How to Prepare Your Team for an Emergency

A Preseason Planning Exercise in Four Parts

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ABSTRACT

Any field team, regardless of the professionalism of the leadership, will eventually experience a critical event. Some events will result in a subtle degradation of the team's work; others will cause emergent threats to the safety of the team. A team's sustained performance during a field season depends partly on such chance events and partly with the team's ability to plan for and respond to the dynamic environment of the field. The duty of a field leader is to conduct clear-eyed conversations and ensure that solid preparations are laid for both the group as a whole and the individual team members. Some of these plans need to be manifested by material preparations, some of which require months of forethought. This article walks readers through a two-hour exercise, giving them frameworks from business continuity and military field doctrines to understand risk. Readers will conduct a SWOT analysis, define emergencies within their organizations, and then apply risk management practices of qualitative risk assessment and all-hazards planning to develop planning priorities. By the end, readers will have built specific action plans for improving field season readiness.

Keywords: emergency preparedness, SWOT, medical training, risk management, fieldwork, graduate training, safety

Cualquier equipo de campo, independientemente del profesionalismo de su liderazgo, eventualmente experimentará un evento crítico. Algunos de estos eventos resultarán en la degradación del trabajo del equipo; otros provocarán nuevas amenazas para su seguridad. El desempeño sostenido de un equipo durante la temporada de campo, depende por un lado de tales eventos fortuitos y en parte, de la capacidad del equipo para planificar y responder al entorno dinámico del campo. El deber de un líder de campo es mantener conversaciones claras y asegurarse de que se lleve a cabo una preparación sólida, tanto para el grupo en su conjunto, como para cada miembro del equipo. Algunos de estos planes requieren de la preparación de materiales y meses de planificación. Este artículo guía a los lectores a través de un ejercicio de dos horas, brindándoles un marco estructural sobre doctrinas de continuidad de negocios y el ámbito militar para entender riesgos. Los lectores realizarán un análisis FODA y definirán emergencias dentro de sus organizaciones, para luego aplicar prácticas de gestión de riesgos en la evaluación de riesgos cualitativos y el planeamiento de todo peligro, a fin de establecer prioridades en la planificación. Al final, los lectores habrán elaborado planes de acción específicos para mejorar la preparación de la temporada de campo.

Palabras clave: emergencia, evento crítico, FODA, planificación, gestión de riesgos, temporada de campo, riesgos

Congratulations on pondering your field research team's readiness to deal with an emergency in the field! This article is intended to guide readers and some teammates into and out of the abyss using a two-hour exercise whose end results are a solid, shared understanding of risks in the field, steps to mitigate those risks, and ways to build plans for responding to critical events in the field. The team's actual preparations will take more time, but with a shared mental model of risk and its management, we hope that you can work together more efficiently to secure a safer, more comfortable, and more productive field season.

INSTRUCTIONS

This exercise is intended to be done in a single session with an assembly of key members of the field team—the more the better, with a group of up to about 12 people. Part 1 develops a strategic overview of the vulnerabilities and assets for the group. Part 2 contrasts hazards from risk, suggests key conversations, and guides a qualitative risk analysis. Part 3 builds on the qualitative risk analysis by regrouping its elements into an all-hazards framework. Part 4 provides guidance on how to pick topics worth building plans for, and then it recommends the initial steps in building actionable plans to manage risks in the field. The Supplemental Materials section contains worksheets to facilitate working through all four parts as a group, thereby forming a tangible product with action items in-hand. Printing the Supplemental Materials is recommended because there is some light drawing involved.

PART 1: SWOT ANALYSIS OF YOUR ORGANIZATION (20 MINUTES)

For this part, please accept the idea that the field team is a small organization that exists to build a product. The nature of that

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product will vary depending on the project, from indexed recording of songs to radioisotope analysis of teeth—or in some cases, fully divesting objects by returning them to a point of origin. Regardless of what that finished product is, the organization you form to pursue it may benefit from a common understanding about its own critical functions, its assets, and any of its vulnerabilities that may hinder progress. To begin analyzing the overall situation of your group and thinking strategically about pursuing your product, we will employ a model from the business continuity literature: the SWOT analysis.

SWOT is an acronym referring to its constituent parts: strengths, weaknesses, opportunities, and threats. They are visualized in a two-by-two grid, with columns for "Internal" and "External," and rows for "Positives" and "Negatives" (Figure 2). It is best to do this largely visual exercise on a whiteboard. It begins with an empty four-cell grid, which should be populated with roughly a dozen bullet points within each of the four fields.

"Strengths" are areas of your operation that are within your control—resources you can deploy at will to fix problems or advance your goals. These can be physical goods such as money or equipment, or intangibles such as language skills or a strong relationship with a fixer. "Weaknesses" are elements that are also under your control—some tangible some not—but ones you wish were more abundant in your organization. The "External" column will contain elements that your organization cannot directly affect through decisions or effort. "Opportunities" may immediately call to mind funding streams, but remember to consider larger macro-trends in the research community, partnerships within the host community, or service projects that may have delayed rewards. "Threats" are those elements outside of your control that may hinder your work or threaten the team. Simple micro examples include wildlife and petty theft, while macro-level considerations may include weather patterns, pandemics, and civil unrest.

One key to a good SWOT analysis is to include diversity of perspectives (including high-, mid-, and low-level team members), outside observers, leaders of other projects, and senior researchers who have experience watching a variety of teams succeed and struggle for various reasons. In a bind, focus on including an outside senior researcher with a proclivity for brutal honesty. This is the part when notes from a prior emergency incident debriefing would be very helpful. Commit to taking actionable notes in the future with specific aspects that went well and others that need work.

PART 2: QUALITATIVE RISK ANALYSIS (20 MINUTES)

In the second phase of this exercise, the team will continue with brutal honesty while adding pessimistic imagination to unleash the full, hope-crushing power of negative thinking. This part is all about identifying and assessing problems that could derail the field team's work. To perform this assessment, we will use a framework that focuses on hazards, probabilities, and consequences in order to form a composite view of risk.

Each problem-causing noun or verb you can think of will be considered a hazard. These include asteroids, theft of a passport, a teammate's seizure disorder, or losing the truck key. Each hazard has an estimable probability of occurrence. You might predict a great likelihood of a windstorm, a moderate likelihood of a severe rain event, a low likelihood of an earthquake, and a near-zero likelihood of an asteroid strike. Another way to think of probability is the frequency of occurrence—one person per day has diarrhea; one person per season gets dengue; once every five years there is a car crash.

Each hazard has a consequence that causes you worry. Examples of consequences include having to stop work, having to treat a broken arm in an excavation plot, or having to replace an instrument. Each consequence can be thought of on an analog scale of severity, ranging from low to high in gravity of impact. For every hazard, the associated risk is a function of both the severity of consequence and the probability of occurrence, expressed conceptually in the following equation:

$$Risk = Probability \times Consequence$$

Start brainstorming a list of known hazards, large and small, and place them alongside letters *A* through *Z* (although you do not need to list all 26). Keep filling that list with plausible worst-case scenarios. Then, add bad stories from projects with similar characteristics (e.g., group size, budget, geography, time of year). If you plan to use boutique equipment in the field for data collection, ask the technical experts about the ruggedness and durability and replaceability of those instruments and their parts. Talk to your peers, competitors, and prior teammates of your teammates who might know if someone tends to sneak harmless contraband through customs. You will think of more hazards as you progress through the exercise.

Now, for each hazard, you will perform a qualitative risk assessment by briefly considering its probability of occurring and the severity of its impact. Using a Cartesian coordinate system with probability on the *x*-axis and consequence on the *y*-axis, plot these hazards with a qualitative estimation of where they should go (Figure 1). Use fractions or percentages if they help you conceptualize impact or natural probabilities, with 1 corresponding to 100% likelihood and catastrophic to the objective. Each point's distance from the bottom left origin correlates with risk, so those at the upper-right corner of the figure will get more attention in the upcoming sections.

At the end of Part 2, your team should be buried beneath a heap of its own worst fears and enemies. You should feel that all hope is lost. If your plot has nothing in the high-risk zone, recalibrate your estimations, broaden your brainstorm, or consider repeating this step with even greater focus on negativity. If you are truly stuck, ask your loved ones what they worry about most—they will give you plenty to work with.

PART 3: ALL-HAZARDS PLANNING (20 MINUTES)

This step will reorganize the hazards identified in the previous step into a more manageable framework that is easier to use when making plans and preparations. The approach we will use to tame the avalanche is called "all-hazards planning." In this paradigm, we step back and realize that there are endless individual hazards that can serve as causes for similar net effects. For example, the various hazards of

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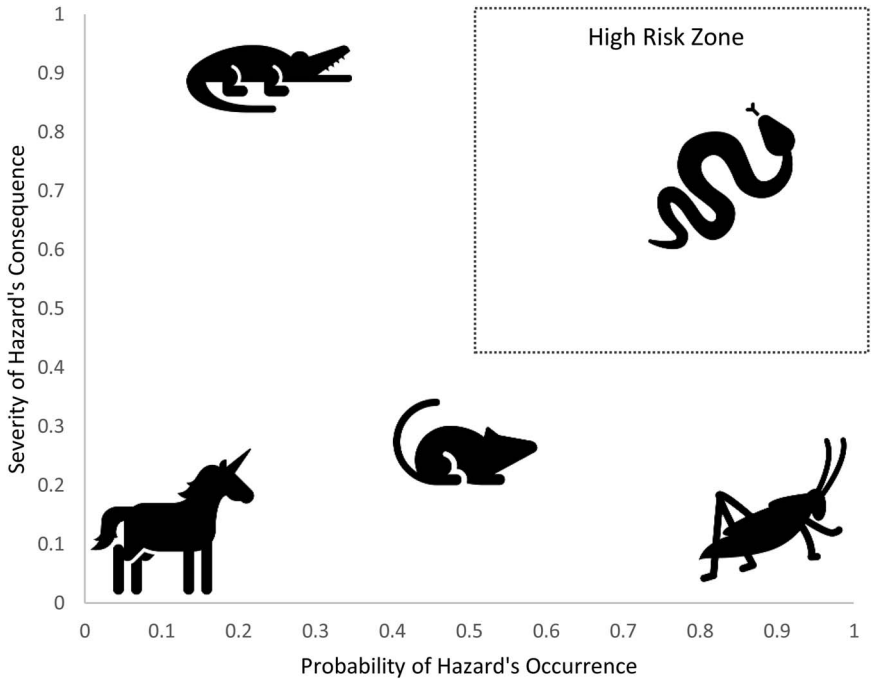

FIGURE 1. Qualitative risk assessment of which animals may be found in one's boot, shown with optional numerical guides on the axes.

	Internal; you control it	External; outside your direct control
Positive	**Strengths** *Sources of power or leverage; assets*	**Opportunities** *Investment or development targets*
Negative	**Weaknesses** *Things to fix up; problem areas*	**Threats** *Things to monitor or protect against*

FIGURE 2. SWOT analysis schematic.

TABLE 1. Potential Quick Fixes.

General packing lists
Individualized packing lists
Pretravel reminders via collaboration software
Duplicates of keys
Duplicates of letters, insurance information
Distributed packing of food, batteries
Telephone contact rosters (wallet-size)
Laminated maps
Universal chargers
A group medical kit with emergency medicines
A bug-out bag in the vehicle
Spare gasoline

malaria, a broken leg, medicines getting lost in the river, or a snake bite may share one solution: getting to the hospital. Consequently, the plans for responding to each of those hazards may be essentially identical. In fact, only one sturdy plan needs to be in place. The notion that it is important to plan and prepare for effects rather than individual causes is the basis for all-hazards planning.

Some readers may recognize this type of conversation from daily "tailgate meetings," during which job-site team members forecast and discuss how to control the day's most active hazards. Effects may be deliberately broad, such as "lost day of work without material losses" or "need to give our local fixer, Andy, $200 and the truck for overnight." They may also be very specific events, such as "need to execute a medical evacuation by helicopter" or "need to execute steps for an overdue/missing person." Building a few processes may wind up catching many of your hazards, depending on what will be necessary to respond to them in a time of need.

Now, revisit the list of hazards and ask out loud, "What does this really *do*?" "What is this hazard's effect that requires corrective action?" Remember to be honest about what an event means in the context of your team's desired end product. A rainstorm in one setting may have no effect; in another, it could be catastrophic. As you identify an effect, assign it a Roman numeral (I–X). Group the hazards under different effects until all are sorted into categories. There should be no more effects than hazards. If you wind up with more effects than hazards, phone a friend who is a "lumper," not a "splitter," and have that person help with putting like hazards together. Cast the Roman numerals onto another qualitative risk plot, and consider how disruptive each of these effects will be to your organization's goals.

This is the halfway point. The team should drink some water and eat some snacks.

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PART 4: SETTING SCOPE AND TASKS (60 MINUTES)

Your team will not have the luxury of planning for every item on your risk plots, so now you need to choose which ones are worthy of your limited attention and resources. The best targets for your attention are either in the high-risk zones of your risk plots, or they are in lower-risk levels that have a critical feature: a single point of failure. Revisit the risk plots and highlight those lower-risk hazards or effects that have a quick fix. Some examples of quick fixes are given in Table 1. Highlight the issues that are significant, probable hazards or effects that should command the bulk of your work. For those topics you find worthy of your planning attention, we will apply two phases of risk management: mitigation and response.

Risk mitigation lowers either the likelihood of an event or the severity of its consequences by applying controls, of which there are five types as defined by the U.S. National Institute for Occupational Safety and Health: elimination, substitution, engineering controls, administrative controls, and personal protective equipment. To illustrate these controls, we will consider the example of keeping a mascot animal in the field camp. The strongest control is elimination—never adopting the animal. Next is substitution—if you cannot resist adopting a mascot, choose a hedgehog over a jackal. In the middle lies engineering controls, which physically separate people from the hazard—if you fail in fashioning the hedgehog a tiny muzzle or a cage, it will instead live freely in your sleeping bag. Weaker still are administrative controls—rules or policies that would discourage the adoption of mascots, or a "No Pets Allowed" placard. In last place among controls is personal protective equipment—wearing leather gauntlets when you feed the secret pet hedgehog who free-range co-sleeps with you. This is a clear example of failure to apply any top-tier controls—a regrettable state of affairs that took place in one of my very own field camps.

Many of the elimination controls are applied at a strategic phase long before the season begins. They occur in project design, and they have an ultimate go/no-go decision point. Most of the team's efforts in the field should be focused on good substitution and engineering controls. Use the strongest level of control that is practical, choose it as early as possible, and plan accordingly. For example, if you want people to clean their hands before eating, you could either hang a sign that tells them to go wash their hands at the shower area 100 m away, engineer a handwashing station near the food serving area, or provide hand sanitizer at the tables. The best controls may cost forethought and effort to design, but they are valuable and often can be replicated.

Once your controls have been breached and a hazard is generating an impact on your organization, then you will experience the benefits of your preparations. The etymology of the word "prepare" is the Latin *pre* ("before") and *paro* ("to make ready"). Imagine yourself—or better yet, a random teammate—starting to respond to a hazard in the field, and think of what the ideal starting point looks like, both in terms of physical items and decisions. Prepared physical items may be an epinephrine autoinjector, a vehicle, or a cell phone, but each is useless if the responder is not able to recognize anaphylaxis, cannot drive a stick shift, or does not know the number to call for help. The plan needs to account for different users. Consequently, apply training or flexibility to eliminate single points of failure that may accompany your physical items. Decisions made in advance can bring clarity to a time of stress. For example, deciding ahead of time and giving all teammates the authority to trigger the protocol for a missing or overdue person will allow decisive action to begin even if the leadership is otherwise engaged.

TABLE 2. Primer Topics for a Two-Hour Emergency Response Plan.

Administration: What individual demographic information, money, identification, government documents may be needed to start?
Information: What maps, weather reports, language skills may be needed?
Operations: What are the key actions that need to be done to protect the physical safety of your people? The integrity of your work?
Logistics: What food, fuel, medicine, lodging, and mobility assets will be utilized? Which assets need to be specifically excluded from use?
Communications: How will everyone share information in this scenario? How often? With any filters? Who outside the group needs to know about this, and when?

As a hazard is impacting your organization, it will inject stress into each individual and through the web of relationships linking everyone who is responding to that event. The hazard is demanding action, yet the stress response encumbers the very action that is needed. Acute stress responses include many elements, but the one we will use when designing response plans is called "cortical inhibition." Of adrenaline's many effects on your brain, cortical inhibition is among the most dependable and the most inconvenient. It reduces your access to higher brain functioning, thereby reducing the ability to weigh complex options, recall details, and even perform simple arithmetic. Consequently, think of emergency plans as a "paper" brain that you will depend on when your physical brain has been scrambled by stress. We depend on rote recall of simple plans every day in the emergency department to care for our most critically ill patients—with a high level of reproducibility and with zero shame. Be a buddy to your stressed-out future self by building a plan that focuses on critical actions in the first two hours after a hazard presents itself. After a couple of hours of checking off boxes and executing key actions, the situation may be improving, help may be on the way, and your emotionally frazzled brain may be returning to its usual intellectually robust, problem-solving, future-oriented state. Keep it simple, and cover your riskiest time for mistakes.

For each plan you make, emphasize transparency, brevity, and redundancy. Anyone on the team should know that a plan exists, where to find it, and how to execute it. Simplicity means keeping complex decision making to a minimum, with a focus instead on core tasks that will definitely need to be done. A highly redundant plan has multiple ways of doing any necessary step, with steps occurring independently of one another. This avoids single points from causing failure or delay. Components of the plan itself can be conceptually broken down into functional areas, as shown in Table 2.

Using these ideas as a guide, select the hazards or effects that look like appropriate subjects for your planning attention. Use the worksheet in

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the Supplemental Materials to build a list of actions to be completed today, one month from today, and one week prior to departure. This will allow you to break the ice with some early progress, rethink things after a break, then have everything in place a few days before the scramble for departure. Bring at least one hard copy of your plans, and ensure that all team members know their roles.

CONCLUSION

We have reached the end. Two hours should have passed. This is the same length of time you should count on being a poor decision maker after a critical event starts unfolding in your field season. Plenty of good or bad things can happen in this amount of time, so prepare your team to feel proud of what was accomplished in the most important two hours of its field season, whenever that may come. Your best efforts will generate this year's results, which will yield new lessons, which will inform next year's efforts.

Supplementary Material

For supplemental material accompanying this article, visit https://doi.org/10.1017/aap.2020.36.

Supplemental Text 1. Worksheets to complete the exercise.

Acknowledgments

No planning process fits every organization, and no plan is perfect. My approach is largely a product of the years I spent preparing for and conducting operations in Afghanistan alongside Colonel Farrell Sullivan and Lieutenant Colonel Philip Laing of the U.S. Marine Corps and Senior Chief Petty Officer James Seay of the U.S. Navy. No permits were required for this work.

Data Availability Statement

No original data were presented in this article.

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