

Interactive comment on “Analysis of a risk prevention document using depend ability techniques: a first step towards an effectiveness model” by Laetitia Ferrer et al.

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Authors sincerely thank the referee Mr Johnny Douvinet for his review of our paper and relevant remarks. Please find below a point-by-point reply to your questions. We hope that our responses will agree with your thinks: (Your question is reported with a Q and our response with a R)

Q-In general manner, several sentences should be re-written and authors should be verify the bibliography as several works are note cited at the end of the paper: R- After taking into account your comments, the paper will be corrected again by a native translator. Bibliography will also be verified to eliminate those errors.

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Q-In introduction, the 6 French laws are not related to the same objectives: R- Laws written in 1982 that refers to compensating victims of natural disasters, and 1995 (creation of Risk Prevention Plans), will be removed to keep focus on preventive information.

Q-even if the figure 1 is interesting, it could be better to dissociate information / communication / preventive ways as well as actors (population, stakeholders...). We do not see also the Knowledge over Existing Data (Portée à Connaissance in French): R- with the aim of improve the figure 1 we will first differentiate institutional stakeholders and population actors using two symbolizations. Secondly, we will also clearly differentiate documents (DICRIM. . .) from communications (Public meetings). Thirdly, we will indicate communications made on one hand by mayor and on the other hand, by population using different arrows. Finally, we will add the Knowledge over Existing Data to the figure.

Q-Data and bibliography should be also added over the idea that "It is also very difficult to establish if the system achieves its purpose in terms of being appropriated by the local population" : R-Some references will be added in the introduction to support this affirmation notably regarding behaviours during a phenomenon.

Q-On the other hand, " Preventive information is also provided through other means (what kinds?) but we chose to focus on DICRIM because it is the main regulatory tool of compulsory form dedicated to the general public that summarizes all risks and their prevention" : R-a few description of other means of preventive information as PPR, flood benchmarks will be added in this section.

Q-Authors have to detail the structuration and variery of forms of collected DICRIMs: R-Statistics data about this database will be mentioned earlier, in the introduction, to give more precisions on the structuration of the collected DICRIMs. The aim of this paper is to evaluate the effectiveness of DICRIM, but it should be useful to define what authors assimilate to effectiveness (appropriation by citizens for exemple?) We will give a definition of effectiveness that is clearly missing. Âñ Effectiveness is the level

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of achievement of planned activities and achievement of expected results (Association Française de Normalisation 2005). It refers to the concepts of function and dysfunction. The definition will be added in the paper based on this reference and adapted to DICRIM.

Q-For the methods to evaluate communication pervasivity, one of the major problem is to evaluate the appropriation by citizens of information included in the DICRIM. So connected or ROI methods are useful, surely, but why? R-Evaluating the appropriation of information by the population is effectively one of the major challenges of effective communication. Connected methods can be useful in that they will help to determine whether DICRIMs have aroused the interest of people by convincing them, for example, to go to the associated websites (using QR code) for additional information after reading of DICRIM. This element will be added in Section 2.

Q-Another question is to determine that people regarding the DICRIM will apply safety guidelines included in DICRIM. How it is possible to measure this? R-Even if "inform on acting appropriately when facing a major phenomenon" is one of the main objectives of a DICRIM, it is true that there is no assurance that people will apply them correctly. First of all because each hazard described in the DICRIM has its own safety instructions which lead to no less than about twenty safety guidelines on average. Some studies are measuring effectiveness of DICRIM by asking people about how they will act in case of a phenomenon but it is impossible to ask a person to memorize twenty different safety guidelines. They should have those guidelines at hand to refer at it when it happens. But in order for the population to appropriate this information, however, it must be ensured that it has reached them, which is not always the case. Surveys carried out on DICRIMs have revealed that among interviewees, some say that they would simply flip through the DICRIM and then throw it away, revealing a flagrant lack of interest. A perspective of our works is to make a survey with two similar sample evaluating an old DICRIM and a new enhanced one to evaluate this information apprehension.

Q-Several papers have yet shown that knowledge of risk is not interrelated with be-

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haviors, and these reviews should be mentioned? : R-It is true that several studies showed that knowledge of risk does not necessarily lead to an appropriate behavior. Sometimes for instance people will take irrational decisions, or decisions based on economic consideration rather than secure (which could be the case when people chose to go to retrieve their car in underground park during floods of Cote d'Azur Region in 2015). Those bias take then precedence on knowledge and information they may have received preventatively. Some bibliographical references (Slovic 1987 ; Khaneman & Tversky 1979 ; Sjoberg 1998. . .) will be added in the paper notably regarding the Figure 6. But other studies showed that information can influence people, like it has been the case for prevention for road safety in France that has consequently increased the number of person wearing seat belt. But this is not the main topic of our research, we did not want to evaluate effectiveness of DICRIM by measuring if they act correctly thanks to it, we mainly want to make sure that the information is apprehended by the reader. Before the research of "good" actions which is of course the finality, the rise of awareness about major hazards is for instance a crucial question a DICRIM can help to. Some references will be added in our paper to argue your relevant remarks.

Q-The content of a DICRIM is yet detailed by other authors. Is it possible to define a graduation for the different document attempted for this DICRIM? : R-some references discussing recommendations about the content of DICRIM will be added in the paper and compared (Guidebooks by CEPRI, IRMa or articles such as Lowrey W. et al. (2007). "Effective media communication of disasters: Pressing problems and recommendations", BMC Public Health)

Q-The EFA evaluation is quite shorter. Do the general public is the real destination? The DICRIM is not only a guide for action and information. It can also be considered as a document to inform over the risk existing in a municipality, over the last CatNat events and over the safety actions. So different informations for different objectives... : R- EFA has made it possible to obtain 2 main service functions which are identified with a high granularity (macro vision) and which allow the different objectives of the DICRIM

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to be synthesized. These are then broken down into each of the technical functions associated with each component (Table 4). When we speak of "information" (FS1) we include CatNat events, for example, which are just one of the means to inform people (if an event has occurred in the past, it will happen again) and who will participate in maintaining the memory of risks. DICRIM is a central information document on the risks affecting the municipality from which it is derived and which is addressed to all.

Q-The failures model could be summarized in another format (the table is not easy to read) : R-Instead of showing failures model with a table we will use a graphic representation in the form of a bowtie schedule. It will represent a scenario with mode of failures in the centre, its causes at its left and effects at its right both linked with arrows. Technical functions will be removed as they are already showed earlier. Detection elements will be attached to mode of failures with another symbolization. We will also add a description to give an example and facilitate its reading. For instance: the component "Editorial with a word from the mayor" owns the technical functions "inform to raise awareness of risk" and "inform to foster the acceptance of risk". If one of those functions is faulty, it is because the form and content are not complied with. To detect this failure some elements are helpful based on form and content (typography, type of photos, usefulness of the data presented. . .). Detect those failures are crucial because they can lead to possible effects. For instance, the individual consult this section but does not want to continue reading the DICRIM and then it is possible that he does not become aware of the risks present on the commune he lived and that he is surprised by the occurrence of a phenomenon and in danger.

Q-In conclusion, why this work differ from previous? What kind of advices the authors can propose to perform the effectiveness of such document in France? : R-Previous work evaluating the effectiveness of a DICRIM is based on ad hoc surveys carried out at the level of given municipalities or territories, on a given document. They also need significant human and material resources. This work differs from previous because it allows to obtain a generic approach based on systemic and analytical reasoning applied

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to all DICRIMs (see Figure 3). The purpose of the article is to explain this approach by stressing the analysis phase which then structures the models. The example of compliance with the law is given to illustrate. We will insist more on these aspects of originality and the contribution of this work in the article.

Q-The component/service actions are qualified by a specific indicator, but a word or a page dedicated to an information conduct to have the same data, so how it is possible to define a good DICRIM (complete and short format : 4p. for example) or a bad DICRIM (strongly detailed, with DICRIM of 74 p. for example in several municipalities...)
: R-A same data showed by a word or a page will not have the same impact on the reader. The format is often the information gateway. If the reader is not really interested in the subject, it is possible that he/she may be discouraged from reading an entire page where just a few synthetic sentences would have been sufficient. Good and bad DICRIMs are defined in indicators that were made based on communication expert recommendations (regarding the form). High notes on the scale correspond to good characteristics and low scores to bad ones that must be improved.

Q-For the technical components, only 16 DICRIM have be integrated. Why ? 2 250 DICRIM exist according the BD-DICRIM and more than 5 500 for the French Ministry. So why do not use for example 200 DICRIM? R-We made and used a database of 30 various DICRIM coming from Paca Region. For each of them, the 16 components that composed a DICRIM identified thanks to the EFA method and based on sections required by the law (Police and protection actions; General safety instructions; Mapping 1/25.000th ; Emergency phone numbers. . .) were analysed. We considered that this number was enough to test the feasibility of the method; it was not used for statistical analysis purposes where a higher number of DICRIM would have been required. It is true that it will be interesting in the future to test the methodology on more DICRIM to improve it.

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