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The Characteristics of Resilient Organizations Within Crisis Management: A General Review of the Sultanate of Oman's Response to Cyclone Shaheen During October 2021

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ABSTRACT

**Purpose*:* This paper examines crisis management literature, and historical rare events, alongside a recent rare event. The purpose of the paper is to ask whether we, as an industry, are achieving the resilience that technology, and changing societies require, and are those societies responding effectively to the challenge of the diversity of this century's global organizational resilience factor needs, of which climate change is just one. The paper seeks to facilitate a wider understanding of the organizational resilience, institutional, and individual limitations, and failures, contributing to those rare events. Originality*:* It is clear that with each decade, each generation, a lack of imagination appears to have corrupted institutional, organizational, and management responses. During this original literary presentation, in each situation, whether man-made or natural, greater imagination or foresight in the application of resilience processes may not have prevented the event, however they would almost without exception have mitigated the losses. Approach*:* Presenting these events in this manner offers real, relatable situations, and should therefore be more contextual to the reality and purpose of resilience as an organizational quality. Although the exercise may appear simplistic, simplicity should not be confused with clarity and candour of an enquiry-based learning implementation where the research is adapted to respond to its contemporary environment, and is encouraged by a dearth of plain-speaking analysis of contemporary responses. Findings*:* This review of the reaction and response of the Oman National Emergency Management Centre to the challenges presented by Cyclone Shaheen, their preparedness, response effectiveness, and recovery… their organizational resilience.

Keywords: resilience, organizational, crisis management, coping, anticipation.

INTRODUCTION

The likely impacts of ongoing climate change, reported Al Kalbani "will cause serious damage to the economy of Oman which already suffers from aridity, soil salinity, recurrent drought and water scarcity."[1]. Thus, the response to weather patterns in the Gulf of Oman has proven a driving force towards coherent crisis management in the region. Initially, scholars appeared united in their definition of organizational resilience with Horne [10] defining simply, the ability to reverse adversity," and the following year, he simplified this definition to read as the "ability to recover." However, these appear significantly more generic, linguistic definitions

with Oxford Languages offering two responses, "the capacity to recover from difficulty, toughness," and "the ability of an object to spring back into shape, elasticity." Both are, in simplistic notions, correct, however across the following twenty years, organizational resilience has seen scholars divert from the simplistic to the complex and use associative vocabulary, synonyms and paraphrasing to express their own brands of resilience, which, despite Annarelli and Nonino's [2], insistence that, "academic literature has reached a shared consensus on the definition of resilience," in the construct that has become organizational and institutional management, that is clearly debatable. The vocabulary of a long list of scholars includes 'rare events' [17] 'surprises' [17] 'disruptions' [12] 'crises' [22] 'adaptation'[15]and 'survival' [13] just a few that emerge from the research, affirming that while there is common ground, consensus remains elusive. Organizational resilience is a complex organism, in that its effectiveness is both influenced by individuals, organizations, infrastructure, logistics, capability, and preparedness factors, while it also meaningfully influences community and societal security, coherent rural and urban responses, and consequences. In fact, Ruiz-Martin et al [24] went further, stating that organizational or institutional resilience is, "influenced by resilient individuals, resilience engineering, infrastructure resilience, cyber resilience, system resilience, supply chain resilience and business resilience, and in turn influences community resilience, societal resilience, economic resilience, city or urban resilience, territory resilience and socio-ecological resilience." Ducheck [8] explains that there are three key conceptualizations of organizational resilience that will withstand scrutiny, being those that treat resilience as an outcome, as an explanation of processes, and those that focus on capabilities, and perhaps is insistent that all three therefore require analysis or audit in the wake of, and here we will use the original description, a 'rare event.' The outcome, of course, will be the first element reconstructed as it is an immediate, and very human response to traumatic events. Who is well? Who is not? Who still needs us? What do we need to do to make this better? Can we, in fact, put Humpty Dumpty back together again? Which begs the question that, in all circumstances, in all situations, in all rare events, is response the most desired, and functionality the most necessary, in terms of organizational resilience? In asking whether we, as an industry, are achieving the resilience that technology, and changing societies require, and are those societies responding effectively to the challenge of the diversity of this century's global organizational resilience factor needs. Rationalizing historical rare events, as Ducheck [10] explained, in the light of contemporary organizational resilience processes, may prove valuable in predicting, not the events, but certainly organizational preparedness and its ability to effectively respond to their needs. The qualitative depiction of the rare events reviewed in the following section has been presented as much to explore their diversity as their prominence, and while there have been greater events, greater disasters, and greater loss of life, it was that broad diversity of events that the paper sought to include. The decision to review the Omani reaction through the pages of local media reporting is a reflection of the general difficulty in obtaining reliable documentation and statistics through ministerial and governmental agencies. What soon becomes apparent is the unwitting nature of the events when they are examined retrospectively, and this should not be left to hindsight, but utilized as part of an educational, learning process in a loosely structured comparison of the events. An examination of immediate media was the key to the initial approach to examining the Sultanate of Oman's response to Cyclone Shaheen. It was clear that sections of the media were allowed significantly more reporting freedom throughout the crisis, and along with social media, the population remained well informed throughout, even though there is a cultural tendency against circulating adverse news. It is clear that being environmentally, climate change aware,

was a huge positive element and in the aftermath of the event, it became apparent that the response-ability of the authorities was bold, measured, authoritative, and effective, and in hindsight begged the question of historical responses to crises, and their failings.

HISTORICAL RARE EVENTS

1931: Yangtze-Huai River floods (4 million deaths) From 1928-1930 much of China suffered from the effects of a drought, so when the ice thaw occurred in the summer of 1931, the deforestation and sparse vegetation in the region, along with severe cyclone conditions, it became a global warming and environmental perfect storm, as with the persistent heavy rain since the middle of winter, the river system rose, and never had an opportunity to clear. Consequently, water levels rose to 16 meters above normal and an area the size of the United Kingdom [20] was totally inundated as eight entire provinces were inundated, causing hardship for their populations, Chinese historian Li Wenhai estimated that up to 53 million perished as a result of the famine of 1928 and 1929, the floods of 1931, and the epidemic of diseases that followed the floods in 1932, as starvation, cholera, measles, malaria and dysentery ravaged the displaced, now unsanitary millions [5]. It was confirmed by later research [14] that many farmers and municipal authorities, without reference to each other had constructed dyke systems, causing the eventual disaster.

1953: London Fog (12,000 deaths) From Friday the 5th of December 1952 to Tuesday the 9th, the city of London was blanketed as coal burning fires, industrial furnaces, and a lack of wind, conspired together to create a pollutant poisoned environment, deadly for in excess of 12,000 fatalities [3]. The deadly fog lay, leaching indoors, and those with respiratory ailments gained little relief. However, it wasn't until the wind dispersed the deadly fog on the Wednesday, that the horror of the event dawned on the city [4]. The event was put down to the low-quality, sulphurous, sulphur dioxide laden coal being used and the large number of coal-fired power stations in the Greater London area, as high-quality coals were exported to earn overseas funds for a labouring British economy. According to The Met Office [27] "1,000 tonnes of smoke particles, 140 tonnes of hydrochloric acid, 14 tonnes of fluorine compounds and 370 tonnes of sulphur dioxide which may have been converted to 800 tonnes of sulphuric acid," were present in the city's toxic eco-system at that time. The large water drops in the fog then supported a chemical reaction in which sulphates, without acidity rising to stop the reaction, allowed diluted acid to concentrate. The event led to a public environmental awareness, and the first government environmental regulation by way of the Clean Air Act of 1956.

1970: Cyclone Bhola (500,000 deaths) struck what is now Bangladesh, formerly East Pakistan, and West Bengal in India, causing devastating floods in the Ganges Delta. The death toll may be conservative, as records were fragmented at the time. The storm made its way across the North Bengal Sea, wiping out entire villages, decimating Island and coastal communities. Blame for the high death toll was laid mainly at the feet of the large 185 kph eye of the storm, which has been unrivalled since weather records have been taken [11]. Certainly, relations between East Pakistan and India were fractured at the time, with heightened military tensions, and the information may not have been passed across to the relevant authorities. Further complicating matters, when the urgency of the situation was revealed to the East Pakistan authorities, a warning was broadcast on nationwide radio, but it was poorly worded, and offered no instruction or advice. Survivors reported later by Zeitiln et al [28], they did not know where to run. There was widespread criticism too, of the ruling government, under General Yahya Khan

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[26], for their slow and lackadaisical response, opponents saying the government prioritized economic over humanitarian concerns.

1979: Mount Erebus disaster (257 deaths) In 1979, Air New Zealand Flight 901 did what it had been doing for two years, and flew towards Antarctica on a 'tourist' flight, offering a unique experience, for 237 passengers, and 20 crew. The flight plan was to take the plane, a DC 10-30, from Cape Hallett, following a guidance beacon down McMurdo Sound with Mount Erebus ahead, but to the West, thus allowing the flight at 13,000 feet, to fly around Mount Erebus [16]. However, Air New Zealand's navigation centre applied a change to the beacon settings which had not been approved by the Civil Aviation authorities, and without informing the pilots. Consequently, the pilots, thinking they were flying straight up McMurdo Sound, with the Ross Ice Shelf on the horizon ahead of them, were actually flying straight into Mount Erebus. Photographs recovered from the wreckage, taken in the last seconds before impact, offered evidence of perfect flying conditions, but that too was an illusion. Captain Jim Collins told McMurdo Station he would drop to 2,000 feet (610 m), and switch control of the aircraft to the automated computer system. Outside, clouds blended with Mount Erebus forming a whiteout where no contrast between ground and sky could be identified, deceiving the flight crew who thought the white expanse in front of them was the Ross Shelf, but was, in fact, the mountain. At 12.49 pm, ground proximity alarms sounded, but 6 seconds later, despite the pilot's best efforts, Flight 901 flew into Mount Erebus, only 1467 feet above sea level.

1984: Bhopal Gas leak (35,000 deaths) The Union Carbide Pesticide Plant, in Bhopal, India, was able to produce methyl isocyanate cheaper than its competitors due to its unique 'short-cutting' process in which the raw materials were added in a different order and process to that used by most manufacturers [9]. Professionals, academics, and unions all voiced concerns, but these were largely ignored, however sales were affected so significant amounts of the liquid MIC were stored in three 70,000 litre underground storage tanks. By 1984 valves, gas lines, and gas scrubbers were intermittently performing, and on the 2nd of December, workers adjacent to the storage tanks began to report symptoms of poisoning. One of the tanks fractured minutes later and 40 tonnes of the chemical, an environmental time bomb, a man-made global warming nightmare, was released into what quickly became a toxic atmosphere over the next two hours. Alarms were sounded, but then turned off "so as not to alarm nearby residents [18]." By the next morning, thousands had died. Courts in India and the United States also found the company liable and imposed damages of 47 million and 11 million upon them.

1986: Chernobyl nuclear explosion (100,000 deaths) The most dramatic of all modern-day rare events must be the Chernobyl disaster of 1986. The simplicity of the chain of reaction that resulted in this most horrifying of outcomes is frightening in it's possible environmental consequences. A safety test, ironic in that Shestopalov [25]noted that there was an "absence in the former USSR of a safety culture." went awry when the power output dropped so low at the plant, operators were unable to effectively restart the reactor functions, but they continued with their test anyway and an uncontrolled reaction occurred releasing a burst of energy, that led to the meltdown. Explosions then destroyed the reactor building and released fallout, which covered an area of approximately 1000 square miles known as the Chernobyl Exclusion Zone. Due to obfuscation by the Russian authorities [25], the full story of Chernobyl may never be known, however it appears that an aging plant, unsafe procedures, untrained operators, and insufficient transparency within the energy sector in Russia all contributed to the event. The

100,000-death toll is therefore only a guestimate, and in fact, one United Nations Report (UNSCEAR) in 2011 found that fewer than 100 deaths had occurred as a result of radiation fallout.

2019: White Island eruption (22 deaths) Climate scientists bring up volcanic eruptions to better understand and explain the wider concepts of climate change, and every few decades or so, there is a volcanic eruption that throws out a tremendous number of particles and other gases. While appearing much less of a disaster, the White Island (aka Whakaari) eruption on New Zealand's East Coast, takes on almost sinister elements of the danger of nature tourism. Whakaari has seen thousands of tourists over the last decade, tramping their way over a moonscape environment where few have gone before appealing to many. The fact that the trip was not without risk was made clear in waivers that needed signing prior to travelling to the island: "Whakaari/White Island is currently on Alert Level 2. This level indicates moderate to heightened volcanic unrest, there is the potential for eruption hazards to occur, and Dempsey [7] had intimated in research that "current volcano alert systems are heuristic and too slowly updated with human input." Twenty-two of forty-seven people on the island at the time of the eruption died, and many of the others suffered horrific burns as a phreatic explosion threw rocks and ash into the air, falling on the island, and the sea around it. Whakaari had previously erupted 3 times in the last ten years, and volcanic tremors and sulphur dioxide levels were at their highest since the 2016 eruption, which begs the question, why were the tourists even on the island?

2021: Cyclone Shaheen (14 deaths) The Sultanate of Oman is on the South-eastern corner of the Arabian Peninsula, covering 300,000 sqkms, with a coastline in excess of 3,000 kilometers from the Straits of Hormuz in the North to the Republic of Yemen in the South, with the population concentrated mainly in the capital city of Muscat, with Salalah, Sur, and Sohar, other significant coastal populations, while Nizwa in the Dakhilyah hinterland is a major city which was the ancient capital. Cyclones *Gulab* and *Shaheen*, are two weather systems that had their origins in the Bay of Bengal on the 24th of September 2021. *Gulab* strengthened to cyclone status and was identified by name by the Indian Meteorological Department (IMD) on the same day. By the 26th it had swept over Andhra Pradesh province in Eastern India but weakened quickly before being downgraded to a depression as it eased towards the West, reaching the Arabian Sea two days later where it merged with another weather system of adverse barometric pressure, where, as it gathered force, it was renamed by the IMD as *Shaheen*. Gaining momentum, it progressed towards the South-west and the Gulf of Oman, eventually on the 3rd of October, hitting the North-eastern governorates of Oman with its full fury, causing extensive flooding, power outages, washing away rods in both urban and rural areas, and some loss of life, with fourteen Omani fatalities confirmed, in the aftermath of the storm. The Oman National Emergency Management Centre was convened upon getting advice from the Indian Meteorological Services on the 28th of September that a weather system was building, that had the potential to develop into a critical event. From the 1st of October public warnings were broadcast, and the NEMC began assembling logistical, resource, and manpower support in readiness for a cyclonic event. This ensured that by the time, two days later, Shaheen hit Oman, all that could be in readiness was, and loss of life, if not damage, was greatly mitigated.

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MEDIA REPORTS

News Media Reporting of Cyclone Shaheen related to NEMC activity began on the 1st of October, 2021 with…

October 1st

11.21 am: The Civil Aviation Authority advised the public to stay away from low areas and avoid wadis. They have also urged fishermen to stay ashore, Omanobserver [21].

11.44 am: Necessary precautionary measures must be taken to ensure the safety of visitors to hotel and tourist establishments, Muscat daily [29].

15.06 pm: Batinah and Muscat have low lain areas where care must be taken because we are expecting heavy rains, Civil Aviation Authority [31].

15.29 pm: Dr Abdullah bin Nasser al Harrasi, Minister of Information, held a meeting on Saturday with officials from the Civil Aviation Authority (CAA) and the National Emergency Management Committee to get updates about the tropical climatic condition (Shaheen) and its expected impacts on the country, ONA [30].

16.33 pm: The minister further affirmed the preparedness of the media, through its print, audio, visual and electronic channels, as well as media supporting sections, to cover the developments of the climatic condition, ONA [30].

16.02pm: Public transport company suspended its bus and ferry services in all the governorates following the development from the tropical storm Shaheen, Omanobserver [21].

October 2nd

4.27am: Up to 500 cm (20 inches) of rain was expected in some areas, raising the risk of flash floods, Reuters [23].

4.54am: Some penetration of storm surge into the land has already been noted, Civil Aviation Authority [31].

6.00am: Civil defence officials in Oman have encouraged thousands of residents on the coast to evacuate their homes Reuters [23].

10.03am: Two Asian nationals were found dead in the rubble of their residence in Al Rusayl, which was crushed by a mountain slide, Muscatdaily [29].

10.04am: The National Committee for Emergency Management announced the death of a child in Al Amerat who drowned in a pool of water, Omanobserver [21].

October 3rd

6.00am: Four Omanis drowned or were killed in landslides today , ONA [30].
6.10am: Of 2,734 people had been evacuated at the time of reporting, 1,989 are Omanis, and 736 residents, said Hamoud al Mandhari, Head of Relief Department, National Committee of Emergency Management, Omanobserve [21].

6.13am: Royal Oman Police officers braving the high waves that came crashing down onto land, as they stood guard on the Muttrah Corniche Road, ONA [30].

6.55am: Tropical Cyclone Shaheen killed four people in Oman on Sunday with ferocious winds and heavy rain, flooding streets, prompting evacuations, ONA [30].

6.56am: The cyclone brought winds of between 120 and 150 km per hour (75-93 mph), Omani authorities said, and was throwing up 10 metre waves, Omanobserver[21].

9.12am: Video footage from Omani broadcasters showed vehicles submerged as people tried to make their way through muddy brown floodwater, Reuters [23].

9.23am: A cyclone that made landfall in Oman on Sunday has killed 13 people, and others are missing, Theguardian [32].

9.24pm: Royal Oman Police spokes officer said "ROP teams in Muscat rescued 31 citizens who were stuck in their vehicles, as well as 29 citizens who were trapped in their homes due to overflow of wadis", Timesofoman [33].

9.55pm: The Royal Air Force of Oman effected the rescue of more than 200 citizens being trapped in their homes by flooding wadis in Al Batinah, Omanobserver [21].

10.03pm: In a few hours on Sunday, we received rainfall almost double the annual average, said Dr Said al Sarmi, Civil Aviation Authority [31].

October 4th

2.23am: There was flooding along Oman's northern coast as the cyclone made landfall bringing heavy rain and winds of up to 150km/h (93 mph) BBC [34].

6.00am: The ROP found a missing citizen dead in Wadi Al Saleel in the Wilayat of Al Rustaq, South Al Batinah Governorate. The dead man was found 6 km away from where he was last reported, Omanobserver [21].

6.19am: The cyclone that made landfall in Oman on Sunday has killed 13 people, and others are missing, Theguardian [32].

3.55am: The rescue team from ROP in North Batinah Governorate successfully rescued people trapped in a vehicle in a wadi stream in the Wilayat of Suwaiq, ONA [30].

3.59am: The CDAA/ROP team rescued a person who was stuck in his vehicle in the Wadi of the Wilayat of Bausher. He is reported to be in good health, Muscatdaily [38].

4.50am: An ROP team managed to bring to safety two individuals who were trapped in their vehicle in the wadi of Al Amerat. However, other search and rescue operations found the other occupants dead, Omanobserver [21].

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6.00am: Five members of a family, the grandparents and three children, aged six, five and two years, perished when water from a flooding wadi around the house inundated the family home on Sunday at midnight, Muscatdaily [38].

8.15am: The Royal Oman Police Aviation conducted 138 operations, airlifting Shaheen victims, in addition to carrying out aerial surveillance, ONA [30].

8.20am: The ROP operations centre has received more than 36,000 distress calls up until midnight last night, Muscatdaily [38].

October 5th

6.00am: The National Committee for Emergency Management announced on Monday afternoon seven additional deaths from the storm, Theguardian [32].

6.00am: The RAFO is conducting continuous search and rescue operations for stranded families across the governorates, ONA [30].

6.15am: The search is still on for one person in Al Amerat; in total, six people are still missing, till the time of reporting, Omanobserver [21].

6.30am: The Civil Defence and Ambulance Authority (CDAA) confirmed that its teams received 410 incident reports during Shaheen, Muscatdaily [38].

7.00am: The total rescue operations by Civil Defence and Ambulance Authority (CDAA) have reached 231. Of these 57 reports were of people stuck in a valley, there were 66 reports of stranded vehicle, 91 reports of people stuck in a house, two reports of falling trees, nine reports of search operations and six reports of collapse. About 654 people have been rescued so far, Muscatdaily [38].

DISCUSSION

Tropical cyclones bring high winds, themselves sufficient to threaten lives and cause damage, however the accompanying storm surges play havoc with coastal environments, and especially since the broader global acceptance of climate change and its consequences. In this increasingly warming world tropical storms under any name appear to be getting bigger, stronger, and more damaging, though the relatively recent phenomenon of climate change does mean that the 'life' of research on the topic is limited as they are still rare enough to make a fail-safe database fraught with quantitative scientific conflict. The Omani response mechanism lies with the Civil Defence and Ambulance Authority in Oman, the CDAA is the founding, and coordinating body for disaster, or rare event management in the Sultanate, and among their statutory requirements, by Royal Decree, is to provide operational facilities for the National Committee for Emergency Management. The NCEM includes the Sultan's Armed Forces, the Royal Oman Police, Civil Defence and Ambulance Services, Muscat Municipality, Environment, Water and Resources, Dhofar Municipality, Media, the Ministries of Regional Municipalities, Transport and Communication, and the National Ferries Company, at the Oman National Emergency Management Centre. The directive of the Sultan, HRH Haitham bin Tariq al Said, to the group is: "To maintain a national emergency management system responsible for the management and coordination of the work of two sectors of the eight sectors; activating the sector plan,

proposing the necessary modification, updating or development, coordinating national efforts to meet relief and relief requests, Sector components and other support agencies; including civil society organizations, voluntary teams alongside the private sector. In accordance with the procedures outlined in the sector plan, as well as providing support to other sectors." The complete assigned tasks and responsibilities according to the NCEM website are presented in Appendix One. The response of the NCEM to Cyclone Shaheen is reviewed in three ways, an assessment of the preparedness, their practical response, and their recovery. First, it is clear that the initial response, upon receiving notification of a possible dangerous event on the 28th of September from the Indian Meteorological Service, to convene the NCEM was bold and authoritative, and allowed them the luxury of time to prepare appropriately. On the 30th of September, the Al Wataan Arabic newspaper [35] reported the Royal Oman Police (ROP) had announced a cancellation of all leaves, and the Royal Oman Army (RAO) was placed on standby for civil operations, with personnel from the interior trucked to the Northern coastal regions in preparation for civilian assistance deployment. The Royal Air Force of Oman (RAFO) helicopters, pilots, and service crews, and selected Royal Navy of Oman (RNO) units with rescue capability, and support personnel, were all placed under the temporary command of the ROP, Al Wataan [35], to ensure a cohesive and coordinated response to the demands of the now named *Shaheen*. Significant numbers of tracked, and wheeled army vehicles were assigned 'jump-off' points based on historical flooding and rain catchment data, all military medical personnel were assigned temporary duties in at risk areas, and both private and government hospitals were advised to accept only emergency cases, with elective surgeries re-scheduled. Ferries, Muscat International Airport, and Muwasalat Buses were cancelled Reuters, [23], traffic was suspended between North and South Batinah, Muscat Daily [38], and to reduce public movement, Oman Radio and Television broadcast that a national holiday was declared for the 3rd and 4th of October, the first two days of the following working week. It was clear therefore that historical data and experiences, an acceptance of the need for response in climate change 'hot-spots,' along with practiced procedures, ensured a smooth transition from peacetime military and police operations to disaster response. Shaheen hit the North Eastern coast of Oman on the 1st of October soon after midnight, and 200 cm of rain fell in the capital city before dawn, bringing the first floods, while some penetration of storm surges, a known consequence of climate change effects, into the land and flash flooding had occurred. The CDAA had encouraged thousands of residents on the coast to evacuate Reuters [23] their homes, however many stayed, believing they were safer at home. Two Asian labourers died in Al Rusayl, when their accommodation was crushed by a landslide Muscatdaily, [38], and a child died in Al Amerat, drowning in a pool of water at her home Times of oman, [33]. More than 2,734 people were evacuated, said Hamoud al Mandhari, Head of Relief Department, National Committee of Emergency Management. The cyclone brought winds of between 120 and 150 kph, Omani authorities said. ROP spokes officer said "land-based teams in Muscat rescued 31 citizens who were stuck in their vehicles, as well as 29 citizens who were trapped in their homes due to overflow of wadis" Timesofoman, [33], while Royal Air Force of Oman helicopters effected the rescue of more than 200 citizens being trapped in their homes by flooding wadis in Al Batinah (omanobserver, 2021), as the rainfall reached almost double the annual average, said Dr Said al Sarmi, CAA [31]. The next day saw significant flooding along Oman's northern coast as the cyclone made landfall bringing heavy rain and winds of up to 150km/h (93 mph) (bbc.co.uk). The ROP found a missing citizen dead in Wadi Al Saleel in the Wilayat of Al Rustaq, South Al Batinah Governorate, he was found 6 km away from where he was last reported Omanobserver, [21], while a rescue team from ROP in North Batinah Governorate successfully rescued people

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trapped in a vehicle in a wadi stream in the Wilayat of Suwaiq (ONA), and a CDAA/ROP team rescued a person who was stuck in his vehicle in the Wadi of the Wilayat of Bausher ,Muscatdaily,[38]. Late on the same night an ROP team managed to bring to safety two of five individuals who were trapped in their vehicle in the wadi of Al Amerat. However, other search and rescue operations found the others dead, Omanobserver,[21]. Tragically, five members of a family, the grandparents and three children, aged six, five and two years, perished when water from a flooding wadi around the house inundated the family home on Sunday at midnight, Muscatdaily,[38], just as the cyclone appeared to be abating. Again, it is clear that in every possible manner, the NECM and its resources could not have responded more effectively to the challenges Cyclone Shaheen presented, and that as tragic as it appears, all those who perished were either foolhardy or extremely unlucky. As the cyclone weakened, the Sultanate no doubt began counting the cost. However, it emerged before the day was out that a total of 231 airborne rescues had been carried out in the most horrendous of conditions. The ROP spoke officer advised that 57 were rescuing inhabitants of a village surrounded by rising floodwaters, 66 to stranded vehicle occupants, 91 of airlifts from isolated houses, 9 search operations, and six evacuations of collapsed citizens, in all, rescuing 654 people. Along with the RAFO, the ROP was continuing their search and rescue operations, particularly in Al Amerat where 6 persons remain unaccounted for, and in ensuring support for stranded communities. The ROP Operations Centre received and had responded to more than 36,000 distress calls, which is an outstanding clearance rate under pressure. The Civil Defence and Ambulance Authority (CDAA) confirmed that its teams had responded to 410 incidents during Shaheen (muscatdaily.com). The prompt manner in which such statistics were made available reflects well upon the NCEM protocols, and their grasp of the event, and their protocols in response to it. Even without being privy to the organizational 'washup,' this is a legitimate result that reflects so much credit upon their achievements.

ORGANIZATIONAL RESILIENCE DISCUSSION

To ensure resilience, the ability to recover from diversity, first requires an acknowledgement that 'situations,' disasters, rare and harmful events, can and will happen. After all, the Titanic was unsinkable, a pea-souper can't kill, Chernobyl occurred during a 'safety test,' and how can you 'not see' a 12,500ft mountain when it is right in front of you? Risks, challenges, potential hazards are all theorized and imagined as a part of today's health and safety protocols, maintaining an awareness of, and compliance with, the environment and human rights, and must be clearly, imaginatively, and robustly challenged as part of an effective organizational resilience policy. It must be affirmed organizationally that rare events, as rare as they may be, can, will and do happen. It must be accepted that their potential to cause serious harm is a possibility, and therefore a resilient, and what may be called imaginative, but certainly open mindset is essential to ensure challenges do not become problems, and problems do not become disasters. Failure mode analytics are a 'new-age' method of challenging assumptions that cannot be ignored. Having looked briefly at ten extremely diverse events across a hundred years, several factors that can be applied to day-to-day, or ongoing organizational resilience are distinctively paraphrased within their tragic explanations. Michelle Jones (2020) of Duke University wrote, "In what feels like the blink of an eye, Covid-19 has dislocated our daily lives, our economy, and the way we do business, with little visibility on when the crisis will be resolved. Our experience with the pandemic makes one thing clear however, we need to become more resilient." She then presented, right, her six domains for individual resilience which clearly also resonate within an organizational situation or structure, with collaboration,

vision, tenacity, composure, health and reasoning all personal qualities that can contribute to organizational acuity in resilience. Eduardo Monopoli [19], writes from a purely organizational perspective, but still concludes that it is personal and individual qualities and actions that will make or break an organization's preparedness, as he asks, "How can we break free of this fear, and learn and grow from the experience?" He believes there are four distinct zones of organizational resilience that can be identified, and are perhaps distinctly leadership focused, yet still relevant to the organizational response-ability. "Resilience is an invisible spring allowing us to bounce back from an ordeal, Cyrilnik, [6]," and he went on to liken it to changing an obstacle into a trampoline, and reversing impossibilities, making them possible. So, clarity emerges as an understanding that resilience is almost certainly not inherent, but the result of who we are and our environment, a 'learned' quality, a skill, therefore it can be enhanced, developed, and improved through education. A key element in maintaining an open mindset is recognizing that complexity has a distinctive role in many rare events. For example, who would ever think that a safety test could initiate a nuclear meltdown, that drought and famine would worsen the effect of flooding, that a hijacking would lead to the absolute destruction of an iconic landmark, and that poor quality coal would cause thousands of fatalities? Diversity and imagination in strategic planning are vital in ensuring that no stone is unturned in respect of knowing your foes, and respecting and understanding that so many things can go wrong. Strong leadership must also be a priority, as strong leaders tend to be able to recognize diversity, and the perspectives and viewpoints of others, and are similarly unafraid to devolve responsibility to others should that be necessary. That makes them reliable in the eyes of their employees who will respond positively to challenges. This was clearly absent in the Cyclone Bhola disaster, when General Yahya Khan appeared to distance himself from effective response, and perhaps also in the case of the Yangtze floods, where almost an 'out of sight, out of mind philosophy prevailed, with a minimal care factor exercised by the Chinese government. Resources are essential to effective planning and a coherent response to rare events, and in a contemporary setting the cyber-strength of data, information, and communication are paramount. For example, the Titanic's captain disregarded the iceberg warnings, the Air New Zealand navigation team never passed a change in coordinates to the pilots of the doomed Mount Erebus flight, and the Pakistani government never deemed it necessary to advise its citizens of Cyclone Bhola's imminence. Data can be used and analysed to recognise risks and drive performance improvements that can mitigate loss, or inform early and effective response. An HR vision is important in driving organisational and individual capabilities, and shaping a culture that supports transformation. Risk management systems and processes ensure an ongoing capability of function. Procurement, manpower, logistics, and supply chain management must ensure resilience, through a strong review process to deliver the required outcomes and resilience.

CONCLUSION

In conclusion, it appears that naivety, a lack of imagination, such as an acceptance of climate change and other environmental imperatives, or diversity of thought, may be the most significant element of an organization that does not have coherent and effective resilience. However, there is a pathway, and if it took a historic review of tragedies and disasters to offer some organizational relativity, so be it. An organization may not recognize the need for particular essentials or have individual or organizational acceptance of the need for policies and processes, seeing them more as a societal or community function. This dilution of 'care factor' or responsibility is an age-old attitudinal perspective that is seen by most as a relic, but

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is sadly still prevalent. Awareness, and an acceptance of the need is the first step in progression towards absorption of organizational resilience, and demands an understanding of best practice that requires, somewhere within the organizational structure, an identified commitment to that best practice. However, there must be a pathway for that knowledge and understanding, a way in which organizational dissemination occurs to apply the learning across the board. Institutional documentation needs to become not only created, but read and absorbed, identity clear and present, and visibility to the point of ubiquitous-ness. Once best practice is established, within the organization there must be a collective will and understanding of how best to apply them. Put in perspective, one would not send two teams out to play football with each having different rules, would one? To demonstrate progress is important and as identified earlier, documentation on its own will not develop an organization, unless it is read and understood, and signage (visibility) will be ineffective if it is not bright, questioning, and in-your-face. It is possibly at this stage that competition and reward elements can be introduced to increase awareness, which will engage ongoing enquiry, as you continue to develop line of sight perspectives toward corporate resilience objectives. Having established a significant presence, and an organizational awareness of best practice, it is essential to continue to evolve by way of continuous review, in a search for excellence. Institutional accreditation is a positive step, both in progression towards objectives, institutional and community feel-good factors. Organizations that excel demonstrate their maturity through established, documented, and embedded policies, and employee and sector awareness, even gravitating towards societal appreciation. Organizational resilience is certainly a global sign of our times, and the journey may well be complex, titanic in fact, however it will be worthwhile.

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APPENDIX

Appendix One: Assigned Oman National Emergency Management Center tasks and responsibilities:

Planning, preparedness, capacity building, and ensuring readiness, immediate and effective response to search and rescue operations.

Ensuring the security and safety of the field response teams, maintaining the scene and minimizing the impact of the accident. In cooperation with all sectors.

Strengthen national capacities in dealing with the Search and Rescue Plan.
Creating and updating a database for the sector.

Coordinate the operations of the sector in cooperation and coordination with the National Emergency Management Centre and others in order to ensure the effectiveness of the sector.

In coordination with the Public Authority of Civil Aviation, the Royal Air Force of Oman administers the airspace in order to facilitate search and rescue operations, strengthening the capacity of land, air and sea operations to operate effectively, flexibly and uniformly.

Determine the size and type of regional and international assistance and coordinate on its request with the President of the National Committee for Civil Defence, in accordance with the mechanisms established.

To determine the size of requests for support and support from private sector and non-governmental organizations.

All sector entities must prepare and update their support operations plans to support emergency response and search operations.

All sectors of the sector must provide the necessary assistance in their respective fields in order to achieve an effective response.

The Royal armed force provides appropriate manpower support to assist in search and rescue operations and to evacuate the injured by land, air, sea.

The Royal armed force provides helicopters and transport aircraft for search, rescue and evacuation operations in the area of the event.