



**RESCUE GLOBAL**

**DISASTER RISK REDUCTION & RESPONSE**



# OPERATION INUNDANTIA





## INTRODUCTION

A Rescue Global Pathfinder Team deployed to India 10–24 September, 2013 to perform disaster reconnaissance, mapping, analysis and liaison work in response to wide-scale flooding in the Uttarakhand region, and to assess recovery efforts following an earthquake that struck Sikkim State in 2011. The team of five deployed firstly to Delhi in one of the Rescue Global King Air aircraft. High-level meetings with government officials and academia were conducted before travelling to Kedarnath in Uttarakhand, where further government liaison was carried out, in addition to a full reconnaissance of the disaster area.

The team then moved to Gangtok in Sikkim, where they delivered crisis and disaster management training at the invitation of the state government. This reinforced and built upon a previous training programme provided by Rescue Global earlier in the year to Sikkim State officials in London.

## ABOUT RESCUE GLOBAL

Rescue Global is a UK charity, a US 501(c)(3) nonprofit and an International Non-Governmental Organisation (INGO).

### Our mission is: To Save Life.

We do this by empowering decision makers at the nation-state level working in the Disaster Risk Reduction and Response (DRR&R) environment. We also conduct liaison, mentoring, training and disaster reconnaissance missions during the critical response phase, deploying to disasters worldwide.

### DISASTER RISK REDUCTION

Aligned with our core mission, To Save Life, a great amount of our time and resources are focused on Disaster Risk Reduction (DRR) activities. By conducting DRR activities such as risk assessments, capability analysis, reviews, research, education and training, we work to build capacity and foster resilience worldwide.

### DISASTER RESPONSE

Rescue Global empowers decision makers with expert training, mentoring and added capabilities in times of need, in order to save lives. We assist complex disaster response command and control operations in direct support of nations impacted by disasters, as well as provide a reconnaissance and assessment capability, in order to gather vital information which may otherwise be difficult or impossible to collect.

### SPECIAL PROJECTS

Through our work along the DRR&R life cycle, Rescue Global participates in and commissions projects which conduct research, develop and test methods, technologies and practices in the most realistic context possible.



## DEPLOYMENT OBJECTIVES

Operation Inundantia – ‘Inundantia’ meaning “flood” in Latin – had the principal aim of providing support and assistance to senior disaster management authorities in India. This was achieved by clearly identifying areas of continuing need at the local level, as well as providing recommendations for the effective prediction, preparation, response and recovery stages of future disasters, in order **To Save Life**. Specifically, the operation included:

- Immediate collection of critical information requirements with the aim of reducing the impact of future crises by sharing best practices at the national, state and local levels
- Delivery of, within a short period of time, detailed reports with specific proposals and recommendations for immediate, mid- and long-term enhancements to the national, state and local structures for disaster response and recovery. Report areas included the integration of technology and human practices, early warning systems, training and international collaboration in the field of disaster management, and resilience and capacity building
- Provision of reliable, needs-based insights to other charities and agencies who wish to work with and support the Indian authorities and people.

## PREPARATION

Rescue Global can deploy within hours of a disaster or crisis occurring. In the case of Operation Inundantia, however, the primary objective was to assist authorities prepare at the national, state and local levels for future disasters, in what is widely recognised as a deeply challenging and disaster prone environment. This required several weeks of detailed preparation which followed two strands: the objectives of the deployment itself (the “what”), and how they would be achieved (the “how”). The deployment itself was then followed by detailed analysis with recommendations delivered thereafter, in order to ensure the maximum benefit would be realised.

The operation was conducted in close collaboration with our partners in India and additionally with a team from [The ORCHID Project](#), operated by the Universities of Oxford, Nottingham and Southampton, of the United Kingdom. Rescue Global worked to well-developed plans, best practices and governance standards in order to ensure a safe and self-sufficient deployment into a complex and challenging environment. This provided for an efficient, effective and incident-free 15-day deployment, which was well received at the national, state and local levels in India.



## THE JOURNEY

During the planning stage of the operation the decision was made to utilise Rescue Global's own King Air 90c aircraft to efficiently transport the Pathfinder Team and their equipment to India, as well as within the country whilst deployed.

This was done to ensure total self-sufficiency, freedom of movement, the ability to self-deploy very close to all operating areas, and to provide an effective communication and reconnaissance platform for the deployed team.

In doing so, we satisfied one of our principal tenets - to place no added pressure on existing in-country infrastructure and resources. As a standard procedure,

Rescue Global is entirely self-sufficient in relation to food, water and power for the first 72 hours of any deployment.

The journey was a challenge in itself, having to account for environmental, political, and logistical and planning factors which would stretch a mid-sized air operator. Rescue Global conducted the air operations in an exemplary manner, to the acclaim of the Director of Civil Aviation, and Military Air Command in India. This demonstrated our commitment to supporting the authorities in India, as well as our ability to work to both civil and military national and international standards, with regard to complex response operations, including the use of air and ground assets in sensitive locations and circumstances.



## DELHI

Upon landing in Delhi our leadership team embarked on an intensive round of meetings with lead decision makers within the Indian response and recovery management system. Supported by Dr Manjula Krippendorf, one of Rescue Global's international ambassadors based in India, and the Rescue Global Country Manager, Colonel Rakesh Choudhary, these meetings included: Professor CS Dubey from [Delhi University's Department of Geology](#) and a member of the Government of India Task Force on Flooding Disaster; Dr Ghosh, Head of Geo-Hazard & Risk Management at the [National Institute of Disaster Management \(NIDM\)](#) and Professor Vinod Sharma from the Institute of Public Administration (Consultant to NIDM and [National Disaster Management Authority \[NDMA\]](#), Central Government).

These briefings were invaluable in providing Rescue Global with additional data, ground truths and access to the thinking of senior levels of government prior to the subsequent deployment to the States of Uttarakhand and Sikkim. The access we were afforded, and the professional standards of both the (academic) NIDM and (central government) NDMA, set the foundation for a well-informed onward deployment to the disaster areas and our operations there.

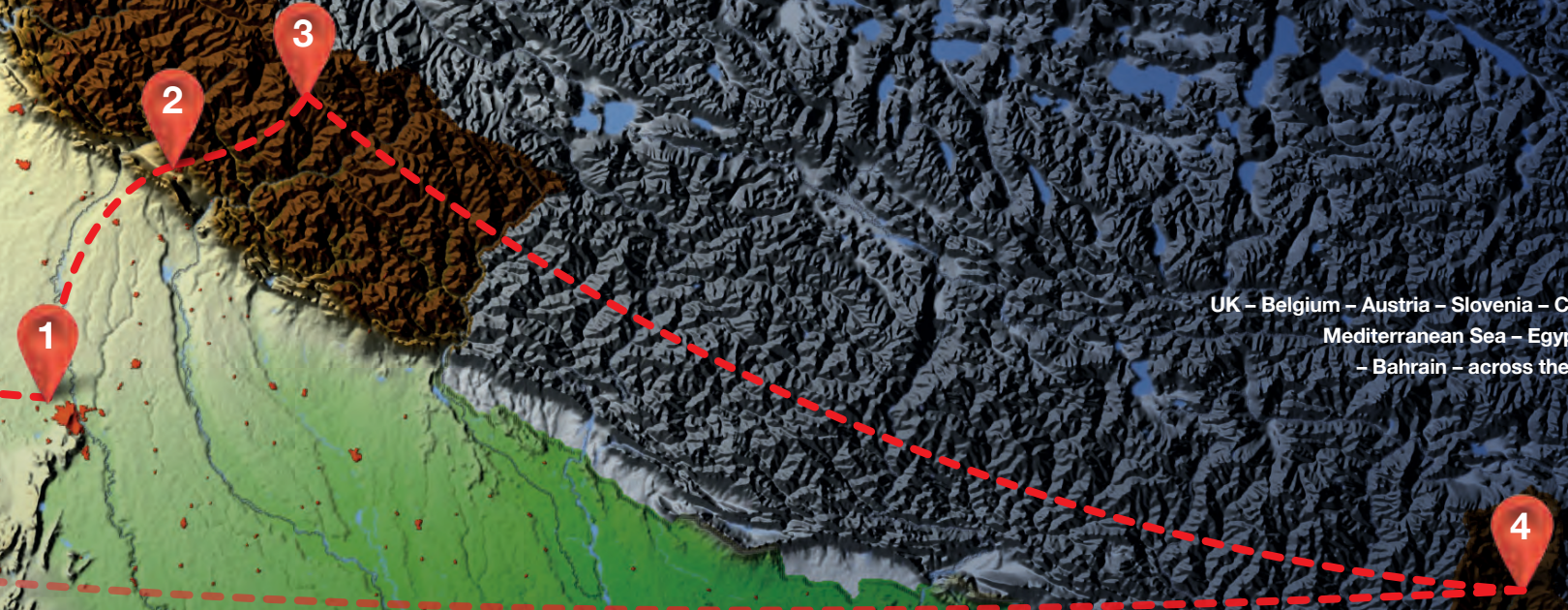
These relationships further enabled Rescue Global to quickly assess critical needs and apply resources in a short space of time. Rescue Global is now tasked by senior officials with the creation of a set of proposals in which we aim to add value by applying our skills, experience, infrastructure and technology at the local, state and national levels in India, with the sole purpose of saving life.

What was clear from our assessments was the need to enable simultaneous connectivity of communication and response structures. Additionally from this, there was the need to facilitate a set of seamless response actions, informed by early warning systems and best practices embedded at the grass roots level, with professional resources allocated by the state, provided by the national government. Where helpful, this can be further enhanced by the integration of international response partners, including Rescue Global. All of this must be done in a multi-agency environment, which is recognised globally as one of the key challenges in any disaster response scenario. Crucially, this is a key focus of Rescue Global, where we are able to empower both planners and responders with real-world solutions in a quick and effective manner.



### Outbound Route

UK – Belgium – Austria – Slovenia – Croatia – Albania – Greece – across the Mediterranean Sea – Egypt – across the Red Sea, Saudi Arabia – Bahrain – across the Persian Gulf – Iran – Pakistan – India.



### 1 Delhi

The Pathfinder Team with our country manager and global ambassador walk between meetings in Delhi

Friday 13/09/13



Meeting with Dr Ghosh, Head of Geo Hazard and Risk Management at the NIDM

Friday 13/09/13



### 3 Kedarnath

Pathfinders speak with witnesses of the flood, carefully and respectfully recording their statements in Kedarnath

Sunday 15/09/13



### 4 Gangtok

A training session with key members of the Sikkim community and government in Gangtok

Wednesday 18/09/13

### 2 Dehradun

The Rescue Global King Air proved essential for internal transit. Pictured here at Dehradun

Saturday 14/09/13







## KEDARNATH

Following briefings in Delhi, the team flew to the Jolly Grant Military Airbase in Dehradun where a tactical command centre was established. This was done to ensure safe and effective communications between the Rescue Global Pathfinder members (who would fly on by helicopter to the Kedarnath Temple area, one of

the first areas to be hit by the floods) and our strategic HQ in London. A pre-deployment briefing with Chief Minister Shri Vijay Bahugana, along with key members of his executive team, provided useful insights prior to the deployment to Kedarnath.



Equipped with the latest communication equipment including the first Rescue Global deployment trialling Google Glass (the subject of a separate detailed report), the team had a high level of confidence in their ability to gather still images, video and eye witness accounts from survivors in the community, to aid disaster analysis and future planning.

This post-disaster reconnaissance had been requested by the Secretary of Disaster Management of Uttarakhand with the expectation that Rescue Global would then further brief the national and state governments in the areas of disaster preparation, planning, response, resilience, horizon scanning and capacity building.

This was successfully achieved alongside the gathering of geo-tagged footage and stills which had been recorded by the affected population during the disaster. The communications architecture established by Rescue Global ensured that these assets were received in real-time at the HQ in London. They were then reviewed in depth by our analysts and partners, in the same way that they would be during an ongoing crisis or disaster.

This data has since been passed to Delhi University who are commencing a project on disaster modelling of the Himalaya region, funded by the Department of

Science and Technology. The data will also be used in a joint research project titled "Project Ubique", run by Rescue Global in collaboration with [The ORCHID Project](#). Together we are examining ways to harness the power of [Human-Agent Collectives \(HACs\)](#), artificial intelligence (AI), crowd-sourced intelligence and more, in order to develop behavioural insights and tools for use in DRR&R.

One of the key aims is to produce a map illustrating the "hot spots" of past disasters, and so enable a priority mapping process for future disaster response actions.

Rescue Global is separately providing the National Institute of Disaster Management (NIDM) and the National Disaster Management Authority (NDMA) with detailed proposals, based on the results of our deployment to Kedarnath.

The deployment to Kedarnath incorporated a full risk assessment and management model, recognising that the area was still susceptible to landslides, acute seismic activity, flooding, severe weather and health risks due to the number of animal and human remains on site. But due to this proven risk management model and our adherence to it, the entire operation was carried out with zero incidents.



## SIKKIM STATE

Following the deployment to Kedarnath, the team then flew on to Bagdogra Military Airbase in Sikkim State at the invitation of the state government. We addressed the public on behalf of the state government at a candlelit vigil in the capital, Gangtok, on the second anniversary of the devastating 2011 earthquake. This was a particularly moving event, which we were honored to attend.

Rescue Global then facilitated a disaster management workshop as a follow-up to training that we had provided to key state officials, through the University of West London in June 2013.

Delivered through an interactive workshop, supported by the Sikkim State Secretary for Land Revenue and Disaster Management and the Mayor of Gangtok, the training focused strongly on practical applications of incident management. The workshop also demonstrated

communications and reconnaissance equipment which would provide significant improvements in monitoring and response.

What was very clear in Sikkim is that the most sensitive areas are very remote and rely upon a close knit and innately resilient community, led by motivated leaders at the political as well as community-based levels.

Challenges identified include the extreme operating environment which creates difficulty in access, egress and communication, all of which can frustrate disaster planning and response.

Rescue Global was granted high-level access by the state, and the local authorities in Sikkim, so that we could prepare a detailed proposal for capacity building for future critical events. We know already that the key areas will include:

- Warning and informing key actors
- Early warning systems to provide time to react
- On-going training at national, state and local levels
- Engagement with established community leaders
- Resilient and remote area communications to enable national, state, local, as well as international command support functions.

It is interesting to note that these are similar to the common core challenges that we see in almost every location we visit and operate in worldwide. Appropriate planning, training, procedures, communications, reporting and seamless response are all required. These must take into account the cultural, economic, political, administrative and environmental factors of each potential disaster site, in order to be practical and immediately beneficial.





# OUTCOMES

All of the stated objectives for Operation Inundantia were achieved, without delay or incident. In the course of the operation strong relationships were established which have resulted in on-going collaboration with the Indian State and central government agencies, academia and NGOs. For Rescue Global as an organisation, significant milestones were achieved in Operation Inundantia:

## MILESTONE 1

Rescue Global worked across levels of government and within the host-nation framework for disaster response – national government (NDMA), national institutions (NIDM), the Armed Forces (Air Force, Army and Air Intelligence Groups), academia (University of Delhi), local NGOs and also the private sector (Google) – to meet the operation objectives within one mission.

## MILESTONE 2

Rescue Global's first long-range deployment of an operational air asset. Moreover, Rescue Global secured permission to fly and operate our own aircraft into, out of, and within Indian airspace, which is extraordinary and not normally permitted beyond regularly scheduled commercial flights.

## MILESTONE 3

Rescue Global's first live-stream video from the field to our London and New York HQs, in this case using Google Glass from a remote area of the Himalayas. The live stream enabled a New York-based paediatrician to examine children in Sikkim and to remotely advise our Pathfinder Team as to the treatment and care to be administered on the ground.

## MILESTONE 4

Rescue Global attended a ceremony at the request of state officials marking the anniversary of a significant earthquake. In position to make a meaningful difference, we conducted community-wide disaster risk reduction workshops. These educated all members of the community, from the mayor to school children, with a view to reducing life risks in future events.

In addition to these internal milestones for Rescue Global, close operating and exploratory relationships were forged during the operation through various missions. Below are example relationships that Rescue Global will carry forward as we strive for true resiliency in DRR&R:



### NDMA

Rescue Global drafted a detailed report for the Indian NDMA on hazard early-warning systems, multi-agency cooperation, and command support functions in disaster management and response.



### NIDM

Multiple proposals were submitted for the integration of technological and informational enablers, including artificial intelligence, Human-Agent Collectives (HACs), resilient communication systems and decision making models. Also, a separate proposal regarding the Earthquake Coordination Centre, a fusion centre to be operated by India for a group of international countries at risk.



### University of Delhi

Rescue Global provided images, video and reports of Kedenarth to support the Department of Science and Technology project for mapping and analysis of flooding events. Also, a proposal was submitted for cooperation with The Orchid Project to conduct ongoing disaster preparation, planning, response and recovery actions in the areas of geology, environmental and engineering disciplines.

If you would like to learn more about the Disaster Risk Reduction and Response capabilities of Rescue Global, or to find out how you can assist us through partnering or volunteering, please visit:

[www.rescueglobal.org](http://www.rescueglobal.org)

