

سورة الاحقاف

Risk Map

Mohammad Heidari

PhD in Health in Disasters and Emergencies

Event

- “**Event**” is defined as any social-natural phenomena that can be considered as a threat to life, properties, infrastructure and environment.

Disaster

- “Disaster” is defined as **the set of adverse effects** caused by social-natural and natural phenomena on human life, properties, infrastructure and environment (an “Event”) within a specific geographic unit during a given period of time.

- **Hazard**: a natural or social-technological phenomena that produces damages to human lives, economic/social infrastructure and environment (earthquakes, floods, droughts, etc.)

Natural hazards

- Floods
- Forest fires
- Storms
- Landslides
- Earthquakes

Technological Hazards

- Industrial installations
- Transport of dangerous goods
- Contaminated lands
- Pipelines
- Oil-shale mining

HAZARD

1. A situation with the potential to result in harm. A hazard does not necessarily lead to harm.

2. Potential source of harm. [ISO/IEC 51]

Note: For natural hazards, HAZARD is commonly referred to as the probability that a natural event (of a certain magnitude) occurs in a certain place/area at a certain time.

Consideration of the time dimension thus differentiates HAZARD from **SUSCEPTIBILITY**, which only considers the event and the place/area.

- **HAZARD MAP**

This type of a map that portrays levels of a particular hazard (or hazards).

- **Vulnerability**: Degree of population or infrastructure “**fragility**” to hazards.

VULNERABILITY

1. Degree of loss (from 0% to 100%) resulting from a potentially damaging phenomenon. [UNIDNDR]

2. The degree to which a systems is susceptible to, and unable to cope with, injury damage or harm. [EEA Glossary]

- **VULNERABILITY MAP**

This is a map that portrays levels of vulnerability It may include one or more than one type of vulnerability (e.g., death, injury, property damage)

Prevention, Preparedness, Mitigation, Risk Reduction....

“Effective early warning and preparedness, land use planning and appropriate construction, risk assessment in projects and planning, community based risk management, insurance (financial and social) and asset protection through social safety nets among others dramatically **reduce human exposure to hazard and susceptibility** to harm.

- Action to **reduce risks** from natural disasters must be at the centre of **development policy”**

- **Emergency:** “The phase **immediately** after impact is characterized by the intense and serious disturbance [...] and the minimum conditions necessary for the survival and functioning of the affected social unit are not satisfied.
- **Recovery:** Process of re-establishing acceptable and sustainable living conditions through the *rehabilitation*, repair and *reconstruction* of destroyed, interrupted or deteriorated infrastructure, goods and services and the reactivation or promotion of economic and social development in affected areas.

RISK

1. *Combination of the **frequency**, or **probability**, of occurrence and the consequence of a specified hazardous event. [Ref.: ISO/IEC 51]*

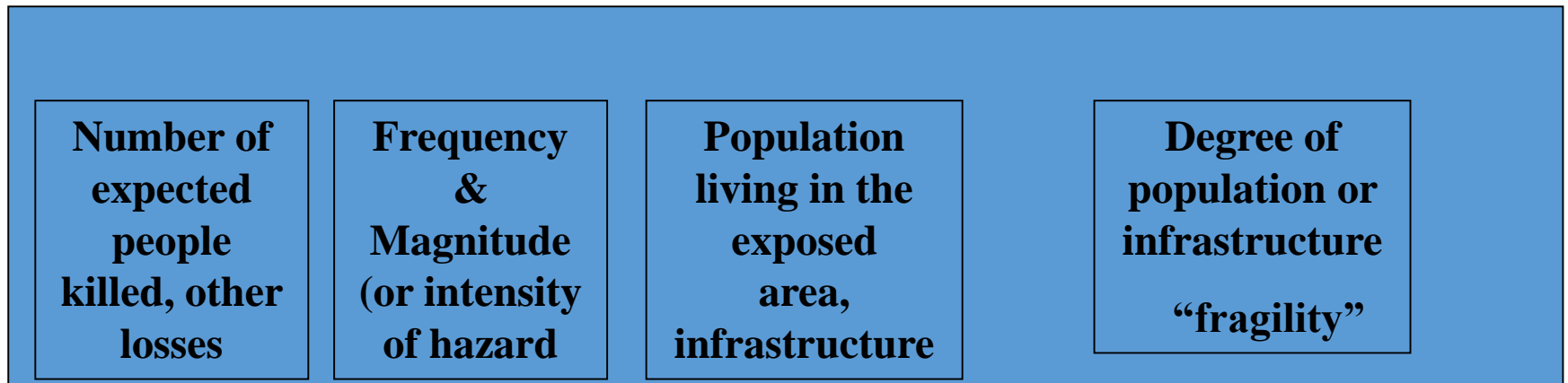
*The concept of risk always has two elements: the **frequency** or **probability** with which a hazardous event occurs and the consequence of the hazardous event.*

2. *Expected losses (of lives, persons injured, property damaged, and economic activity disrupted) due to a particular hazard for a given area and reference period. Based on mathematical calculations, risk is the product of hazard and vulnerability:*

Risk = Hazard x Vulnerability [UN IDNDR]

RISK

EQUATION OF RISK

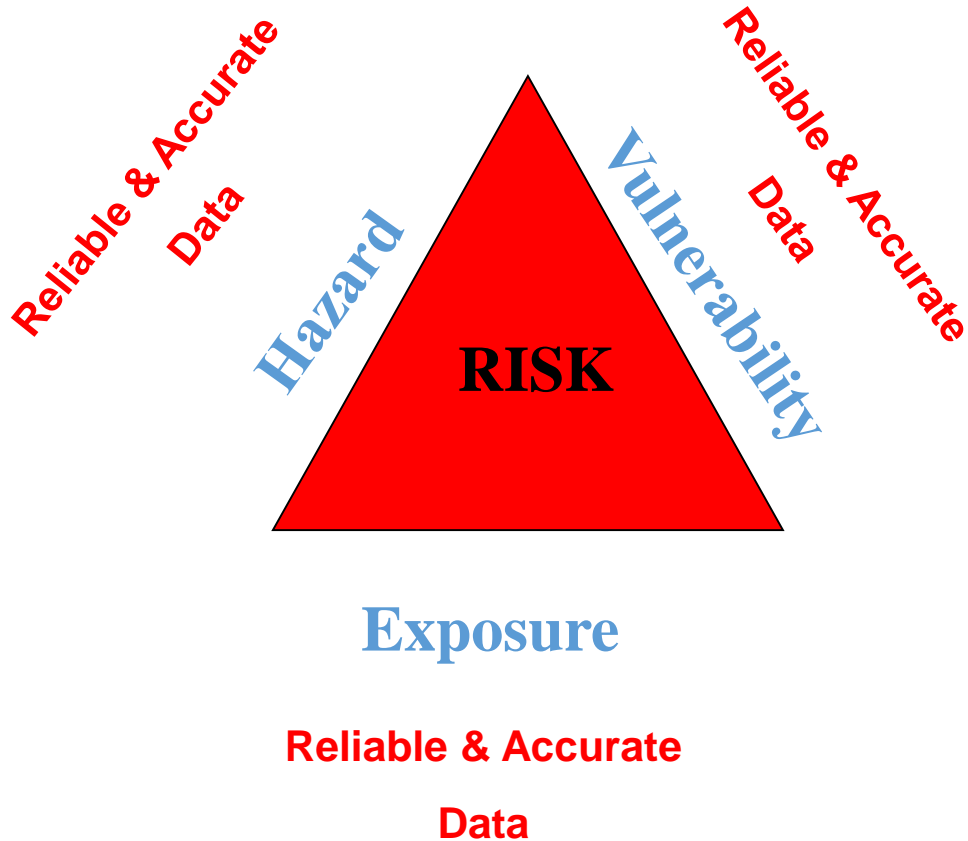


Risk = Hazard **x** Element exposed **x** Vulnerability*

Risk = Physical Exposure **x** Vulnerability

* UNDR0 (1979), Natural Disasters and Vulnerability Analysis in *Report of Expert Group Meeting*

The Risk Triangle:



Risk is a combination of the interaction of hazard, exposure, and vulnerability, which can be represented by the three sides of a triangle.

If any one of these sides **increases**, the area of the triangle **increases**, hence the amount of risk also **increases**.

If any one of the sides **reduces**, the **risk reduces**.

- **If we can eliminate one side there is no risk.**

DISASTER RISK MANAGEMENT CYCLE



Maputo, Mozambique, August 18-23 of 2008

برنامه های کاهش ریسک

سطح ریسک	فعالیت و برنامه زمانبندی
جزیی	نیازی به عمل و همچنین نگهداری سوابق نیست
قابل تحمل	کنترل بیشتری نیاز نیست. باید به راه حل مقرون به صرفه توجه شود و همچنین اطمینان حاصل شود که کنترل ها برقرار هستند.
متوسط	باید در جهت کاهش ریسک تلاش شود لیکن هزینه های صرف شده بدقت بررسی و محدود شوند . اندازه گیری میزان کاهش ریسک می تواند در دوره های زمانی مشخص انجام شود. زمانی که ریسک متوسط در ارتباط با پیامدهای صدمه زای شدید است، باید احتمال وقوع آن ریسک بدقت ارزیابی شده و براساس آن نیاز به افزایش و بهبود اندازه گیری های کنترلی بررسی شود.
قابل توجه	تا زمانیکه ریسک کاهش نیافته کار نباید آغاز شود. منابع قابل توجهی باید جهت کاهش میزان ریسک تخصیص داده شوند.
غیر قابل تحمل	تا زمانیکه ریسک کاهش نیافته کار نباید آغاز شود. اگر حتی با استفاده از تمامی منابع ، کاهش ریسک امکان پذیر نباشد فعالیت کاری باید متوقف شود.

Risk Relevance classes

“High” – *The hazard is present within a vast majority of the country ($\sim > 2/3$) due to the infrastructure or geographic character of the country, OR the hazard is confined only to particular areas but in the event of an incident, the effect could be significant for: at least one major population center (such as a medium to large city or metropolitan area) or an important economic resource.*

“Medium” – *The hazard is present within a good portion of the country ($\sim > 1/3$ and $< 2/3$) due to the infrastructure or geographic character of the country, OR the hazard is confined only to particular areas but in the event of an incident, the effect could be significant for: a minor population center (a large town or small to medium-size city) or minor economic resource.*

“Low” – *The hazard is present within a small portion of the country ($\sim < 1/3$) due to the infrastructure or geographic character of the country, AND in the event of an incident, there is no significant effect for: minor or major population centers, or minor or major economic resources.*

مفاهیم عمده در بحث اقدامات کنترلی

۱. حذف ریسک

۲. کاهش ریسک

۳. انتقال ریسک

۴. پذیرش ریسک

مستند سازی ارزیابی ریسک

به طور کلی فرمت استاندارد برای مستند سازی نتایج ارزیابی ریسک وجود ندارد اما سندی که به این منظور استفاده می شود باید شامل اطلاعاتی از جمله ریسک های موجود، اطلاعات کمی مربوط به ریسک ها جهت تعیین وسعت ریسک و طرح عملیاتی برای مواجهه با ریسک باشد.

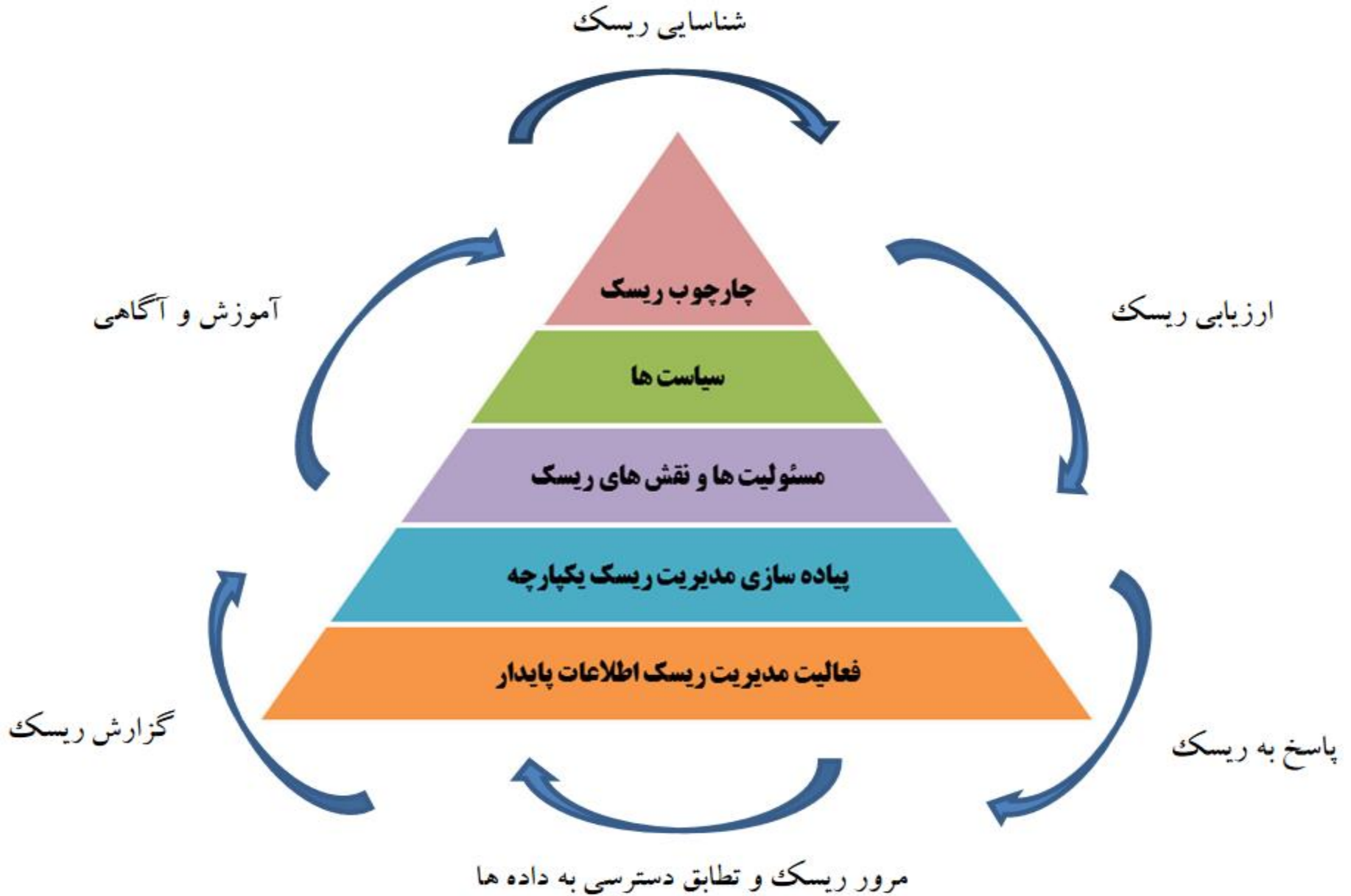
RISK ASSESSMENTS

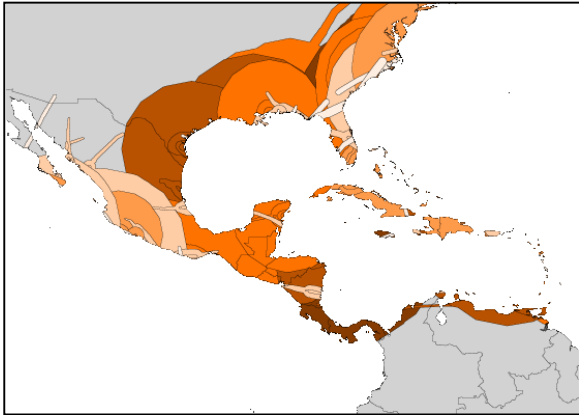
“Risk assessment is the determination of quantitative or qualitative value of risk related to a concrete situation, location and a specific threat.”

- *Are targeted to specific hazards*
- *Require large amounts of information*
- *Involve complex modeling*
- *May change over time*
- *Urban or regional*

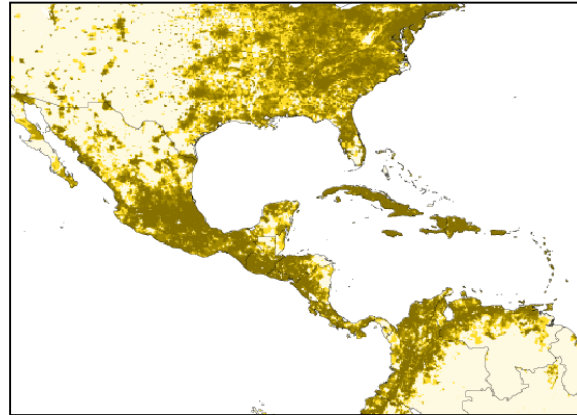
شکل - ۱: فرایند شناسایی ریسک



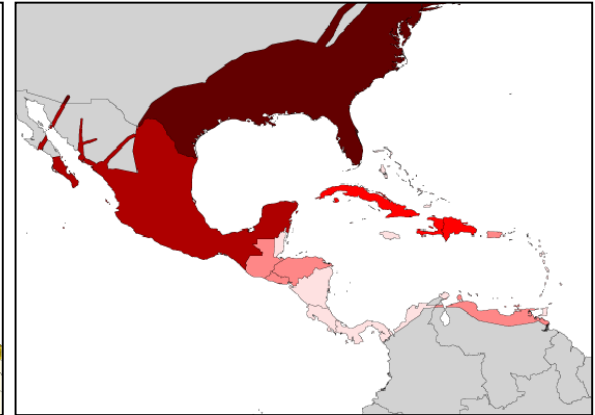




**Hazard
probability
(frequency)**



**Exposed
population**



Simple Risk Index

Risk Map

- **Risk Mapping** is taken here to encompass the geospatial expression of the outputs of risk assessment as above, and the broader sense of the mapping of its component inputs (*H*, *V*, *E*), particularly Hazard.
- However, **risk mapping** depends heavily on models and input data sources, so these are also considered.
- *The purpose and efficacy of mapping are also considered in scope.*

- **RISK MAP**

*This is a map that portrays levels of risk across a geographic area. Such maps can focus on **one risk** only or include **different types of risk** (e.g., integrated risk map, maps of multiple risks).*

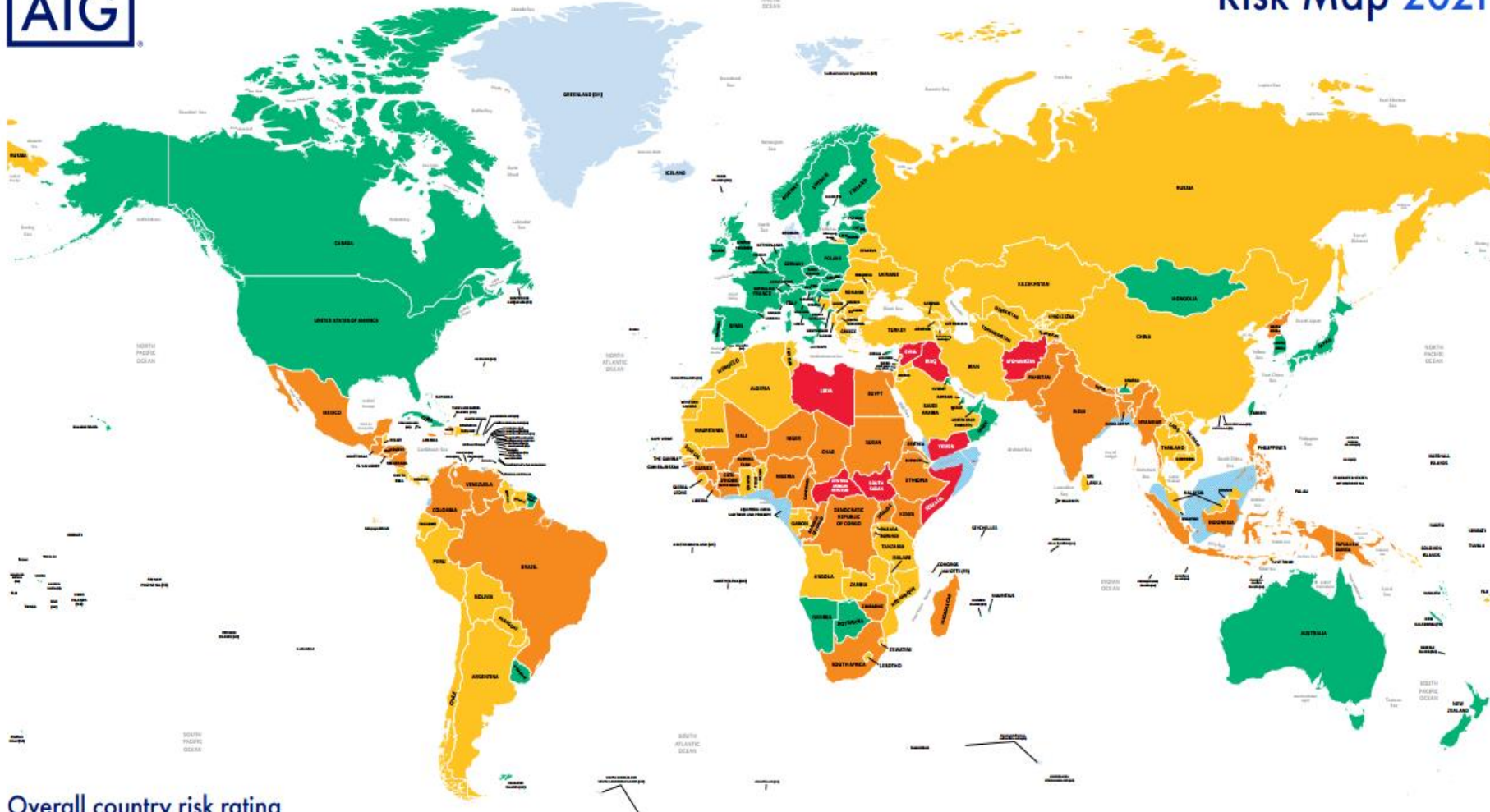
Benefits risk maps provide

• •

- **Quick** and **efficient** visual to enable decision-making
- A visual, **big picture**, holistic view to share while making strategic **decisions**
- Improved **management** of risks and governance of the risk management process
- Allows for **increased focus** on the risk appetite and risk tolerance of the company
- Added **precision** in the risk assessment process
- Additional considerations related to main risks
- **Identification** of gaps in the risk management and control process
- Greater **integration** of risk management across the enterprise and embedding of risk management in operations.

Questions to consider when implementing a risk map

- How much risk are we willing to accept?
- What thresholds do we want to monitor and use to alert to action?
- What constitutes a material risk to our company?
- What is the range of acceptable variance from our key performance and operating metrics?
- What thresholds do we want to monitor and use to alert to action?
- How will we define our terms to evaluate the likelihood of risk events and the impact that they might have on our business so that we can map our potential risk events to our heat map?
- What types of risk will immediately affect our continuity? How long can we sustain our business in the event a critical risk occurs?
- Have we considered mitigation activities on the rating of risks?



Overall country risk rating

MINOR

Minor risk locations generally have a historically stable political and economic system with few or no prominent security risks or threats to the governing structure. Issues such as crime, demonstrations and unrest do not pose any notable concern for visitors, locals or general business operations. Protest actions are very rare, and the few that occur are minor in scale and non-violent. Infrastructure and medical facilities are advanced and of good quality with only occasional disruptions prompted by natural or man-made hazards.

LOW

Locations with a Low threat rating are typically characterized as politically and socially stable, with few prominent security concerns. Minor socio-economic issues can contribute to occasional incidents of civil unrest and/or protest actions, although most such developments remain non-violent, with few major associated disruptions to daily life and business operations. While crime is not a frequent occurrence, low levels of non-violent crime may be present. Violent crime may occur on occasion, generally in a major urban area of the country. Overall infrastructure and medical facilities are advanced or of good quality with occasional disruptions caused by natural and man-made hazards.

MODERATE

Moderate risk locations experience periodic demonstrations and protests, with instances of violent civil unrest possible. These locations are typically politically stable, but developments such as socio-economic issues may periodically give rise to notable social tensions. Rates of crime are moderate, though instances of violent crime occur more frequently especially in major urban locations; while criminal incidents may occur in any area of the country, crime is not pervasive nationwide. Overall safety and security risks to individuals and businesses are moderate. Terrorism-related concerns may be present, but are not frequent occurrences. Ethnic and/or sectarian issues may arise, but do not typically manifest in serious security developments. Infrastructure and medical care may be inconsistent throughout the country, although acceptable levels can be found in the most prominent urban centers.

HIGH

Locations with a High threat rating often experience elevated rates of crime, including violent crime, that pose a concern to travelers. Political instability concerns may be heightened, and the type of government in place may present itself as an issue to foreign interests. Countries may have weak economic structures that contribute to elevated levels of unrest and protest activity. Demonstrations are common and may arise in response to a multitude of issues; response by security forces may compound problems. Terrorism, ethnic and/or sectarian issues may also be a concern; terrorism-related developments occur more frequently in High threat destinations. Localized militia or anarchist activity may also occur in these locations. The risk of, or ongoing conflict, may be an issue in high threat environments. Overall issues pose a notable risk to foreign travelers and businesses as well as the local population. Overall medical care/facilities and infrastructure are poor and unreliable and many foreigners would need medical evacuation for serious health issues.

EXTREME

The security and/or political environment poses a significant and direct threat to travelers and business operations. Locations rated as Extreme have unstable security environments, with political instability often a major and pervasive risk. The nature of the government may pose a significant risk to foreign interests, and state sponsorship of surveillance and/or censorship may be a notable concern. Extreme rated locations are affected by serious levels of conflict. Crime (including frequent or pervasive violent crime) is a serious issue as a result of inconsistent and/or ineffective security coverage. Kidnapping (for political and/or economic purposes), violent/discriminatory demonstrations and civil unrest are often elevated issues as well. Travel to and within Extreme risk locations entails serious risks, particularly outside urban centers where general lawlessness may exist in the absence of an adequate security apparatus. Quality of infrastructure, or lack thereof, may also present a serious issue. Medical facilities and care may be very poor to non-existent in portions of the country, and those that exist are significantly below international standards even for basic medical care. Your health issues would require external medical support, and any major medical emergency would likely require evacuation.

MARITIME PIRACY

Areas of concern in which acts of robbery or criminal violence are carried out against a marine vessel for political and/or financial reasons.

THIS MAP ONLY DISPLAYS SECURITY RISK DATA AND DOES NOT TAKE INTO CONSIDERATION COVID-19 DATA.

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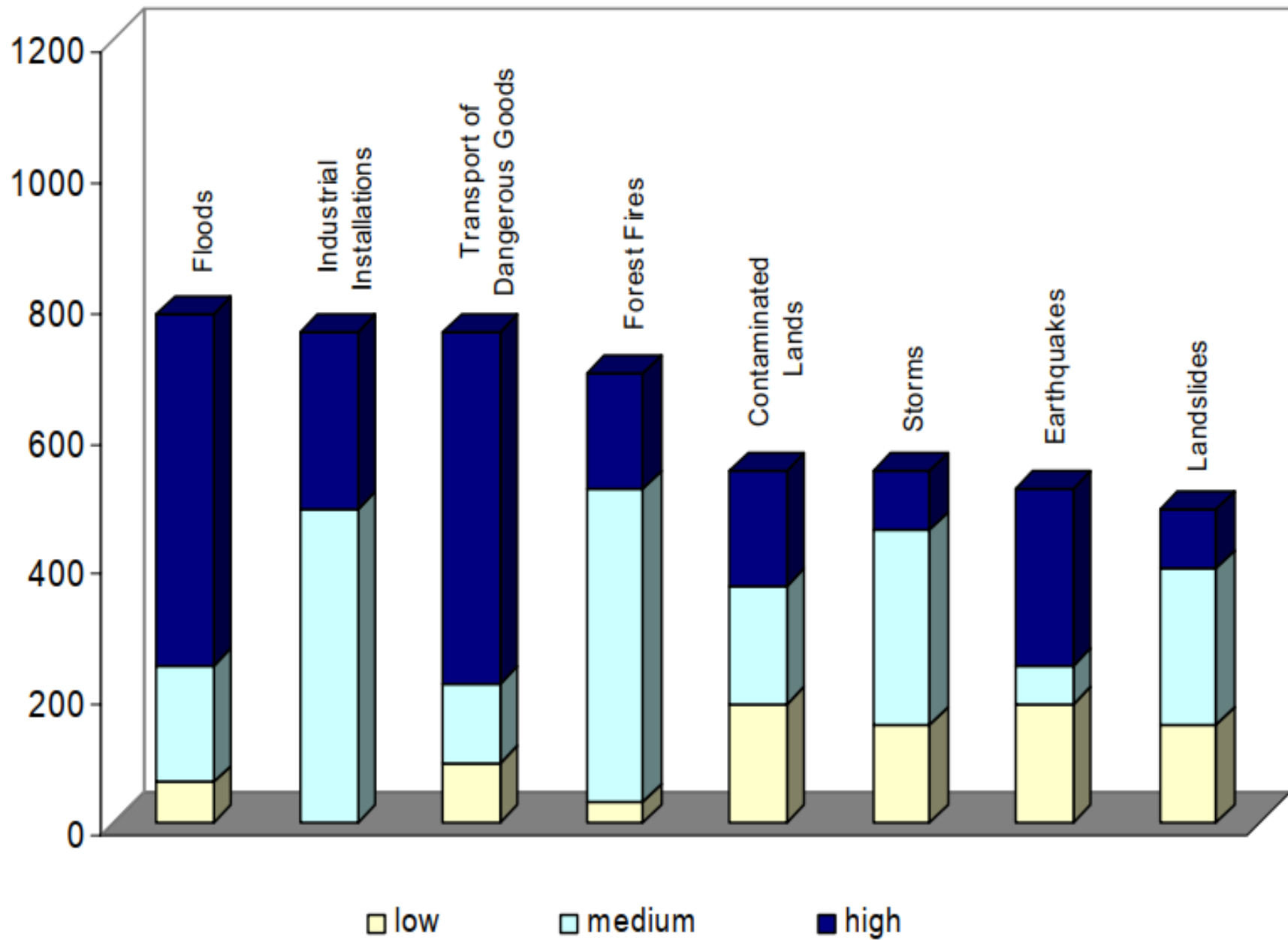
For further information on security assistance services, please contact ajgtrav@aig.com.

Table 1: Risk relevance of the evaluated hazard in the PECO countries

Countries	Floods	Indust. Install.	Transport of Dang. Goods	Forest Fires	Contaminated Lands	Storms	Earthquakes	Landslides
Romania	HIGH	MEDIUM	MEDIUM	MEDIUM	MEDIUM	HIGH	HIGH	HIGH
Bulgaria	MEDIUM	HIGH	HIGH	HIGH	LOW	MEDIUM	HIGH	MEDIUM
Czech Republic	HIGH	MEDIUM	HIGH	MEDIUM	HIGH	MEDIUM	LOW	MEDIUM
Poland	HIGH	MEDIUM	HIGH	HIGH	MEDIUM	MEDIUM	LOW	LOW
Hungary	HIGH	MEDIUM	HIGH	MEDIUM	MEDIUM	LOW	LOW	LOW
Slovenia	HIGH	MEDIUM	LOW	MEDIUM	LOW	LOW	HIGH	MEDIUM
Slovakia	HIGH	HIGH	LOW	LOW	HIGH	LOW	LOW	MEDIUM
Latvia	MEDIUM	HIGH	HIGH	MEDIUM	LOW	LOW	n/a	n/a
Estonia	LOW	MEDIUM	HIGH	MEDIUM	LOW	MEDIUM	LOW	LOW
Lithuania	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	MEDIUM	LOW	LOW
Cyprus	LOW	MEDIUM	LOW	MEDIUM	LOW	LOW	MEDIUM	LOW

Legend

-  HIGH
-  MEDIUM
-  LOW
- n/a NOT APPLICABLE



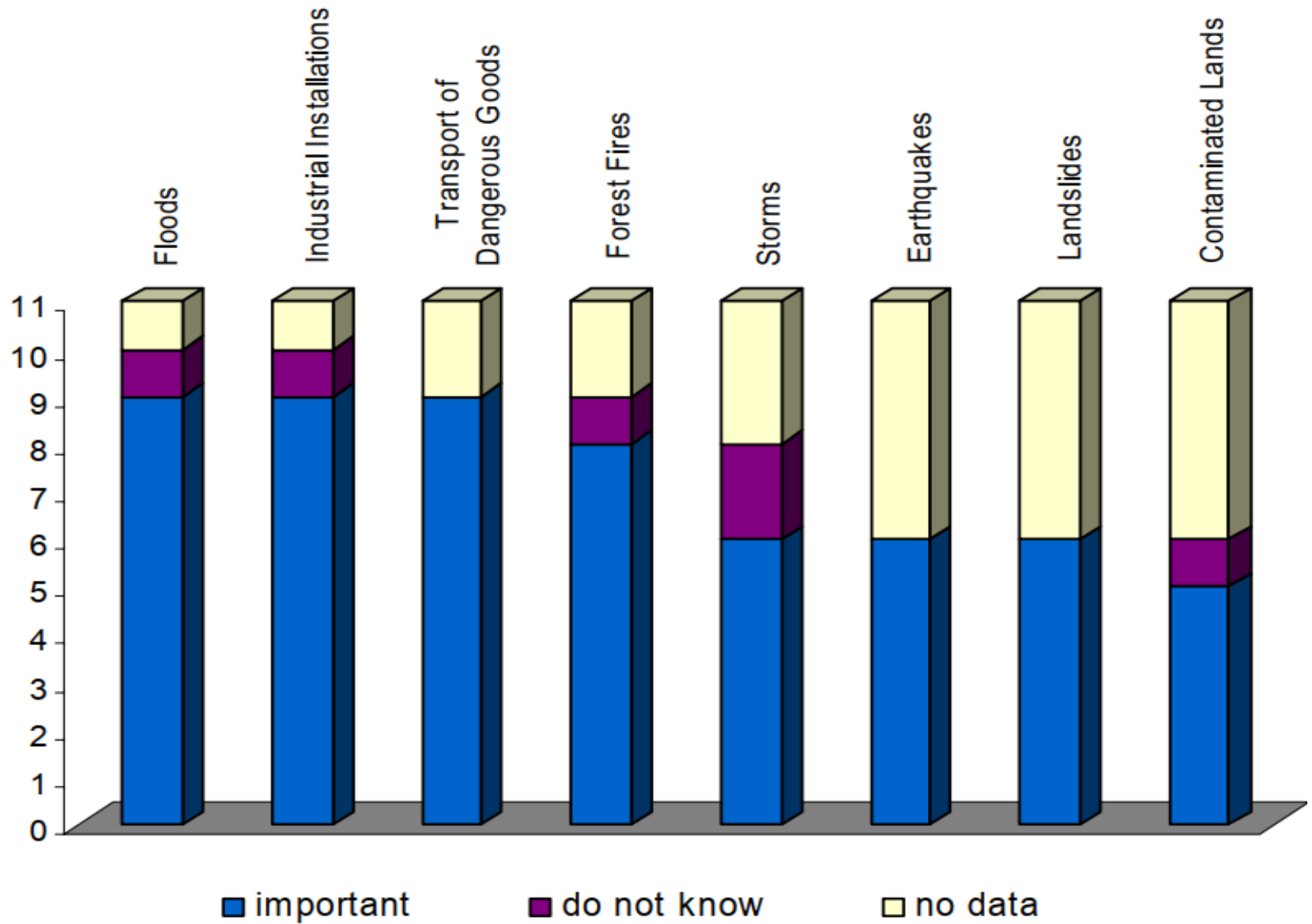


Figure 3: Experts opinion on importance of harmonization of risk mapping

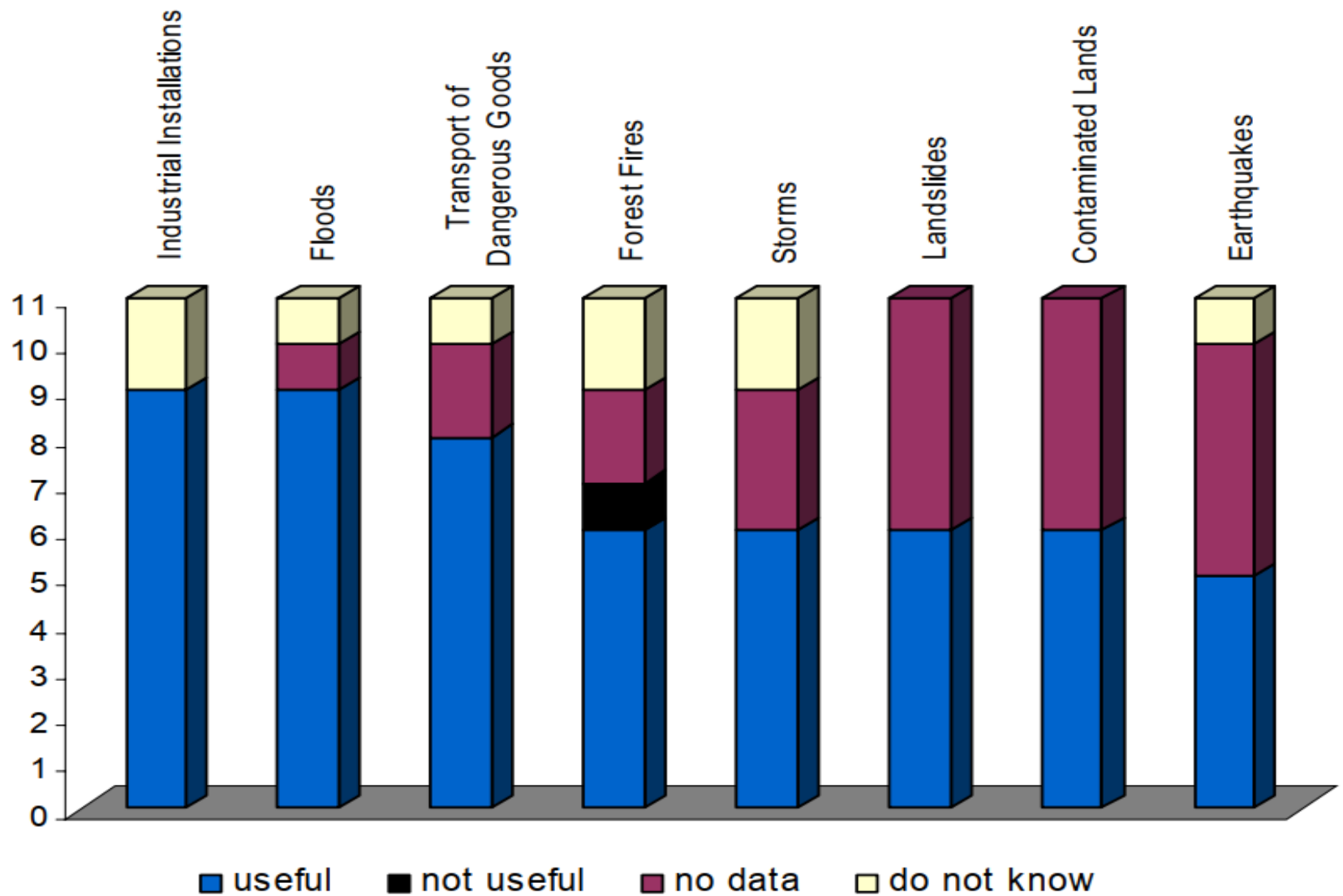


Figure 4: Experts opinion on the value/utility of integrated risk maps

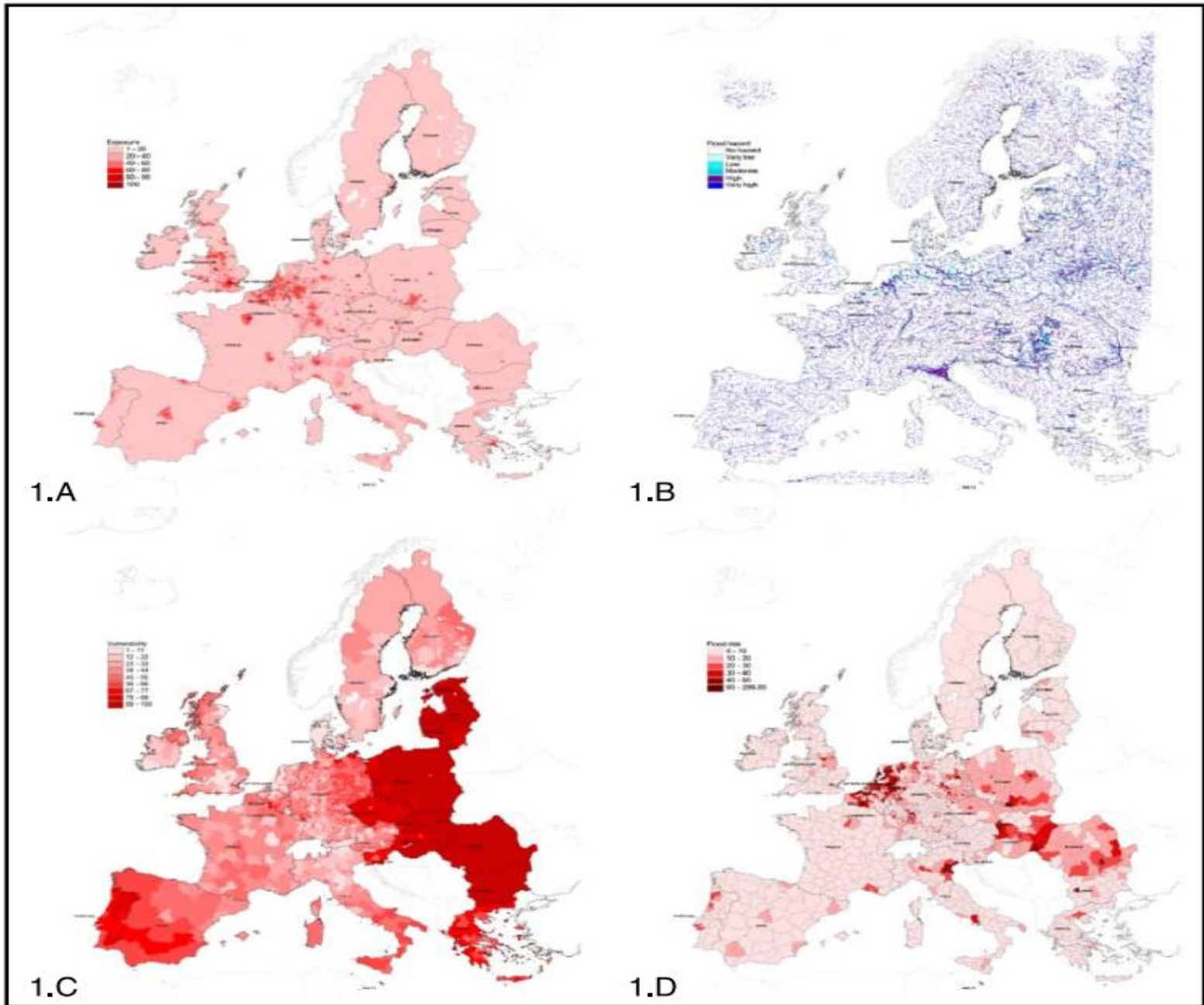


Figure 1 Flood risk assessment for the EU, Bulgaria and Romania. 1.A) Flood exposure, 1.B) Flood hazard, 1.C) Flood vulnerability, and 1.D) Flood risk at NUTS 3 level

Community Risk Maps:

Know the dangers and get going!

How can you reduce the vulnerability of your family, your friends and your belongings before a disaster happens? You can help your community to realize the risk of a disaster may happen and take preventive action. One of the best ways is to put up a hazard and risk map of your community.

A risk map is a big drawing or model of your community that you can draw or make with your schoolmates and friends, with the help of your teacher, showing all the important buildings such as schools and hospitals, farm land, roads, and any other things that could be affected in the event of a disaster. It also shows potentially hazardous elements or places such as nearby volcanoes, areas that might get flooded, or very dry grasslands that can catch fire. It also shows all the resources, such as people and things that can help your community to get ready and protect itself, like the fire station, or a health care center. To show all these things you can draw symbols on the map. You can even invent your own symbols, as long as other people can understand them. What symbol would you use for a hospital? Or a volcano?



What are Risk Maps for?



Risk maps help you to understand the hazards and risks in your community and encourage everyone in the community to take action to

prevent a possible disaster or reduce its effects if it

happens. For example, they

show schools or other important buildings that

are in high-risk area for

landslides. It also helps

you be better prepared

for a potential emer-

gency. For example,

they show you where

the safest buildings

are, or which are the

best routes to follow if

you are ordered to

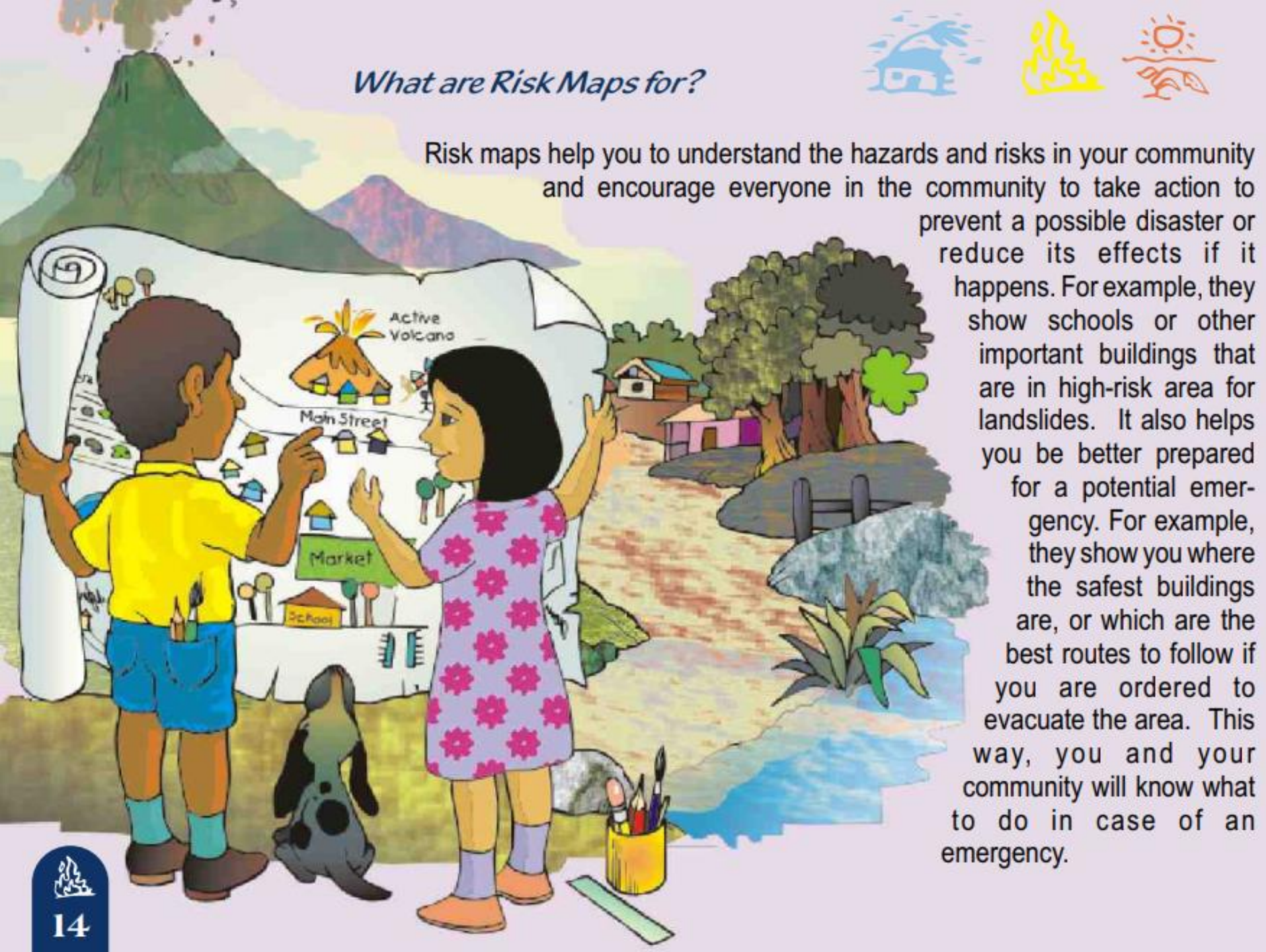
evacuate the area. This

way, you and your

community will know

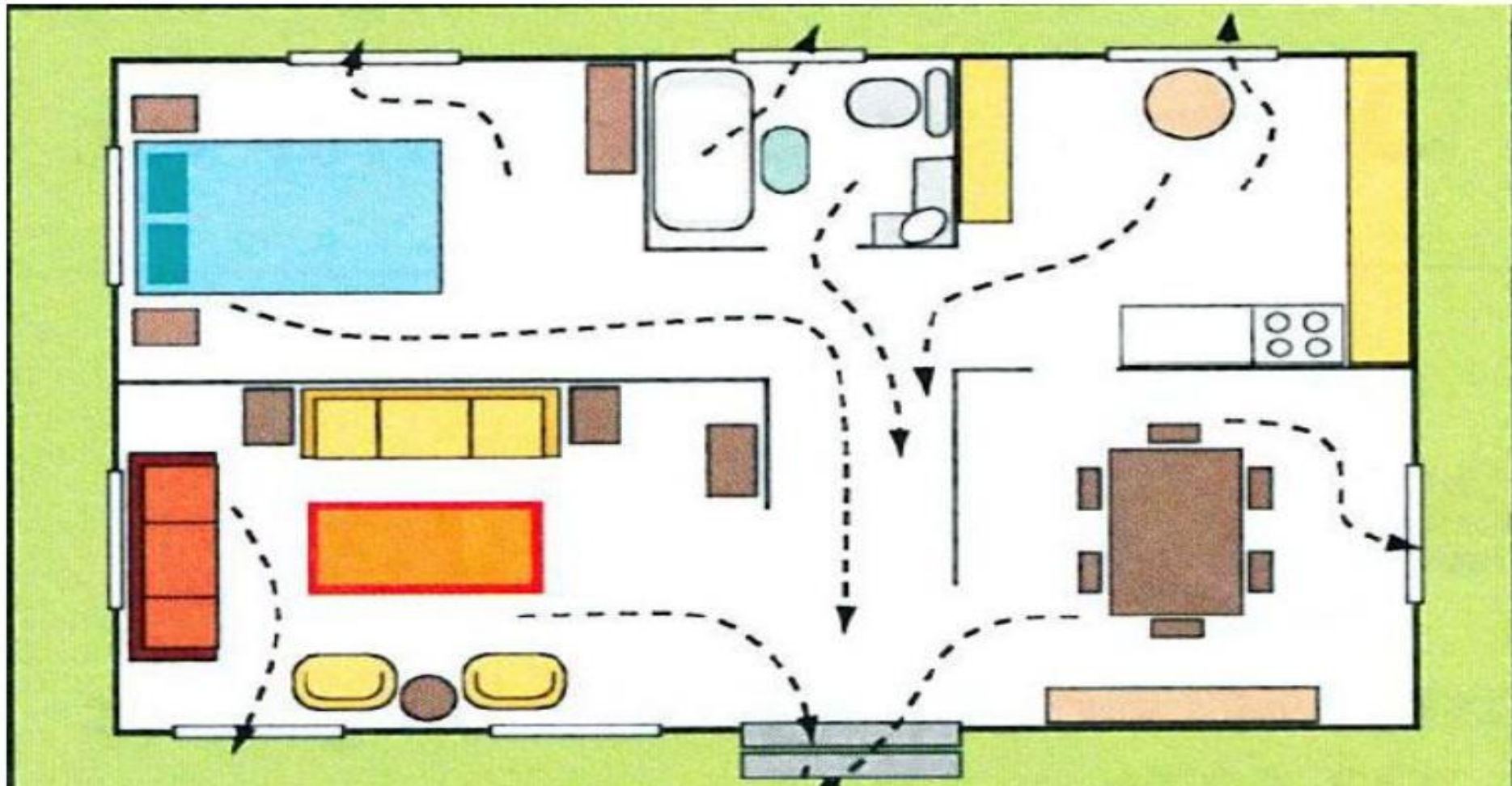
what to do in case of an

emergency.



رسم نقشه خطر بلایا

رسم نقشه خطر بلایا، در واقع یک روش آموزشی برای درگیر کردن اعضای خانواده در برنامه‌ریزی برای مقابله با خطر بلایاست. این روش در بسیاری از کشورها از جمله ژاپن، برای جلب مشارکت اعضای خانواده در برنامه‌ریزی برای آمادگی در برابر بلایا، بسیار مؤثر بوده است. سعی کنید رسم نقشه خطر بلایا را به یک موضوع سرگرم‌کننده و در عین حال جدی برای خانواده تبدیل کنید. در حین رسم این نقشه، در واقع خانواده از مخاطرات تهدید کننده و نحوه محافظت از خودش در برابر آنها بیشتر آگاه می‌شود.



برای رسم نقشه خطر به نحو زیر عمل کنید:

۱- اول مخاطره مورد نظر را انتخاب کنید.

در این مثال ما زلزله و سیل را انتخاب کرده‌ایم.

۲- نقشه خطر را رسم کنید.

الف- در مورد زلزله به ترتیب زیر عمل کنید:

فرض کنید سقف خانه خود را برداشته‌اید و از بالا به خانه نگاه می‌کنید. با خطوط ساده:

۱- دیوار دور خانه را مشخص کنید. (قسمت مسکونی، حیاط)

۲- درب ورودی را مشخص کنید.

۳- دیوارهای اتاق‌ها، هال و پذیرایی، آشپزخانه، سرویس بهداشتی، حمام و سایر نقاط خانه را مشخص کنید.

۴- جای اجسام بزرگ (مانند یخچال، فریزر، قفسه‌ها و) و اجزایی که در اثر زلزله ممکن است سقوط کنند را مشخص

کنید.

۵- نقاط پرخطر را با علامت ضربدر قرمز رنگ (×) مشخص کنید.

این نقاط عبارتند از هر شی سنگین یا برنده‌ای که امکان جابجایی، افتادن و پرت شدن دارد مانند شیشه، بوفه، لوازم دکوری

و.....

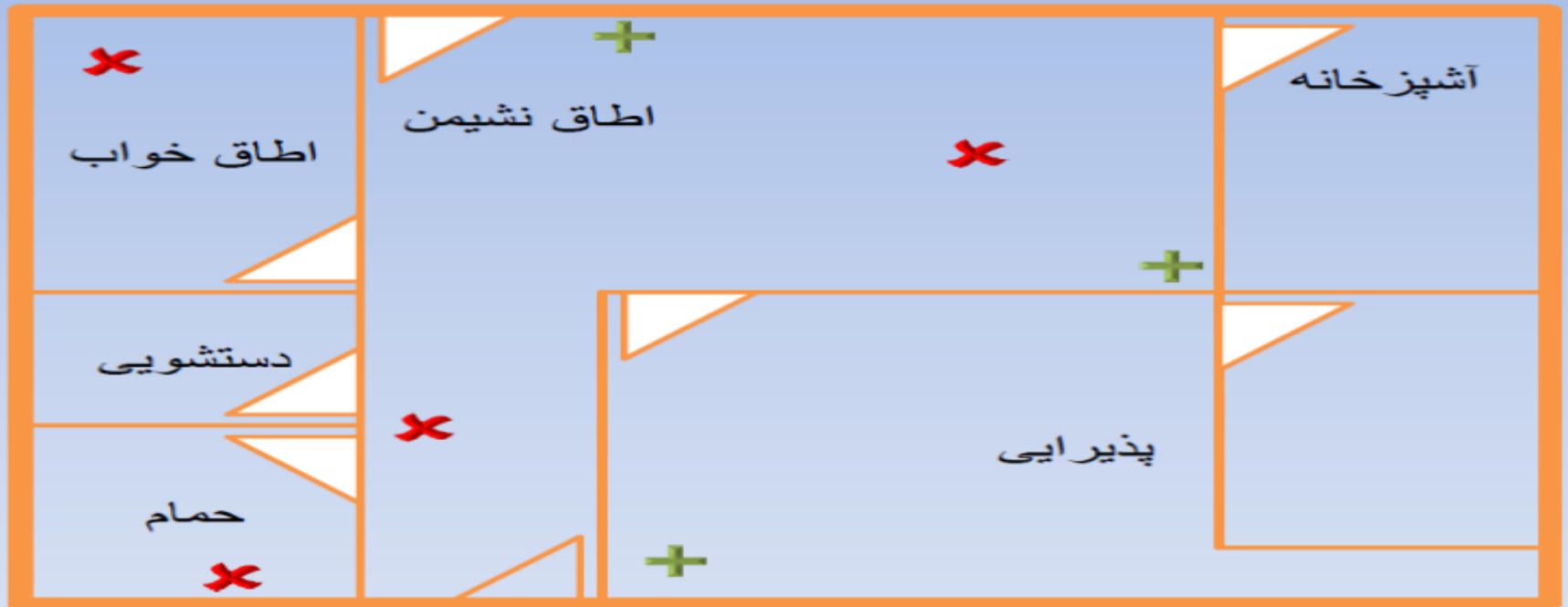
۶- نقاط امن برای پناه گرفتن را با علامت بعلاوه سبز رنگ (+) مشخص کنید.

مانند زیر میز محکم، سه گوش دیوار، کنار ستون و...

توجه : شما باید نقاط خطر را با کارهایی که انجام می‌دهید (خطر غیر سازه‌ای) برطرف کنید.

هر نقطه خطری که تبدیل به نقطه امن شد، روی ضربدر آن علامت بعلاوه سبز رنگ (+) بکشید. در این حالت یک علامت ستاره خواهید داشت.

نقشه خطر



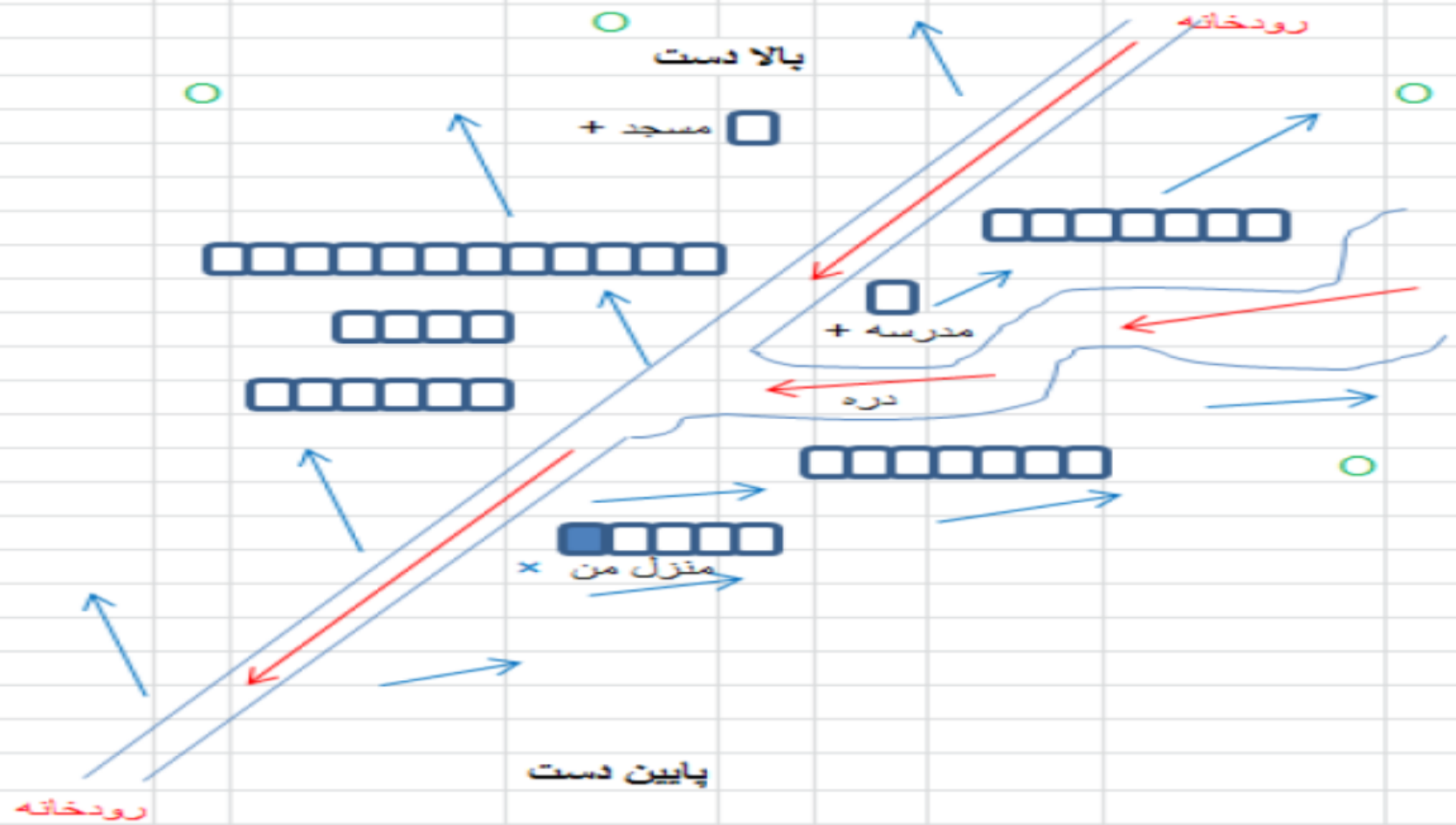
نقاط خطرناک **x**
نقاط امن **+**

نقشه را با مشارکت اعضای خانواده بخصوص کودکان ترسیم کنید.
نقشه را روی درب یخچال نصب کنید تا همه همیشه آن را ببینند.

ب- در مورد سیل به ترتیب زیر عمل کنید:

- ۱- محدوده منطقه یا محله زندگی خود را با خطوط ساده مشخص کنید.
- ۲- نقاط مهم منطقه یا محله زندگی تان (مانند مسجد، مدرسه، بزرگراه، پل و ...) را با بعلاوه مشکی (+) مشخص کنید.
خانه خودتان را با ضربدر آبی (X) مشخص کنید.
- ۳- مسیر سیل احتمالی را با فلش قرمز رنگ نشان (←) دهید.
- ۴- نقاط امن را با دایره سبز رنگ (O) نشان دهید.
- ۵- مسیر فرار از خطر سیل را با فلش آبی رنگ (←) نشان دهید.

نقشه خطر سیل منطقه / محله من



اماکن مهم محله با علاوه مشکلی (+)

خانه خودتان یا ضریدر آبی (x)

مناطق امن با دایره سبز (O)

مسیر سیل با فلش قرمز (←)

مسیر فرار با فلش آبی (→)

Thanks For Your Attention

