D3.1 – Data Acquisition and Structuring Report (summary)

Introduction

The objective of Work Package 3 of IPATCH was to collect, systematise and analyse data on pirate attacks to assess their consequences, and to develop a set of threat scenarios to be used in the development of the threat recognition and decision support modules.

This report presents the results of Task 3.1. In particular, it describes the sources which were used to collect the data and provides an evaluation of the quality of the information they contained. The common data model which has been developed as a result of the structuring process is also documented.

Inputs from user requirements analysis

In Task 2.1 a Stakeholder Group defined the requirements for the user manual on countermeasures (T4.4), and the on-board system (WP5-7). Task 2.1 also provided inputs for the collection and analysis of data on piracy incidents, as well as the definition of threat scenarios (WP3).

This analysis provided insights into the characteristics of pirate attacks and of the surrounding context. Details were collected on

- Contextual elements of maritime piracy (weather conditions, geo-political situation),
- Piracy incidents, including pirates’ organisation and equipment, typical behaviour and tactics
- Current non-military countermeasures, their application and costs

Data model

A data model was developed to align all relevant information on pirate attacks. The development of the data schema also benefited from the collaboration with the PROMERC project. A list of attributes has been extracted from the PROMERC schema and included in the IPATCH data model, thus identifying a common core of attributes shared by both schemas.

The IPATCH data schema has been further developed in order to align the data modelling exercise with the objectives of Work Package 3 and of the overall project. In particular, new attributes have been included in the data schema in order to gather detailed information on the context in which piracy incidents occur (e.g. weather conditions, geo-political context), on pirates’ modus operandi (e.g. method and point of approach), on the consequences of attacks (e.g. consequences for the ship, items stolen, estimated loss), and on countermeasures (e.g. installation and operational cost).

The final data model for piracy incidents is described in detail in this report, outlining the main entity used to describe piracy attacks (the Incident class) and other classes contained in the Incident class,
namely, Attack Details, Place, Weather Conditions, Vessel, Journey, Impact, Countermeasure, and Countermeasure Use.

Data acquisition and structuring

The data acquisition was conducted starting from the list of attributes included in the final data model described above. For the purpose of data collection, the broad definition of piracy used by the IMB was adopted, combining piracy and armed robbery at sea.

Type of data

The data collection was conducted taking into account multiple qualitative and quantitative sources. The period of reference for information on maritime piracy ranges from July 2010 to April 2014.

The geographical areas under analysis comprise the waters of the Atlantic and Indian Oceans that surround the African continent, which are the focus of the IPATCH project.

Multiple types of attributes were considered important to catalogue the existing information on piracy and to formulate the final data model. Nevertheless, it was not possible to find available data for all the attributes included in the model.

The report explains in detail which kind of data were collected and which kind of information was available for each of the classes of the data model, namely, Incident, Attack Details, Place, Weather Conditions, Vessel, Journey, Impact, Countermeasure and Countermeasure Use.

Availability and quality of data

While some data sources were complete and did not create any issues in the data collection process (i.e. the World Bank and IHS Sea-web), other sources of information on piracy incidents and the surrounding context presented many problems in terms of both availability and quality of data.

Final database

The final database includes nine macro areas, each corresponding to a different class of the data schema: Incident, Attack Details, Place, Weather Conditions, Impact, Vessel, Journey, Countermeasures, and Countermeasure Use. Information regarding the final database can be found in an appendix to the main report.

Conclusion

This task has resulted in a comprehensive database on piracy incidents collecting information on attacks in the last four years in East and West Africa. Because of data availability, the database does not precisely collect information for all the attributes that were originally included in the data model. Further efforts need to be put in order to register, categorize and collect more information on piracy attacks. The final database will provide input to the data analysis in Task 3.2. Furthermore, the results of the data analysis (T3.2) will inform the development of threat scenarios (T3.3), as well as the identification of the most effective non-lethal countermeasures to be included in the manual on countermeasures (T4.4).