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Introduction: The nature of crisis

There is no shortage of raw material for writing about modern crises: a war in Europe, an energy crisis, a continuing global coronavirus pandemic, floods, drought and famine and other environmental disasters caused by climate change, terrorist atrocities, massive cyberattacks, and international disputes and conflict. All of these have consequences close to home – not least the deaths and injury of loved ones, and rapidly rising inflation with energy costs plunging families into a cost-of-living meltdown and poverty. Sadly, for many families, the impact of global crises is profoundly personal.

For the individual, and even for individual nations, most such disruptive events cannot be avoided. As the final chapter of this book warns, we must expect a greater potential for disaster in the future as our societies become more fragile. At the same time, we face increasing threats – security challenges that have human agency behind them – as well as all the hazards arising from the impersonal forces of nature and the risk of large-scale accidents that the increased complexity of society brings. But the worst effects can – with care and preparation – be mitigated.

I wrote this book after a career in British public service, holding leadership positions in defence, security and intelligence that brought me into intimate contact with crisis and with the political management of risk. That has involved good experiences – and bad ones. I have great respect for the ministers I served as they managed the crises of their day, sometimes in the most difficult of circumstances, struggling not to let the pace of events – and the inevitable passions that crises give rise to – overwhelm them. I pay a warm tribute in this book to my former colleagues who did so much over the years to support the government of the day, both wrestling with crisis as well as working largely unseen (and unsung)

to improve the nation's capacity to prevent future crises, and to ensure the continuity of that precious thing: normal life.

'Crisis' is an overworked word, especially for journalists and commentators and subeditors compiling front-page headlines. In this Introduction I explain what I see as the essence of crisis, and what it is that distinguishes crises from emergencies and other disruptive challenges. In subsequent chapters in Part 1 I use real crises, including episodes from my own experience, to demonstrate a key finding: not all serious emergencies need become crises – provided we prepare well in advance to make ourselves more resilient and able to manage shocks when they arise. It is a characteristic of the times we are living in that a crisis doesn't wait for the last one to end – or conclude before the next one erupts. It is essential we all try to be as well prepared as we can be for this turbulent future.

The second part of the book takes us through the *typical arc of crisis*, from detecting the first signs of trouble, through the initial stages of confusion with a frantic search for evidence of what is going wrong and why, then clarification and commitment to action in order to protect lives and property, followed (hopefully) by consolidation and clearing up. What then results will be a new normal. I follow the arc of a number of crises to identify important lessons we can draw from different types and causes of crisis – from international conflict and terrorism to nuclear accidents and cyberattacks – to emphasize my message that greater resilience matters enormously in preventing emergencies becoming crises and crises turning into disasters. Each chapter in the book ends with practical takeaways – ideas we can all apply and things we can do to help our households, businesses and even government itself be more resilient and better prepared.

I have always felt that there is a broad distinction to be drawn between the crises caused by sudden major shocks that come with little or no warning, and the slow-burn problems (in government and business – but also in the family, for crisis is not just something experienced by formal organizations) that can fester for years before they burst upon us as full-blown crises. The former have to

be tackled with what we have to hand at the time. The UK, like its allies and partners, has invested in procedures and capabilities for dealing with 'no-notice events'. An enduring lesson from my time in government is the need to keep the people and processes tuned up through training and exercises. Despite having the basis for a world-class system for managing emergencies, both people and capabilities can find themselves decidedly off the pace when the call comes.

But it is the slow-burn crises that can pose the greatest problems. Precisely *because* they have been overlooked, ignored or simply not been understood as posing a major risk – giving time for the situation to progressively worsen. And by the time the crisis eventually breaks, the problems may be so deep-rooted as to be near insoluble.

We all know what it feels like to be in crisis – when events keep hitting us with a speed and intensity that normal responses cannot hope to placate. It is like being in a car which is out of control in bad weather and not responding to the brakes. We can all too easily imagine the personal regret we would feel after a serious accident, that we had not taken greater care to have the vehicle regularly serviced or to have the brakes and steering checked. Especially if we'd had a suspicion that there was something wrong with the vehicle but had put off dealing with it, perhaps to postpone the garage bill. So it is with governments and businesses – and sometimes families.

In this book we will also see that the objectives to be secured during the later management of a major crisis have to rest on a deeper analysis than those appropriate to the first stages of immediate response. Making sense of what is thought to be happening as the situation unfolds is a highly challenging task. Leaders need to interpret what are often complex, dynamic and ambiguous situations, and communicate what is to be done – and why – to all stakeholders.[1] An outstanding example of such 'sense-giving' leadership' in crisis is that of President Zelenskiy following the 2022 Russian invasion of Ukraine. With that sense of direction,

individuals and organizations can make their own decisions towards a common purpose in developing responses and ascertaining their impact (mostly for the better, but sometimes with unforeseen consequences for the worse). I use real-life examples to learn important lessons from past emergencies: how to manage the initial impact, control the extent of effects spreading into other areas, and shorten the period of disruption.

I have seen the damage that failure to manage effectively can do to the individuals in charge of organizations caught in a crisis. Reputations are fragile things, and I include in the second part of this book a chapter on how easily they can be lost in crisis. The book concludes with an appeal for building up resilience so that we are better prepared to face the consequences of global conflicts, economic and climate stresses, pandemics and health emergencies, and the other disruptions we must expect in the coming years. Some of these potential crises are already in plain view. If we do not act collectively now to prepare, we may find ourselves in a terminal crisis with no easy exit.

I have written this book to make a difference. Whether we like it or not, we will all have to face further emergencies and disruptive challenges in years to come – and help others less fortunate to do so. There will be opportunities too, but we can only grasp these if we are ready to seize them. What follows in these pages is a lifetime's worth of lessons and strategies to help you survive.

There are three conclusions I would like readers to take away from this book.

First, that with thoughtful preparation and careful management, most sudden emergencies need not result in crisis, and where crisis conditions are experienced they need not lead to disaster.

Second, that it is really important to look carefully for slow-burn problems in your lives and act early to pre-empt them before they burst as full-blown crises. Most problems that have been allowed to fester eventually come to a head, creating crisis – but by then it may be too late to prevent a slide into disaster.

Finally, the overall message of the book: if we are to survive the crises to come, and be in a position to seize the opportunities the future has to offer, we need a national effort to create a resilient nation. Let us harness all our inventiveness and community spirit to that end.

Lessons in preparation

'A rededication to preparedness is perhaps the best way to honor the memories of those we lost that day.'

Report of the US 9/11 Commission[1]

1. Understanding the arc of crisis

It was early in the morning on 16 January 2013, and Kristi Wysocki was asleep in her home on a horse ranch outside the little town of Elbert, Colorado.[2] At 1 a.m. she was jolted awake by a ping on her phone, alerting her to the arrival of a disturbing text message from her husband, Steve: 'I love you. Bad problems. Will call later.'

Immediately she texted back: 'What does this mean?'

Seconds later she received the reply. 'Terror attack. OK now. Will try to call later.'

This was the first indication to anyone outside that the huge In Amenas natural gas plant in Algeria – a joint venture by BP, the Norwegian state oil company Statoil and the Algerian oil company Sonatrach – had been overrun by a large band of heavily armed jihadi terrorists coming from neighbouring Libya. They had executed some workers and taken as hostages over 700 employees. Steve, along with Christoph Zinner – another mining engineer working at the plant – had managed to hide. But fearing discovery at any moment, Steve managed to fire off those texts. Kristi recalls: 'There was probably about 10 seconds of me thinking my world was ending, but then I decided it was not going to help him if I panicked.'

With great presence of mind, she immediately started making phone calls, alerting BP in London and the US State Department. Like Steve, Kristi was a graduate of the Colorado School of Mines. She knew that the oil and gas business could involve working in dangerous parts of the world. That meant she was mentally prepared for surprises. She later told the university that in all the years since she graduated, she had never put her problem-solving skills to the test more than she did during the four days the In Amenas crisis lasted. She warned the FBI, which made sure that the cell

phone networks didn't cut Steve and his colleagues off. All her management training had taught her how to focus on the problem at hand, but she never thought that her task would be to try to keep her husband alive on the other side of the world.

Other staff in different parts of the large In Amenas plant had also flashed urgent messages to their families and to the Statoil headquarters in Stavanger. Steve Frazier was travelling on a bus leaving the facility when it came under attack by the terrorists. Crouching on the floor, he texted his wife: 'Call US Embassy. Bus under attack'. As reports of the attack arrived, the companies struggled at first to keep up with fast-moving developments on the ground. Then they worked together to assess the risks to the hostages and to those hiding in the complex, and considered how the situation might be resolved. An important step was to ensure that the families of those caught up in the attack were sheltered from the demands of a global media hungry for interviews, and to avoid inadvertent disclosures that might prejudice any rescue mission.

The terrorist group had issued a series of demands, including an end to French military operations against militant groups in northern Mali. Hostages would only be freed if these demands were met. The Algerian government abruptly announced it would not negotiate with the hostage-takers and would not respond to their demands. Instead, Algerian special forces launched – without consultation with the US, UK and Norwegian governments – their own helicopter raid. The attack came as the terrorists were transferring many of their hostages within the site; the vehicles in which they were travelling were attacked by Algerian gunships, causing multiple hostage casualties. When it was all over, 29 terrorists, 39 foreign hostages and an Algerian security guard had been killed. But 685 Algerian workers and 107 foreigners had been freed in the special forces rescue operation.

The terrorist attack on the In Amenas plant illustrates the typical arc of a 'sudden impact' crisis. It started with an unexpected and abrupt awakening to something going seriously wrong, followed

by the initial stages of confusion before true situational awareness could be established, which in turn activated the crisis management arrangements. Eventually the situation was brought under control. In this crisis the host government, Algeria, took violent action to resolve the situation – which could have ended in outright disaster.

But the arc does not end there. The final stages are liable to drag on as high-level commissions of investigation and formal inquests are set up, and civil court cases are brought by families of the victims – often alleging negligence in security arrangements. And then there is the need to complete the clean-up and repair of damaged facilities. For In Amenas that meant independent validation and assurance of the measures taken after the attack, before production could restart. As in many crises, for those involved it turned out to be a prolonged affair.

The definition of crisis adopted within the British government in writing guidance for its officials is 'an abnormal and unstable situation that threatens an organization's strategic objectives, reputation or viability'.[3] The In Amenas attack was certainly that for the companies involved, as well as for their employees and families. As we examine how crises arise out of emergencies, we shall see that more thorough preparation might have significantly improved the outcome. We saw this with the arrival of the Covid-19 virus, when not having adequate stocks available of personal protective equipment greatly increased the risk to the elderly and vulnerable. But avoiding those early problems would have depended upon better anticipation – at a much earlier stage – of the manifold emergencies that might arise. (The absence of such forethought is a regular conclusion of inquiries set up to examine the causes of crisis.)

Think of experiencing a crisis as being in an unstable situation. The situation can flip either way. Good preparation allows support to be quickly available, so that a developing crisis can soon revert to being a manageable emergency or even be avoided altogether. But a crisis can flip the other way, sliding into disaster. Some situations

cannot be pulled back, and all that can be attempted is to reduce the harm being done. The 2022 floods in Pakistan were such a catastrophe, as was the 2023 earthquake in south-eastern Turkey and northern Syria that left over 41,000 dead.

Some experienced practitioners have argued that the term 'crisis management' is misleading. I rather agree: you do not often succeed in 'managing' a real crisis; too often it manages you. Crisis survival consists in keeping your balance inching along the high wire to avoid tipping into disaster while trying to reach the solid ground of emergency management. For that reason I have for the most part avoided referring to 'crisis management' (except when citing documents that use the term), and have instead written about the art of crisis survival.

The rubber levers test

You will know when you are entering a crisis by what I call the 'rubber levers test'. The metaphorical control panel may have many warning lights flashing and alarm bells ringing, but the levers, switches and buttons do not appear to have the effect those in charge have been led to expect – or even be connected to the outside world. At that point, every lever that is pulled to try and stabilize the situation seems to be disconnected from the reality on the ground. New problems arise. The situation threatens to spiral violently out of control. Were it not usually so serious, this would conjure up a staple of slapstick silent-era cinema. As the road ahead descends steeply, with a precipice on one side and a cliff wall on the other, the steering wheel comes loose in the burly hands of Oliver Hardy, who throws it out of the car window, with the tense presence of thin Stan Laurel beside him doing the same with the handbrake.

Nations, organizations and individuals are of course bound from time to time to face demanding events. We might be forgiven for thinking, on the basis of our experience of the first decades of

the twenty-first century, that we currently face unprecedented challenges from a combination of war and conflict, disease, abuse of biotechnology, as well as climate and environmental change. It was that sense of continual crisis that led to international agreement at the Third UN World Conference on Disaster Risk Reduction – held in Sendai, Japan, in 2015.[4] Since then, international concern has deepened over the threats from war, global warming and climate change – and their potential for causing loss of life, livelihoods and health, as well as damage to the environment, society and the economy. The task now facing nations is to strengthen their ability to manage such risks by investing in increasing national resilience, and enhancing preparedness to deal with disaster. Previous civilizations too had their discontents; some, we now know, proved terminal to their survival. This generation's challenge is to build up resilience fast enough to make the coming twenty-first-century environmental shocks manageable and to avoid social collapse. At the same time, in a world of inter-state tensions and terrorism, greater resilience is needed to make nations a harder target to attack.[5]

What makes a crisis more than a big emergency is the realization that the pace and scale of events are threatening to overwhelm even planned responses, meaning that the course of normal life cannot go on any longer. For many of those affected, life will never be the same again. As we contemplate future threats and natural hazards, we do so in a changing context. At this moment in history we are so much more interdependent than we have ever been: disruptions can quickly arrive from anywhere on the globe. We see this with the greatly increased risk of zoonotic diseases that jump from animal species to humans, causing epidemics and pandemics,[6] and on the shelves emptied by supply chain disruptions. Crises may not arrive singly; we may face concurrent crises. We can also see that in such complex circumstances, the responses we adopt are more likely to have unanticipated consequences. Maintaining control has never been more difficult.

The official British doctrine distinguishes three phases for

surviving a crisis: preparation, response and recovery. Preparation is so important that I focus specifically on it in the first part of this book. But all the crises – and near misses – described in these pages illustrate different ways in which governments, companies and the rest of us can think ahead and anticipate problems to come, so that we avoid as many crises as we can and mitigate those we cannot. We can save a great deal of heartache by identifying early the crises that are smouldering below the surface – just waiting for the right conditions in order to burst into flames.

Preparation through resilience

A secure nation is one that invests in the ability to prevent major emergencies becoming crises by proactively designing resilience *into* all aspects of its society and economy. The metaphor of resilience – or 'bouncebackability' – can be applied to any organ- ization or to society itself, to characterize how well prepared it is to resist the impact of the shock, avoid sustaining lasting internal disruption and be able to resume normal life. Whether or not the dam of normality that holds back crisis is overtopped depends not just on the appearance of the challenge itself, but on how it inter- acts with the world. The better the prior investment in resilience and the preparations against the emergency, the more likely it is that full-blown crisis can be avoided.

By contrast, when an unprepared society or organization is hit with a crisis, it is liable to sustain unnecessary damage and be dis- rupted for longer. Societal resilience has a physical component: how vulnerable is the critical infrastructure supplying the essential needs of power, water, telecommunications and health services? It also has an important moral dimension: the fortitude of the public when under immense stress can matter enormously in a crisis. The inhabitants of the cities and towns of Ukraine provide a prime example of psychological resilience under constant Russian cyber- attacks and indiscriminate shelling and bombing following the 2022

invasion – even when the physical infrastructure suffered major dislocation.

What the insurance and re-insurance industry fears are concurrent crises. Not just damage in one location, for example from a targeted terrorist attack or a severe storm, or in one sector, such as the interruption of the supply of spare parts to an industry, but lots of things going wrong simultaneously. What makes insurance difficult to price is when different claims may be correlated. A crisis affecting one sector can spark others in different sectors. The resulting insurance claims will stretch the re-insurance market. Covid-19 is a health crisis and has generated large claims for bereavement, illness and injury, but it has also led to large claims under business interruption insurance policies. The cyber insurance market is especially vulnerable, given the ever-present possibility that some new type of attack will cause damage to lots of companies globally at the same time.

Lloyd's of London publishes sets of correlated risks that can be used as scenarios in order to stress-test organizations.[7] In the case of insurance against terrorist attacks, when the Provisional IRA bombing campaign in British cities was posing comparable re-insurance problems, the answer the British government came up with was Pool Re – a government re-insurance scheme that currently provides backing worth £2.5 billion to the British insurance market.[8] Something of the same may well be needed internationally for cyber insurance to cater for cases such as criminals developing a new ransomware attack that affects many global industries simultaneously.

The first response

With adequate preparation, the first response to most emergencies in normal times should follow well-rehearsed lines. When terrorists deliberately drove a van into pedestrians on London Bridge and then launched a knife attack on customers in nearby Borough Market in 2017, armed police were on the scene within eight

minutes of the first emergency call and shot dead the attackers. Paramedics and rescue services arrived to treat the injured, with ambulances standing by to take casualties to hospitals that had quickly geared up to receive them. Police cordons were set up with safe evacuation routes. A counterterrorist unit from the SAS helicoptered onto London Bridge just in case there were other terrorists at large. All these responders were trained in what they had to do, with an overriding priority of saving lives and property. Tragically, eight civilians died in these attacks, but it could have been so much worse.

The same lesson of being prepared applies to all local emergencies, whether flooding, serious fires, motorway pile-ups, or train or air crashes.[9] Local government and the voluntary and community sectors swing into action to help those affected. The emergency services in the UK are these days expected to work to a common set of principles of best practice in emergency response, and to complement each other's specialist skills.[10] British emergency management doctrine also identifies as a priority throughout the response a requirement to uphold the rule of law and the democratic process – considerations added no doubt after the experience of the police confronting crises involving serious rioting (as happened in British cities in the summer of 2011) and violent demonstrations (such as those that characterized the miners' strike of the 1980s).[11]

First responders have comprehensive manuals of practice on which their individual and collective training is based. When there are problems with the response to a specific emergency, it can be because responders were not sufficiently drilled to work effectively together according to those principles. Without the resources to allow repeated training and exercises over time, it has to be expected that the edge will dull. Newer staff, for example, may not have had the opportunity to work closely with colleagues from partner organizations. It takes sustained effort to create a genuinely integrated response from organizationally separate teams with their own distinct ethos and instincts.

A favourite saying of an experienced member of the civil

contingencies team in the Cabinet Office was that you have got to understand the rules inside out in order to know when to break them. Individuals need the confidence on the day to adapt plans and deviate from what the manual or prior training in drills may have provided. It may be for a number of reasons – good and bad – that officers choose not to follow the instructions set down. But if, when faced with a uniquely testing set of circumstances, people feel they *have* to stick rigidly to the rule book rather than adapting, things are liable to turn out badly (as they have with the Russian army fighting in Ukraine under a rigid top-down military doctrine). The independent inquiry into the 2017 Manchester Arena terrorist bombing that killed twenty-two people concluded that life-saving time was lost as fire and rescue services were held back well outside the area – something safety regulations appeared to require for first responders called to attend an incident in which there might be armed terrorists at large. The inquiry concluded that where there were successes in providing emergency medical help, these were based on a willingness by individuals to be risk-accepting rather than dogmatically risk-averse, even if that meant operating outside normal safety protocols.

Those who study disasters know that there can be positive lessons even from a painful experience of crisis: as unwanted as disasters are, they do provide unique opportunities for societies to mend their frayed and neglected social fabric, as well as reaffirming a community's collective sense of what their values are and why they matter. We can draw strength from one another while developing meaning from the issues at stake.[12]

The best results have come from having structures such as the Civil Contingencies Secretariat (CCS) in the Cabinet Office, which has worked over many years with the wide range of organizations involved in the shared endeavour of avoiding or minimizing harm and disruption, and has distilled best practice when responding to crisis. Running exercises then tests out both the doctrine and the readiness of the contributing organizations. Chapter 3 looks in some detail at the example of the 2012 London Olympics.

There will inevitably be tragic times when events are so severe –
and when unexpected effects succeed each other so quickly – that
simply surviving dominates our thoughts. But we also need to
carve out the capacity to learn from a crisis as it unfolds. In many
cases the resumption of normality should be to a new, more resili-
ent normal which takes lessons from the crisis itself.

Response and recovery

The response phase of a crisis not only involves dealing with the
immediate situation but also the 'consequence management' of
the effects of the emergency, such as shortages following supply
chain interruptions. With proper preparation, the response and
recovery phases of some emergencies will be straightforward and
swift. But the response itself may in turn cause its own problems
that create a difficult recovery phase. We have lived through this
with the Covid-19 pandemic. What started as a severe risk to
public health became a strategic threat to the economic life of the
country, as lockdowns and circuit breakers were used to slow the
spread of the disease and prevent destructive pressure on NHS
emergency capacity by dramatically reducing human inter-
actions. But there was a substantial social and economic cost that
became a major part of the management of the crisis itself (for
example, having to devise elaborate financial compensation
schemes for the most affected businesses, which were forced to
close). The middle phase of crisis survival can often be a lot
harder than managing the initial dislocation at the start of the arc
of crisis.

Being in charge

Someone has to be in charge when an emergency arises – and that
someone has to have been told in advance that they will have that

responsibility and will be held to account for how well the system copes. They will be expected to make hard choices in highly uncertain conditions. Clear governance should ensure that the leader will then make arrangements for emergency management, including nominating deputies with the authority to act when necessary. It can be salutary for the boss, especially if relatively new, to ask innocently, 'When was the last time we really reviewed together our state of resilience and our emergency plans with all those who would need to be involved on the day?' That will often provide the spur to run an exercise.

For several years I was chair of the audit and risk committee of the Board of Trustees of the Natural History Museum in London. Hosting 5 million visitors in a normal year and safeguarding a priceless scientific collection of 80 million specimens involves very careful attention to ensure that all the preparations for dealing with a range of disruptive situations are in place. The crucial point here is that establishing such assurances about the resilience and health of an organization is best based on agreed metrics rather than simply managerial assertions. The person in charge can then see how prepared the organization actually is or (as the NHM regularly did) arrange for peer review by experts from comparable organizations. Those in business will be used to receiving such assurances from auditors about the financial and accounting systems on which they depend. The best businesses will have systems for providing similar reassurance about health and safety performance. But few have systems to assess and validate the overall resilience of the company (including of its digital systems) and its ability to deal with disruption to supply chains.

Lord Cullen put his finger on the issue of managerial responsibility to manage risk in his path-breaking 1990 inquiry report into the Piper Alpha oil platform disaster in which 167 people died. He concluded that, in the face of a known problem, the oil company management 'did not become personally involved in probing the extent of the problem and what should be done to resolve it as soon as possible. They adopted a superficial attitude

to the assessment of the risk of major hazard. They failed to ensure that emergency training was being provided as they intended. The platform personnel and management were not prepared for a major emergency as they should have been. The safety policies and procedures were in place: the practice was deficient . . . there should be assurance that each operator's safety management system is in fact adhered to.'[13]

The overall lesson from this tragedy is clear. It is up to the person in charge to make sure that risks have been anticipated and preparations made for emergency management should the worst happen – including establishing that all concerned know what they would have to do in an emergency.

An equally telling example comes from the inquiry into the cause of the onboard fire that brought down an RAF Nimrod aircraft in Afghanistan in 2006 with the loss of fourteen lives. The report criticized both the Ministry of Defence and the industry contractors for failing to spot safety problems:

> The Nimrod Safety Case represented the best opportunity to capture the serious design flaws in the Nimrod which had lain dormant for years. If the Nimrod Safety Case had been drawn up with proper skill, care and attention, the catastrophic fire risks . . . would have been identified and dealt with, and the loss of XV230 in September 2006 would have been avoided . . . Unfortunately, the Nimrod Safety Case was a lamentable job from start to finish. It was riddled with errors. It missed the key dangers. Its production is a story of incompetence, complacency, and cynicism. The best opportunity to prevent the accident [to the aircraft] was, tragically, lost . . . Phases 1 and 2 were poorly planned, poorly managed and poorly executed, work was rushed and corners were cut. The end product was seriously defective. There was a big hole in its analysis.[14]

In short, the message from such tragic cases is that senior managers were too easily satisfied with inadequately documented assurances that all was well. These were not organizations that took vital safety sufficiently seriously. No one wants ever to be on the receiving end

of such criticism. The lesson of such cautionary tales is not to rely on luck being on your side, but instead to prepare as thoroughly as humanly possible to prevent things going wrong. Even unlikely accidents do happen.

Assessing the risk of crisis

There is one form of preparation that is invaluable for organizations in both public and private sectors. That is to foster a state of mind that drives executives to be always on the lookout for signs of crises in the making and be sure they know what those first signs would look like. That at least then gives leaders the conscious opportunity (although tragically one not always taken) to consider with the executive team whether it is time to contemplate changing course. In that way a slow-burn crisis in the making can be identified and headed off – or, if it cannot be stopped, its impact, extent and duration will be reduced.

There are four factors that determine how big the risks being run are once a potential crisis in the making has been spotted: how likely is it that the situation will worsen as feared; if it does, how vulnerable would the organization and its people be; how effective is the immediate response likely to be in reducing the damage; and how long is the ensuing disruption likely to last before a new normal can be established?

Level of risk = likelihood × vulnerability × initial impact
× duration of disruption

If the product of those factors (known in the insurance industry as the product of the 'risk equation') shows that the overall level of risk is relatively high, then there is a strong case for investment in pre-emptive measures to try to mitigate all – or at least some – of those factors. In the case of a possible threat of terrorist attack, like that at the natural gas facility at In Amenas in 2013, these

preparations might have included armed security personnel on site, physical defences, protective security around employee accommodation and key parts of an installation, reliable communications capability by satellite phone independent of the local network, reducing the numbers needed on-site, well-practised alerting systems with protected spaces where staff could shelter, and regular run-throughs of responses with local security forces.

An independent inquiry and various judicial inquests after the In Amenas attack identified that, in practice, problems had arisen with each of the measures that had been put in place to provide security at the site (or, to be more accurate, that the headquarters of the companies concerned *thought* had been put in place). An important cause of the failings stemmed from a lack of clarity over who was ultimately responsible for on-site security among the several contracted-out security functions that were on-site. That observation speaks to the value of auditing measures taken, with agreed-upon metrics that can be reported. Whilst health and safety issues were extremely well catered for, physical security had been an afterthought.

An investigation commissioned by one of the In Amenas partners, Statoil, bluntly concluded that the sum of outer and inner security measures that had been planned failed – in reality – to provide reasonable protection for the people at the site. The Algerian military were not able to stop the attack. Nor were security measures at the site constructed to withstand an attack of this scale. The inquiry team therefore questioned the extent of the implicit reliance on Algerian military protection. Neither of the partner companies had conceived of a scenario where a large force of armed attackers reached the facility; this was a significant failure in the scenario planning that should underpin all safety and security measures. The inquiry concluded, however, that once the attack had taken place, the incident management team that led the crisis response on behalf of the joint venture acted in an effective and professional manner. What the crisis illustrated was a failure to do all the crisis preparation necessary, which was especially significant

for a venture of that kind in a volatile region known to be subject to terrorism.

The essence of crisis lies in its unbounded and unexpected nature. It is challenging enough to have to respond to an emergency by drawing on and adapting prepared contingency plans. But difficult as that can be, there may also be the need to impose controversial protective measures that themselves have serious consequences for public welfare.

As we shall see, it also matters how well prepared people are mentally for shocks, and how flexible they are in adapting plans and processes to the circumstances they face. This is usually stated as the military maxim coined by the nineteenth-century German field marshal Helmuth von Moltke: 'No plan of operations extends with certainty beyond the first encounter with the enemy's main strength.' The practical lesson von Moltke drew was not that it was a waste of time to prepare plans, but that it was better to prepare a series of options than to imagine that a single plan – however detailed and thoroughly worked through – would be able to cope with the effect of unforeseeable changes in circumstances. As Churchill put it, 'the best generals are those who arrive at the results of planning without being tied to plans',[15] a sentiment echoed by President Eisenhower from his own experience: 'It is the act of planning and preparing and the interactions that it forces between stakeholders that matters on the day, and not the thoroughness of the completed plan.' That is certainly my experience.

From emergency into crisis: intensity, extent and duration

The *severity* of a major emergency or disruption can be judged by the extent to which the situation demonstrates a combination of three characteristics: the *intensity* of the initial shock on those immediately affected; the *extent* of the turbulence then created as damaging effects spread into other sectors and areas of our lives,

often requiring dramatic countermeasures; and the *duration* of the disruption and the length of the measures required to get back to the new normal. These three characteristics of severity form an initialism, IED – perhaps appropriately, since that is the military abbreviation for 'improvised explosive device'.

Severity = intensity + extent + duration

Even though we may often not be able to prevent the crisis in the first place, sensible preparations can reduce the intensity, extent and duration of the resulting disruption. The trigger event at In Amenas was the large-scale armed terrorist attack, the intensity of which quickly overwhelmed the security arrangements and caused significant casualties and left a large number of employees as hostages in the hands of the terrorists. The extent of the turbulence created was felt within hours, with dilemmas arising for the governments whose nationals were at the site and who had to take quick action to improve security at other vulnerable sites. The damage to the gas plant meant it had to be taken offline, which meant there were also consequences for supplying natural gas from four major fields to Western Europe. Although the duration of the terrorist occupation of the plant itself was only four days – thanks to the Algerian armed intervention – full gas production did not resume for some eighteen months, due to lengthy necessary repairs to the plant and additional investment to drastically improve its security. The inquests and investigations lasted for the best part of a year after the attack – a major preoccupation for the companies, and of course for the relatives of those who were killed or injured.

With any crisis, all three of the determining characteristics of intensity of impact, extent of turbulence, and duration will be causally connected with the confounding event itself. The deeper the initial dislocation and the wider the spread of turbulence into other areas of life, therefore, the longer it is likely to take to sort out. It is not just the initial disruption that causes dislocation. Economic, social and technical systems are often coupled closely so that effects in one area quickly ripple through to disrupt others,

especially if there has been insufficient investment in the resilience of the people and systems affected. And the longer the disruption lasts, the wider the ripples may spread and the more areas of life that end up being affected. Putting to one side the tendency of the media to label most emergencies as crises – 'crisis' is after all a shorter word better suited to headlines – when all three characteristics become acute, crisis becomes the appropriate description.

We saw these three characteristics of crisis exhibited in the northern Italian hospitals at the start of the first 2020 peak of the Covid-19 infection. Initially, as the virus was first detected, emergency plans swung into operation: wards were cleared of other patients and leave was cancelled so extra staff were on duty. Yet those measures were not enough. The ambulances were still queued up, waiting to deliver ever more patients for whom there were no intensive care beds. On 31 January, the Italian government suspended all flights to and from China and declared a state of emergency. The extent of the economic and social turbulence created became steadily more obvious. On 22 February, eleven municipalities in northern Italy were placed under quarantine to try to stem the spread of the infection. On 11 March, the whole of Italy found itself in lockdown, with nearly all recreational and commercial activity shut down except for supermarkets and pharmacies. It was evident as mutations of the disease were detected that the Covid-19 crisis would be of a long duration. Although restrictions in Italy were relaxed in October 2020, the country was subsequently hit by the second wave of Covid-19 infections, which brought further restrictions on movement and social life – not eased until the summer of 2021. The availability of vaccines has thankfully now lessened the intensity of crisis.

The Covid-19 crisis showed how events can pile on the pressure faster than those trying to manage the worsening situation can cope with it. The situation will appear to be running away from those in charge, and keeping up to date with the latest development gets much harder. Different – accelerated – processes are needed to gather and assess data. The stress for those involved

accumulates. People get desperately tired and, as I illustrate in the following chapters, not all will have the temperament to cope well. Decisions taken under extreme pressure may unknowingly worsen the situation: in the UK, elderly hospital patients were discharged back into care homes in the community to free up beds without ensuring they were first tested for the disease. Those characteristics of intensity of impact on the health system, coupled with the extent of penetration of the consequences into every part of normal life, plus its duration, made the Covid-19 pandemic a crisis of historic proportions.

Different types of crisis

The following sections consider the two basic types of crisis. 'Sudden impact' crises are caused by events that occur without warning and require an immediate response. The In Amenas terrorist attack illustrates how such emergencies can blow up suddenly, out of a clear sky. In that case, the incident was caused by a terrorist group based in Libya that crossed surreptitiously into Algeria to conduct a surprise attack on the plant. Different considerations arise in the case of 'slow burn' crises. The developments that could be leading to a slow-burn crisis can in principle be detected in their early stages, and potentially resolved. But the early signals of trouble are often weak – like the faint creaking that is the first sign that the bearing on a washing machine is about to seize up. And the perceived cost of doing something about the problem may deter early action.

Sudden-impact crises

Examples of sudden-impact events include terrorist attacks, major accidents, human and animal disease outbreaks, floods, forest fires, volcanic eruptions and tsunamis. Their impact on society is destructive, and if not managed exceptionally well such emergencies can

create crisis conditions. It is in the nature of sudden-impact crises that they are 'come as you are' events, so emergency preparations and prior investment really matter to the outcome.

Sudden-impact crises can arise from a variety of different causes. It could be a serious industrial accident, as happened in Bhopal in 1984, when leaks from a pesticide factory exposed more than 500,000 people to potentially deadly methyl isocyanate gas, on some estimates killing 8,000 people within two weeks and another 8,000 subsequently. It could be the outbreak of a global pandemic, as we experienced with Covid-19, or an animal disease such as foot-and-mouth, which ravaged the British countryside in 2001. It could be any one of a variety of natural shocks causing devastation and heavy loss of life. The 2011 Japan earthquake, followed by a tsunami, created a major accident and contamination risk at a coastal nuclear power plant. The 2004 Sumatra earthquake and Indian Ocean tsunami led to the deaths of 230,000 people. Even torrential rain can cause exceptional sudden flooding, as Germany experienced in 2021 with heavy loss of life (over 160 people were reported to the authorities as missing).

Predicting when a sudden-impact crisis will strike is usually impossible. In some cases such as earthquakes and volcanic eruptions, where data is available, their likelihood can be expressed in terms of expecting 1 event in 25, 50 or 100 years. We can then say that an event is 'overdue' – but we cannot know exactly when it may occur. And events that are very unlikely do happen. The magnitude 7.8 earthquake in February 2023 in south-east Turkey and northern Syria killed over 41,000 people. It exposed many years of inadequate building regulation. Essential mobilization of national emergency rescue procedures and international aid cannot compensate for the consequences of failures of anticipation.

A tragic example was the 2017 Grenfell Tower disaster in west London. When fire broke out in the 24-storey apartment block, it spread rapidly via the external building cladding (later shown not to have met fire regulations) to the upper floors. Specialist vehicles with very long ladders to cope with such a high rise were not

available; warning systems were inadequate; command and control was confused; and long-standing guidance to residents of tower blocks to stay put and await rescue rather than try to evacuate through fire and smoke proved to be fatally bad advice. Seventy-two people died in this disaster – the worst residential fire in Britain since the Second World War. There was significant disruption to the surrounding neighbourhoods, and the partial closure of the London Underground line passing through the area.

The Communities and Local Government Department was exposed as not being adequately prepared to exercise a leadership role in crisis. The British prime minister, Theresa May, told the House of Commons that there had been a 'failure of the state – local and national – to help people when they needed it most', adding: 'As Prime Minister, I apologise for that failure. As Prime Minister I have taken responsibility for doing what we can to put things right. That is why each family whose home was destroyed is receiving a down payment from the emergency fund so they can buy food, clothes and other essentials. And all those who have lost their homes will be rehoused within three weeks.'[16]

Slow-burn crises

A slow-burning potential crisis is like the embers of a cigarette butt dropped during a country walk in high summer – by mischance it lands on a patch of tinder-dry moss that begins to smoulder. The level of risk builds up slowly, often with a few indirect warning signs along the way – a thin wisp of smoke in the distance – that are all too easy to underestimate or ignore. Then, a wind blows up and fans the embers, until as if from nowhere a tipping point is reached and an unnoticed wildfire takes hold. By bad luck, high winds drive the fire into a forest and towards a village. The fire now spreads at a ferocious rate and spirals out of control. We have all seen the disaster movie. Firefighters on the ground and water-dropping aircraft and helicopters work round the clock – but by then it might be next to impossible to pull the situation back. Mass