Water for Sarajevo

by Jo Parker

In an emergency situation, installing a new water supply system or repairing an existing one takes ingenuity and resourcefulness. Buying equipment, arranging for its transport, and managing a team under stress are just some of the problems that have to be solved.

LIKE MANY PEOPLE, my knowledge of Sarajevo and its environs was limited to the 1984 Olympics and the more recent and tragic pictures on television. I had never visited Yugoslavia and, therefore, had little idea of what to expect when I was asked, in my capacity as a Control Manager at Thames Water, to undertake a project to rehabilitate one of the systems feeding Sarajevo. It was August 1993.

A month after I was contacted I was in a town called Pale, 10 miles from Sarajevo, within Serb-held territory. I worked closely with Serb engineers who had taken on the running of a system which, prior to the war, had supplied about 10 per cent of Sarajevo's water. This supply had become crucial during the war, as it was the only gravity-fed supply into the city, with the other water supplies even closer to the front line.

Existing equipment

The system was fed from a number of springs located in the mountains close to Pale. The water was collected in concrete reservoirs and was then gravitated or pumped to a main storage reservoir where it was chlorinated. From there it gravitated via 14km or so of cast-iron main into Sarajevo, passing through a series of break pressure tanks before it reached the city. The system had first been developed in the 1920s and much of the equipment still dated from this time. The pipes were generally lead-jointed, although some still had the original wood packing in the joints. Much of the pipeline ran through unstable ground (I felt several substantial earth tremors while I was in Pale) and many of the joints were leaking badly, with some lateral connections completely broken.

The Serbs had done their best to keep supplies flowing but they lacked tools, equipment, and spares, so the leaks could no longer be repaired. As a result only about one third of the normal minimum flows were reaching Sarajevo. The pumping stations also housed equipment that was as much as 40 or 50 years old. Where it had been possible, pumps had been cannibalized to keep at least one pump running, but they were all at the end of their useful life and two failed while I was in Pale. The technology was at least familiar, however, and my experience with a British water company was invaluable.

Sarajevo had originally obtained most of its water from a field of deep wells located in a suburb of Sarajevo called Bacevo, which was held by the Serbs. It was located right near the front line, with some wells located on the far side in Muslim-held territory, so repairs were virtually impossible. Many of the pump motors and transformers had failed, and even those wells that could run rarely did because of the widespread power cuts. The water board engineers had established a number of emergency boreholes with nearby standpipes, but collecting water was an arduous task for the city's inhabitants, with the sub-zero temperatures and the constant fear of snipers and shells.

Organizational role

By now it was early October, and snow was likely any time from November onwards. Luckily the Works Department of Pale Municipality boasted several very competent engineers and technicians, including some refugees. My input was therefore principally to provide overall organization and, more importantly, motivation to undertake the work. Some repairs would be made to the smaller system feeding Pale itself, but I was aware that these were Serbs working on a system that would benefit Muslims — the 'other side'. A list of essential materials and equipment was agreed for the rehabilitation of the Sarajevo system as well as a local system feeding the town of Pale itself, but then the materials had to be found. Buying outside Serbia would mean going through the UN sanctions committee, which was reputed to take weeks if not months, so it was decided to find materials locally. Apart from the advantage of speed, this would also mean that the technology would be familiar and spares more likely to be obtainable.

The temptation to introduce improvements to the system which, compared to those in the UK, seemed

Repairing the main pipeline to Sarajevo in the snowy mountains outside Pale.

Finding a crane that was normally used to load pine logs to shift the pipes was a real coup!

out-dated and inefficient, was hard to resist. One pump manufacturer was still operating, and a steel pipe manufacturer was found with stock that could be shot-blasted and coated. The Red Cross Belgrade staff tracked down plumbing fittings and various other bits and pieces, and deliveries were arranged using the Red Cross Relief Trucks. Careful planning was needed, as all deliveries had to be notified to the authorities 48 hours in advance, and the problems of winter weather, fuel shortages, and hold-ups at checkpoints meant that the Red Cross Relief Department had to make optimum use of their trucks. My earlier training in project management proved useful, both for the planning itself and for communicating those plans to the Serb engineers. A bar chart speaks a thousand words!

The first materials arrived in mid-October and from then until early December I split my time equally between Pale, supervising work and checking progress, and Belgrade, where I arranged payments, chased up orders, and organized deliveries. Plans had to be changed and updated constantly as deliveries were delayed because of the icy roads or problems with the travel authorization process. The latter was particularly frustrating as no reasons would be given by the Bosnian Serbs for failing to authorize travel. Hearing the municipal engineers moaning about their own authorities just emphasized the contradictions of the country. But the frustrations were offset by achievements, such as obtaining a crane grab, usually used for loading pine logs, to off-load our steel pipes, or watching a skilled welder achieving the seemingly impossible and making a special connector for the new pumps. During a visit to Sarajevo I was overjoyed to hear that supplies had improved dramatically — one water board official had even been able to take a bath, the first one for a year!

Local tensions

One final hurdle had to be overcome. Both the Muslim and Serb engineers wanted to meet each other. Enquiries were made, and with the help of an EC Task Force engineer based in Sarajevo, a meeting was set up at Sarajevo airport — neutral territory held by the UN. The week prior to the

Supplies of pumps and other hardware were bought locally where possible and transported with the help of Red Cross trucks.

meeting saw heavy shelling on the Serb access road, but we all made it to the airport without incident. Initially the meeting was somewhat stilted, but a bottle of Slievervic helped break the ice and by the end the two groups of former colleagues hugged each other and said they would see each other at the next meeting! The meeting was of very real benefit, as technical information was exchanged and arrangements to exchange various spare parts were made.

Overall it was a very successful project, although the frustrations, tensions and lack of rest left me feeling pretty exhausted. The most difficult problem I faced was working on both sides and having to keep strictly neutral. Still, I made it home for Christmas and after a short rest I was ready to start back into the (comparative) luxury of Thames Water.

It was a lesson in the management of a major emergency which could be just as useful in any country, where a serious problem at one of the major works could require similar measures. ●

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