A successful conclusion to the Integrated Field Exercise 2014:

The CTBTO’s largest ever on-site inspection exercise

A note of gratitude to the Jordanian government from CTBTO Executive Secretary Lassina Zerbo

The Integrated Field Exercise 2014 (IFE14) was by far the most sophisticated exercise the CTBTO has ever conducted. The five-week exercise, which started on 3 November 2014, involved four years of preparation, 150 tonnes of specialized equipment including through in-kind contributions amounting to U.S.$10 million, and over 250 international experts.

IFE14 illustrated that we have mastered all components of the verification regime, and brought our on-site inspection capabilities to the same high level as the other two components: the network of monitoring stations, which is over 85% complete and the International Data Centre.

I would like to express my deep appreciation to the Jordanian government for its generous support. By hosting IFE14, Jordan underscored its role as an anchor of stability in the region and sent a positive political signal for international nuclear disarmament and non-proliferation efforts. I am inspired by the fact that His Majesty King Abdullah II of Jordan generously placed the exercise under his royal patronage and grateful for the outstanding cooperation and hospitality from all branches of the Jordanian government.

Prince Feisal Bin Al Hussein of Jordan (right) with CTBTO Executive Lassina Zerbo during IFE14, November 2014.
Reflections on IFE14

BY OLEG ROZKHOV
DIRECTOR OF THE ON-SITE INSPECTION DIVISION

The Integrated Field Exercise 2014 (IFE14) in Jordan made history not only for the CTBTO, but for the Treaty as a whole. IFE14 was unprecedented in a number of ways. Firstly, it was the largest field exercise since the inception of the organization. Almost 150 tonnes of equipment were shipped to Jordan and used in the exercise. More than 250 experts from all over the globe participated in IFE14 in various capacities. And secondly, the exercise also drew significant attention from the international community. More than 80 VIPs from 28 Member States, various international organizations, NGOs and senior representatives from the host country visited the IFE14 exercise, thereby underlining its political importance.

IFE14 served as the true litmus test for showing that significant progress had been made in developing OSI capabilities since the previous integrated exercise in Kazakhstan in 2008. It also clearly demonstrated that we have the core capabilities necessary to conduct and achieve the primary objective of an on-site inspection, as provided for by the CTBT.

The exercise could not have been conducted with such success without the tremendous concerted efforts of the entire organization and its Member States, or without the substantial political, financial, expert and other forms of support provided by Member States. We would also like to pay tribute to the crucial role that Jordan played in both IFE14 preparations and as the host of this exercise. IFE14 received the highest political support in Jordan – it took place under the patronage of the Jordanian Royal Family.

While participating in the exercise in various capacities, I was both surprised and pleased to witness the highest level of enthusiasm, dedication and teamwork demonstrated by all IFE14 participants. It was evident that they were distinctly aware of the important work they were doing and felt privileged to contribute to promoting the CTBT and to strengthening international security.
Did Maridia conduct a clandestine nuclear test?
The Integrated Field Exercise 2014 from the perspective of the inspected State Party

BY MALCOLM COXHEAD

No country would welcome claims that it had breached the Comprehensive Nuclear-Test-Ban Treaty (CTBT). Receiving an on-site inspection (OSI) to clarify whether a nuclear explosion had taken place might not be a comfortable experience either. But the arrival of inspectors would represent the opportunity for an inspected State Party to clarify concerns that had been raised about its actions.

Facilitating an OSI would also represent a significant practical challenge for an inspected State Party. Liaison with the inspection team and logistical support for its activities would need to be established quickly, and maintained for weeks to months. This is more than just booking a hotel and arranging a few rental vehicles. It requires the commitment of liaison and support staff, as well as the practical support of local authorities to facilitate inspection access. An inspected State Party that wishes to actively exercise its rights under the CTBT, to manage the access of inspectors and protect any information from sensitive sites, must promptly assemble the expertise that will allow it to follow the work of the inspection team, to analyse for itself the data the team collects, and to clarify any ambiguities that might arise about the meaning of that data.

For me, as the senior representative of the inspected State Party, and for my 35 colleagues playing the role of inspected State Party representatives, our task in the Integrated Field Exercise 2014 (IFE14) was made a lot easier by the very considerable preparatory work carried out by the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) before we set foot in Jordan – also known for the purposes of the exercise as the fictitious state of Maridia. This was good as the intention for IFE14 was that Maridia would actively use CTBT provisions to protect its interests, and offer a realistic test for the inspectors, their equipment and OSI procedures.

DIFFICULT TIMES FOR MARIDIAN REPRESENTATIVES

The exercise scenario for IFE14 created a fictitious backdrop that put Maridian representatives in a difficult position. Evidence of a possible nuclear explosion collected through the International Monitoring System (IMS), while not fully clear, was consistent with a nuclear explosion. Maridia’s representatives were instructed to present an alternative explanation for the IMS detections.

The 1,000 km² of the inspection area included some populated areas and some difficult to reach areas. Access to military sites and some industrial activities (such as quarrying) needed to be carefully managed. The presence of roaming tribespeople, and some sharp-teethed fauna posed a risk for the security of inspection equipment left unattended in the field.

Negotiating support and access for the inspection team played a big role in IFE14, as it could in any future OSI. This proved to be tough from the start of the exercise, and whether the inspection would begin on the night the inspectors arrived or the next morning led to midnight talks and a few frayed tempers. Working relations between Maridia’s representatives and the inspection team were maintained but were tested several times as access to the inspection area was negotiated.

Each day multiple convoys of vehicles set out from the inspection team’s base of operations, initially to search the inspection area and identify locations that might require closer examination. Inspectors traversed many thousands of kilometres of roads and trails to conduct visual reconnaissance, to take radiation measurements and samples and to install aftershock seismic monitoring arrays. Each convoy, or field team, included Maridian drivers and escorts whose job it was to facilitate and manage access for inspectors, and to help ensure the safety of all involved. These included negotiations for inspection equipment to be installed on private land, and secured against any interference. Perhaps inevitably, Maridia’s technical people also wanted to offer their own expert advice to inspectors on the best way to make various measurements. This is possibly outside the scope of the OSI mechanism, and I discouraged it.

A PUNISHING SCHEDULE

Days began around 7am with the assembly of teams to go to the field, and ended around 10pm following an evening wrap up meeting for Maridian personnel. The planning cycle was relentless, with missions for the following and subsequent day proposed, discussed, planned and coordinated with Jordanian agencies. Even with the excellent support provided by Jordan, some interesting real-world problems...
had to be overcome to arrange access for the inspection team at some places.

The punishing schedule eased one day a week as field missions were not conducted on Fridays, respecting local custom. Planning had to go on even on Fridays but a couple of hours per week were thus left for the most favoured recreation of many IFE14 participants – floating in the Dead Sea.

A search of the inspection area was also conducted from the air, with inspectors recording dozens of photographs of installations that they thought worthy of investigation. Some photos were of buildings that turned out to be chicken coops, while others were of military sites. Maridia was able to satisfy the inspectors that those particular photos were not relevant to their task, and so they did not leave Maridian territory.

MAINTAINING INTEREST FROM START TO FINISH

After two weeks of searching, the inspection team had narrowed its focus to a few areas, the main two being quarry locations. The inspection team thought that each might be the site of an underground nuclear explosion and was keen to apply a host of geophysical techniques and to sample for radiation. But arranging free access for inspectors to these areas of private land presented challenges for Maridia.

At one of the two sites, which came to be known as polygon 18, Maridia was eventually able to offer free rein to inspectors for inspection activities on the surface. Suspicions about the site waxed and waned as more and more of the investigations showed no evidence of a nuclear explosion. But the presence of what appeared to be a gated tunnel entrance, for which Maridia had inexplicably lost the key, kept interest alive.

The second of the two main sites, known as polygon 29, presented greater problems due to a local radiation hazard and what Maridia described to the inspectors as proprietary commercial interests. The inspection team’s plans for geophysical investigation and for radiation measurements and sampling were carefully negotiated, including taking account of safety risks. Maridia offered its explanation for what inspectors saw at the site. But were they satisfied? Finally, the analysis of subsurface gas samples showed strong indications of a nuclear explosion. Maridia sought to explain these too – but would this be believed?

The fictional background to the IFE14 story was that yes, there had indeed been an underground nuclear explosion in the area known as polygon 29. However, Maridia’s approach was to present itself as innocent and argue that the IMS detections, as well as any suspicious observations by the inspection team, had innocuous explanations. The Maridian team did not try to block or otherwise stymie the inspection, as to do so would be judged as guilty behaviour. Along the way, the checks and balances of the CTBT’s OSI mechanism were put into play, and radioactive gases indicative of a nuclear explosion were ultimately found. No team likes to lose a game but satisfaction for the Maridian side came from playing hard to test the OSI mechanism – and helping to make it ready.
Twenty-four hours in a day were not enough
The Integrated Field Exercise 2014 from the perspective of the inspection team

BY GREGOR MALICH

Vienna, 3 November 2014: Not one of the designated core inspection team members who had just been informed of Alluvia’s request for an on-site inspection (OSI) in Maridia was taken by surprise. This was the day when the OSI Integrated Field Exercise 2014 (IFE14) was scheduled to begin, the day when years of preparations came to an end and were finally put to the test – anticipation reached its climax.

The OSI regime foresees that once the CTBTO Executive Council has approved a pertinent request from a Member State, an OSI can proceed. This will involve the mobilization of inspectors from around the globe and their deployment to the inspected State Party. Once there, the inspection team will conduct and use permitted inspection activities and techniques for a duration of up to 130 days, enabling the team to collect facts that will allow clarification as to whether a nuclear test explosion has been carried out. This is, in a nutshell, what lay ahead of us – i.e. the surrogate inspection team that I was leading – along with many uncertainties, except for what had been made known about the constraints of IFE14 in the booklet for exercise participants. But there was also the belief that we truly formed a team and exercise preparations had come a long way.

NUMEROUS TASKS TO BE ACCOMPLISHED PRIOR TO DEPARTURE

The launch phase of the inspection started with the activation of the Operations Support Centre in the morning of 4 November as soon as it was confirmed that the OSI request complied with Comprehensive Nuclear-Test-Ban Treaty requirements. As this phase was to lay the foundations for the initial inspection activities and confirm the availability of required resources including what we would need the inspected State Party to provide, the tasks to be accomplished were intricate and profluse. They ranged from a review of the OSI request and information on the triggering event and the inspection area, to initial inspection planning, inspection mandate preparation, logistics planning and arrangements, to the communication of requests for information and support from the inspection State Party, and ultimately to assembling the team. To put it mildly, these were harried times for everybody involved, not least because of the strict limits on daily working hours at the Operations Support Centre – not the only ‘exercise artificiality’ since such restrictions would not apply in a real OSI. Despite all of this, by the evening of 6 November the inspection team’s “starting 40” had assembled in Vienna and had been briefed, planning was complete and the inspection mandate had been signed. All boxes on the to-do list had been ticked (some more confidently than others) so that we were ready to literally embark on our journey.

TOUGH NEGOTIATIONS LATE INTO THE NIGHT

The following day provided a welcome first breather as travel to the point of entry in the inspected State Party, Maridia International Airport (also known as Queen Alia International Airport in Amman, Jordan), was on the agenda: time to reflect on open and closed issues, to prepare for the first meeting with the inspected State Party, and of course, a chance to get some rest. The team transited in two travel groups via separate routes but arrived within 20 minutes of each other very much on schedule. Night had fallen in the meantime and what followed was a good illustration of the unexpected during an OSI: After welcoming us briefly and transferring the team to a nearby hotel, the inspected State Party initially refused to accept the inspection mandate, referring vaguely to some legal issues. This led to tough negotiations late into the night: our encounter with the inspected State Party had only just begun, with weeks full of discussions, more negotiations, misunderstandings and clarifications, disagreements and agreements ahead of us.

The base of operations was set up on the shores of the “Costa del Maridia” at a site inside the inspection area overlooking the Dead Sea, the scene of many beautiful sunsets during the exercise. We only had to make minor changes to the layout plans for the base and thanks to everybody working hard on their tasks and beyond, and not least because of the support we managed to negotiate from the inspected State Party, readiness for commencing inspection activities could be achieved within Treaty timelines. It took more time, however, until the inspection team became fully operational and before a routine was established at
the base. This did not happen until after three days of field deployments on Friday 14 November, when the inspection was limited to activities within the base in order to respect the Muslim traditions of Maridia. This ‘exercise artificiality’ applied on every Friday during IFE14 and turned out to be invaluable as it offered us time to consolidate team functionality and to organize and maintain the infrastructure and equipment accordingly. In this sense, even though there was little time to rest, this first Friday at the base provided the second breather as we were able to adjust our daily tasks and schedule, while allowing for subsequent reviews and amendments as necessary throughout the inspection.

OPERATING AS A COHESIVE UNIT

With the routine, the team grew in both confidence and experience. It was clearly visible that we operated as a cohesive unit throughout the exercise and each rotation of team members revitalized the team, if within limits. The base of operations with all its components functioned effectively and it was particularly pleasing to see a number of inspection techniques being applied usefully for the first time in a realistic OSI context, including airborne multispectral imaging, noble gas laboratory operations and active seismic surveys. Deployments of field teams became smoother every day, as did the integration of collected information which ultimately pointed to one site within the inspection area where there were a number of findings consistent with an underground nuclear explosion. This achievement, however, was deeply etched on many inspectors’ faces – no matter how enthusiastic everybody remained – as we grappled with inadequate rest until the end of the exercise. This was not helped by the fact that some critical functions were dependent on only one inspector; the lack of time, such as for proper field mission debriefings, could only be noted but not properly compensated for. Twenty-four hours in a day was not enough for the inspection team, at least not during IFE14.

When we dismantled the base on 6 December as part of the IFE14 post-inspection activities, nearly five weeks had passed since the request for an OSI. With the CTBTO flag gleaming in the sun and Kraftwerk’s “Radioactivity” from the IFE14 playlist sounding across the site, I could only see the smiling faces of both my fellow team members and the inspected State Party representatives. No doubt there was delight that the exercise had come to an end; but even more noticeable was the satisfaction that IFE14 had surely served its purpose by showing the world how much progress has been made in the development of OSI capabilities.