are properly tested are used	<ul style="list-style-type: none"> — ensure packages have been tested in accordance with the requirements for the specific articles or substances — ensure articles or substances are packaged in the configuration as specified in the test certificate

5.3 Apply all consignment procedures

<i>Competency element</i>	<i>Performance criteria</i>
Notify competent authority	<ul style="list-style-type: none"> — notify competent authority if required by approval or exemption — notify competent authority for Class 7 shipments
Apply markings	<ul style="list-style-type: none"> — verify if correct UN specification marking has been applied to package — mark package or overpack with the proper shipping name, UN number, address of shipper and consignee and any applicable additional marking as required by the Technical Instructions
Apply labels	<ul style="list-style-type: none"> — affix or apply applicable hazard labels to package or overpack — affix or apply applicable handling labels to package or overpack
Prepare documentation	<ul style="list-style-type: none"> — complete and sign dangerous goods transport document — produce supplemental documentation when required

5.4 Respond to requests

<i>Competency element</i>	<i>Performance criteria</i>
Provide information to competent authority upon request	<ul style="list-style-type: none"> — demonstrate an understanding of the requirement to produce information to an appropriate national authority upon request, e.g. measures which have been taken to ensure compatibility, test certificates, training records etc.
Provide emergency information to emergency responders information to personnel	<ul style="list-style-type: none"> — demonstrate capability to provide information to emergency responders upon request — locate information in shipping organization's database and records in a timely manner — describe consequences of incidents and accidents

APPENDIX B

COMPETENCY FRAMEWORK FOR FREIGHT FORWARDERS

1. INTRODUCTION

1.1.1 The objective of ICAO in publishing this document is to provide guidance to freight forwarders to implement competency-based training and/or assessment for personnel who perform specific functions related to the transport of dangerous goods by air. The overall objective of this generic competency framework is to harmonize the performance standards of Freight Forwarders and enhance the ability of the individual employee to perform the job in accordance with the requirements in Annex 18 and the Technical Instructions.

2. TERMINOLOGY

For the purpose of this document, the following terminology applies:

Air operator certificate. A certificate authorizing an operator to carry out specified civil air transport operations.

Appropriate national authority. Any authority designated, or otherwise recognized, by a State to perform specific functions related to Annex 18 or the Technical Instructions.

Cargo aircraft. Any aircraft, other than a passenger aircraft, which is carrying goods or property.

Competency. A combination of skills, knowledge and attitudes required to perform a task to the prescribed standard.

Competency-based training and assessment. Training and assessment that are characterized by a performance orientation, emphasis on standards of performance and their measurement, and the development of training to the specified performance standards.

Competency element. An action that constitutes a task that has a triggering event and a terminating event that clearly defines its limits, and an observable outcome.

Competency unit. A discrete function consisting of a number of competency elements.

Consignment. One or more packages of dangerous goods accepted by an operator from one shipper at one time and at one address, receipted for in one lot and moving to one consignee at one destination address.

Dangerous goods. Articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in the Technical Instructions or which are classified according to those Instructions.

Dangerous goods accident. An occurrence associated with and related to the transport of dangerous goods by air which results in fatal or serious injury to a person or major property or environmental damage.

Dangerous goods incident. An occurrence, other than a dangerous goods accident, associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, which results in injury to a person, property or environmental damage, fire, breakage, spillage, leakage of fluid or radiation or other evidence that the integrity of the packaging has not been maintained. Any occurrence relating to the transport of dangerous goods which seriously jeopardizes the aircraft or its occupants is also deemed to be a dangerous goods incident.

Freight forwarder. A person or organization who offers the service of arranging the transport of cargo by air.

Operations manual. A manual containing procedures, instructions and guidance for use by operational personnel in the execution of their duties.

Operator. A person, organization or enterprise engaged in or offering to engage in an aircraft operation.

Overpack. An enclosure used by a single shipper to contain one or more packages and to form one handling unit for convenience of handling and stowage.

Package. The complete product of the packing operation, consisting of the packaging and its contents prepared for transport.

Packaging. One or more receptacles and any other components or materials necessary for the receptacles to perform their containment and other safety functions.

Passenger aircraft. An aircraft that carries any person other than a crew member, an operator's employee in an official capacity, an authorized representative of an appropriate national authority or a person accompanying a consignment or other cargo.

Performance criteria. Simple, evaluative statements on the required outcome of the competency element and a description of the criteria used to judge whether the required level of performance has been achieved.

Shipper. A person, organization or enterprise undertaking any of the shipper's responsibilities of Part 5 of the Technical Instructions.

Unit load device. Any type of freight container, aircraft container, aircraft pallet with a net or aircraft pallet with a net over an igloo.

3. SCOPE OF THE COMPETENCY FRAMEWORK

The scope of the competence framework of Freight Forwarders concerns specific functions related to the transport of dangerous goods by air that will be carried out under contract with the Shipper. The ICAO Annex 18 and the Technical Instructions defines the responsibilities of the Shipper and the Operator and does not address the Freight Forwarder's functions specifically apart from the training requirements. A freight forwarder is the logistic link between the shipper and the operator and may perform some specific functions related to the transport of dangerous goods by air, notwithstanding the own responsibilities of the shipper and the operator. The freight forwarder specifically facilitates, advises and may transport the shipments to the operator. Therefore the freight forwarder must at least be trained according to the Technical Instructions. However if he performs functions as a shipper and/or an operator he must also be trained in accordance with the competency framework of the shipper and/or the operator.

4. STRUCTURE OF THE DOCUMENT

The basic structure of the competency framework consists of three levels, as applied by ICAO in other aviation areas (definition: see chapter 2):

- a) competency units;
- b) competency elements; and
- c) performance criteria.

Further detailing at these three levels has been derived from the shippers and operators responsibilities relevant for freight forwarders at operational level and the analysis of related tasks as implemented by States.

Taking into account the above, the competency framework for freight forwarders is based on the following:

- a) Core competencies applicable to all freight forwarders:
 - core competencies and personal attributes; and
 - general awareness, knowledge and skills;
- b) Competency units related to specific activities of freight forwarders:
 - perform evaluation of the offered shipment;
 - verify offered package(s); and
 - verify and prepare documentation.

4a. CORE COMPETENCIES APPLICABLE TO ALL FREIGHT FORWARDERS

Core competencies have not yet been identified for freight forwarders in this document. This will be done once the work of the Next Generation of Aviation Professionals Task Force progresses its work and provides a standardized basis from which to work.

5. COMPETENCIES RELATED TO SPECIFIC ACTIVITIES OF A FREIGHT FORWARDER

A freight forwarder is identified as a person or organization who offers the service of arranging the transport of cargo by air. The services rendered by the Freight Forwarder are defined by either a contractual agreement or on an individual basis. According to Annex 18, it is the shipper's and operator's responsibility to ensure that all of the applicable air transport requirements are met. Based on contractual obligations the freight forwarder shall take the necessary measures to achieve

compliance with Annex 18 and the detailed provisions contained in the Technical Instructions. Before a consignment of dangerous goods is offered for air transport, all relevant persons involved in its preparation must have received training to enable them to carry out their responsibilities.

The transport of dangerous goods is recognized as an integral part of a State's overall safety oversight program. Personnel must be trained in the requirements commensurate with their responsibilities. Training should be designed so that it enables all personnel involved in the transport of dangerous goods to perform their tasks.

A training programme must be established and maintained which incorporates the general provisions for competency-based training and assessment described in Chapter 2 of the *Procedures for Air Navigation Services — Training* (PANS-TRG, Doc 9868). The programme must at least include procedures, which enable the freight forwarders organization to:

- a) determine the training needs for each employee;
- b) develop in-house and/or verify external training programme;
- c) ensure initial and recurrent training is provided on time;
- d) maintain training records; and
- e) on-the-job training

It is assumed/understood that a freight forwarding organization will establish systems and procedures which enable it to comply with its responsibilities to respond to queries from the appropriate authority. This includes but is not limited to information systems, record-keeping, training records, etc.

The following paragraphs are intended to identify the competency elements and related performance criteria related to the specific activities conducted by freight forwarders involved in the transport of dangerous goods at an operational level.

5.1 Competency unit: Perform evaluation of the offered shipment

<i>Competency element</i>	<i>Performance criteria</i>
Verify correct identification of the shipment	<ul style="list-style-type: none"> — establish procedures to aid recognition of undeclared dangerous goods — determine if the offered shipment contains dangerous goods — if the shipment contains dangerous goods, verify if these articles or substances are properly classified
Assess restrictions	<ul style="list-style-type: none"> — verify if the article or substance is forbidden for transport — verify if article or substance is permitted on passenger aircraft and cargo aircraft or cargo aircraft only — verify when applicable if all required exemptions or approvals are obtained — verify availability of passenger aircraft or cargo aircraft — verify any additional restrictions imposed by state(s) and/or operator(s) variations — when the use of a ULD is desirable and permitted, ensure proper arrangements are made with the operator — apply specific procedures for dangerous goods in consolidations when applicable

5.2 Competency unit: Verification of the offered package(s)

<i>Competency element</i>	<i>Performance criteria</i>
Verify packaging.	<ul style="list-style-type: none"> — ensure whether selected packing method (standard, excepted or limited quantity) is permitted — check if packaging complies with applicable packing instructions — check if package is free from damage or leakage — check when applicable if package bears correct UN specification markings — when an overpack is used, check if all requirements are complied with — when different dangerous goods are packed together, verify that all provisions have been complied with
Verify applicable marking and labeling requirements.	<ul style="list-style-type: none"> — check if all required markings are properly applied — check if all required hazard labels are properly applied — check if all required handling labels are properly applied — ensure that the application of any additional labeling or marking doesn't cause confusion or obstruct the required dangerous goods labeling and marking

5.3 Verify and prepare documentation

<i>Competency element</i>	<i>Performance criteria</i>
Check provided documentation	<ul style="list-style-type: none"> — check if dangerous goods declaration is complete and correct — check whether the dangerous goods declaration is in accordance with the shipment — if applicable check validity of package design certificate and/or any other certificate for Class 7 — check any additional documents required by State and/or operator variation
Prepare documentation	<ul style="list-style-type: none"> — add required information related to dangerous goods on the air waybill if used