BushProof SARL

MAXIMUM HUMANITARIAN IMPACT - INNOVATIVE SOLUTIONS FOR DIFFICULT ENVIRONMENTS

TECHNICAL TRAINING IN WATER & SANITATION INFRASTRUCTURE

"This training was unquestionably one of the most useful I have ever attended. It combined a very strong theoretical grounding with numerous practical exercises that ensured that participants were able to know how water and sanitation solutions are both developed and implemented. It was intensive, information-rich and supported by extensive documentation including manuals, policies and research findings. The key to the success of the training was the fact that the trainers were both highly experienced in the field, and that they were passionate about the subject."

- Save the Children participant, September 2013

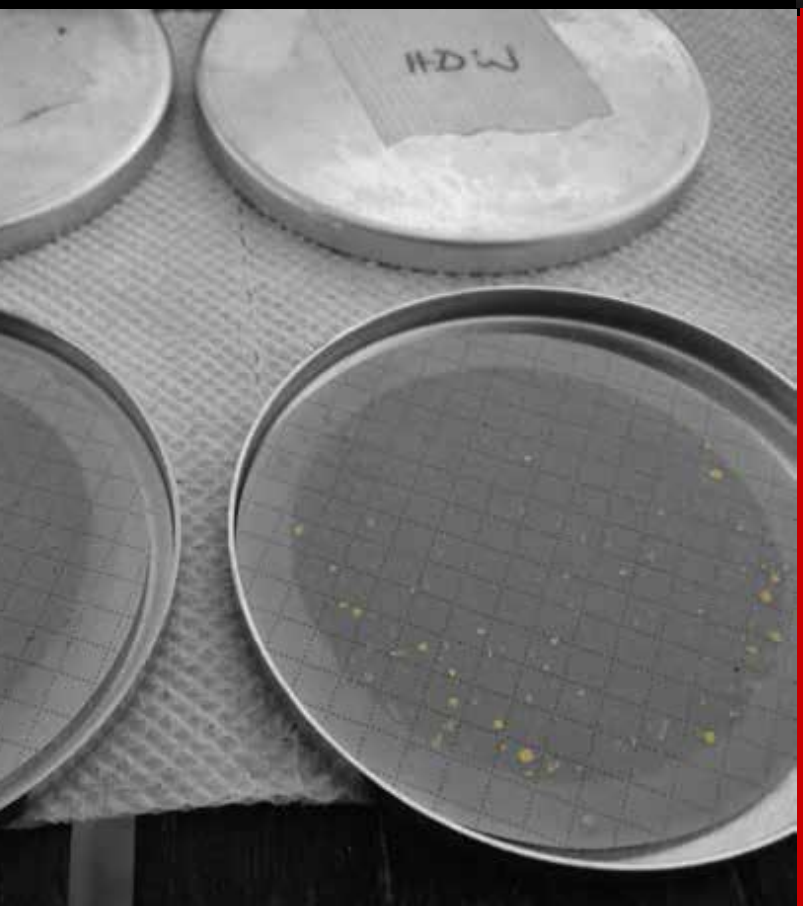
OVERVIEW

The BushProof Technical Training in Water & Sanitation Infrastructure is a broad, intense 6-day course with a heavy practical bias, providing a rare opportunity to learn through both theoretical and hands-on practical sessions. The training is invaluable to both those who need more technical input for their work, as well as for those in management who find they have become more and more involved in water and/or sanitation programmes, but lack the basic technical and theoretical background.

PRACTICAL SESSIONS

The training is intense and is given through a range of practical and theoretical sessions. While several theoretical courses are available elsewhere, practical, hands-on field experience is difficult to obtain. The BushProof training therefore focuses heavily on these sessions (some of which are carried out by participants, others of which are shown during breaks by the BushProof construction crew), which include the following:

- In-situ lining, curved block & cutting ring construction for hand-dug wells;
- Manual drilling using BushProof technique;
- Well jetting;
- Handpumps and their operation;
- Coagulation & chlorination jar tests;
- Biosand filter construction & installation;
- Latrine slab construction (sanplat, dome);
- Water testing (physio-chem, bacteriological).



THEORETICAL SESSIONS

In addition to the practical sessions, the course will provide a broad overview of the theoretical aspects of water and sanitation projects (but will focus on water supply & treatment). Theoretical issues are linked to real life field experiences of the facilitators throughout the course.

TEACHER-STUDENT RATIO

We will never have more than 20 participants per course, and therefore have a high teacher-student ratio, which we find is essential to allow individual feedback and tuition.

LANGUAGE

The course will be conducted in English, but since the BushProof course facilitators speak French they can help francophone participants to understand any technical terms.

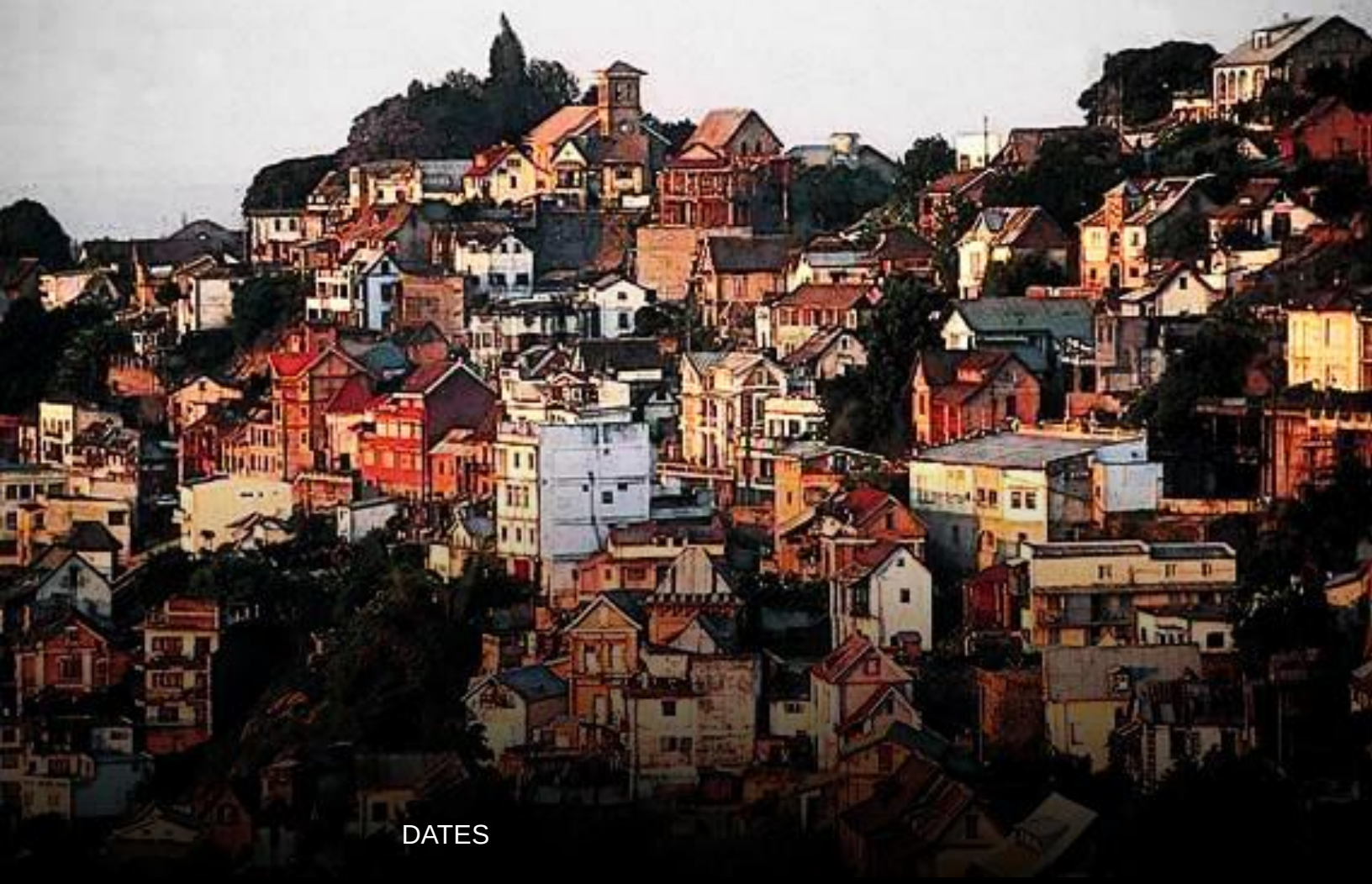
“The trainers were really WATSAN experts, very well organized and exceptionally dedicated. The training provided me with the skills I needed to better manage and to provide technical support to our implementing partners.”

- USAID participant, June 2010

SCHEDULE

DAY	TIME	MAIN SUBJECTS	DETAILS
Day 1	Monday		
	08.00 - 09.00	Introduction & welcome	Introduction to the course. Book review & technical response services - where to look for information.
1	09.00 – 10.30	Environmental Health	Environmental health in context, overview of WASH related diseases, interventions to prevent transmission.
		Coffee break	**Practical**: bending pipe for sand filter
2	11.00 – 12.30	WASH needs & standards	Sphere Standards & indicators in WASH programming, meeting the needs of users including marginalized groups.
		Lunch break	
3	14.00 – 15.30	Field hydrogeology	How groundwater works – overview of aquifer types, technical terms related to hydrogeology, geology overview.
		Coffee break	**Practical**: greasing sand filter mould
4	16.00 – 17.30	WASH assessments	Needs assessment methodologies, including checklists, sanitary surveys, village mapping.
Day 2	Tuesday		
5	08.00 – 09.30	Shallow groundwater sources	Overview of shallow groundwater sources, including hand-dug wells, riverbed wells, infiltration wells, infiltration galleries, sub-surface dams.
		Coffee break	**Practical**: casting sand filter
6	10.00 – 11.30	Hand dug wells	Overview of hand dug well construction using in-situ lining with curved blocks and cutting ring for caissoning.
		Lunch break	
7	13.00 – 14.30	Spring protection	Spring protection techniques & construction guidelines.
		Coffee break	**Practical**: hand-dug well cutting ring
8	15.00 – 17.30	Rainwater collection	Collection system, guttering & storage tank options. **Practical**: design of rainwater catchment at office.
Day 3	Wednesday		
9	08.00 – 09.30	Water quality testing 1: overview	Water quality standards - when to test water, what is most important to test for, core and secondary tests. **Practical**: showing chemical testing kits.
		Coffee break	**Practical**: removing sand filter mould
10	10.00 – 12.00	Water treatment 1: Coagulation, flocculation & sedimentation	Product types & effectiveness, calculating 1% alum solution. **Practicals**: making 1% alum solution & doing jar test, natural coagulants (*Moringa*).
		Lunch break	
11	13.30 – 15.30	Water treatment 2: Chlorination	Product types & effectiveness, calculating 1% chlorine solution. **Practical:** making 1% solution & doing jar test.

		Coffee break	**Practical**: hand-dug well blocks for caissoning
12	16.00 – 17.30	Water treatment 3: Household Water Treatment	Rationale for promoting household water treatment, review of pros & cons of household vs bulk treatment, overview of selected technologies. **Practical**: demonstration of ceramic filter, SODIS, household chlorination, PuR/WaterMaker, solar distillation, biosand filter.
Day 4	Thursday		
13	08.30 – 10.30	Water quality testing 2: chemical & bacteriological testing	**Practical**: collecting samples, carrying out membrane filtration & incubation of samples using Delagua kits (including sample from SODIS demonstration).
		Coffee break	
14	11.00 – 12.30	Drilling 1: options	Overview of drilling options, including hand drilling, machine drilling, jetting, sludging.
		Lunch break	
15	14.00 – 15.30	Drilling 2: well jetting	**Practical**: making screens & jetting
		Coffee break	
16	16.00 – 17.30	Drilling 3: BushProof manual drilling	**Practical**: BushProof manual drilling
Day 5	Friday		
17	08.30 – 09.00	Water quality testing 3: bacteriological test results	**Practical**: reading water test results from previous session.
18	09.00 – 10.30	Water supply, storage, treatment & distribution	Overview of water provision from source to point of use, including details on water sources, treatment, transport, storage & distribution.
		Coffee break	
19	11.00 – 13.00	Drilling 4: borehole design	Overview of technical borehole installation methods used during rotary mud flush drilling, including information on screens & slot size, borehole logs, development, pumping tests, what to supervise in contracted boreholes.
		Lunch break	
20	14.30 – 16.00	Sanitation options 1: overview	Sanitation options for emergency & medium term settings including what factors affect the technical choice, pros & cons of communal latrines, pit sizing, cleaning.
		Coffee break	**Practical**: installing sand in sand filter
21	16.30 – 17.30	Sanitation options 2: slab construction	**Practical:** latrine slab construction of standard (reinforced) slabs and dome slabs.
Day 6	Saturday		
22	09.00 – 10.30	Handpump operation & maintenance	Overview of handpump types including Canzee, India Mark, rope and treadle pumps. Discussion of maintenance & sustainability issues.
		Coffee break	**Practical**: handpump testing
23	11.00 – 12.30	Review, recap & evaluation	Repeating sessions or practicals as needed, filling evaluation forms, giving out certificates.
		Lunch break & end of training	
24	14.00 – 15.30	Optional sessions: e.g. field surveying, gravity flow, system curves, pump choice	Optional session as per demand
		Coffee break	
25	16.00 – 17.30	Optional sessions: e.g. field surveying, gravity flow, system curves, pump choice	Optional session as per demand



DATES

See website www.bushproof-madagascar.com for details.

LOCATION

Antananarivo (Tana) is the capital city of Madagascar and the largest city on this big island in the Indian Ocean. The city is situated inland, about 90 miles from the East coast. Tana was founded in the early 1600's and its position on top of a high ridge made it easy to defend against enemy attack. Antananarivo means "the city of a thousand", a reference to the 1000 soldiers that supposedly protected the newly founded city during the reign of King Andrianjaka. In 1895, the French took over and expanded it greatly to include many new buildings and roads. Madagascar gained its independence from the French in 1960 and today the city offers a wonderful panoramic of different cultures and eras.

Tana will surprise you with its rice paddies, intricate canal systems, numerous stairs up steep hills, palaces, narrow cobbled streets, oxcarts and churches. It is not quite Africa or Asia but a curious mixture of both with a touch of French influence. It is the starting place for adventures throughout the island.

VENUE

The training will be held at (or near) the BushProof office in Antananarivo. The venue is near the airport and is in a pleasant, uncrowded part of town with easy access to a range of hotels and restaurants. The office has a wireless internet connection.

HOW TO BOOK

Go to www.bushproof-madagascar.com and click on Products > Training > Booking a Training. Here you will find booking procedures and application forms. Please contact us if you experience any difficulties.

RESOURCES

Participants will receive several resource CDs with a wealth of expertise in the form of documents and articles. A certificate will be presented to participants on completion of the training.

COURSE FEES AND DURATION

The duration of the course is 6 days (with 5½ days taught). The cost is 1500 Euros*

The course fee includes:
Tuition, handouts, resource CDs, coffee breaks, lunch on training days and field visits.

The course fee does not include the following:
International & domestic airfares, travel or medical insurance, visa, accommodation, breakfast / evening meal and taxi cost from the accommodation to the training centre every day.

An arrival guide to hotels in Antananarivo will be sent to all applicants together with the invoice. This allows participants to choose and organize their own accommodation and includes telephone and email contacts. Please read this information carefully as it will contain all you need to know. However, BushProof will help participants if they are really having difficulties in arranging things, but note that we are primarily a training organization, not a logistical one. Daily expenses (hotel, taxi, etc) will likely be in range of 20 To 50 Euro – further details are in the arrival guide. In addition, there will be some compulsory reading for all participants prior to the training – this is to ensure a basic understanding of some of the more involved topics."

*Any organization booking 5 places can get a 6th place for FREE. A place is only assured upon full receipt of course fees. We require a minimum attendance to make the course viable, otherwise we will have to cancel the course. Our cut-off date is 1½ months prior to the course start date – so please confirm with us prior to paying for international flights.

CONTACT DETAILS

Telephone: +44 (7814) 788 846 (UK) or
+261 (33) 11 997 56 (Madagascar - French)
+261 (33) 05 244 92 (Madagascar - English)
Email: madagascar@bushproof.com, sales@bushproof.com

HEALTH ADVICE

Prior to travel to Madagascar, please ensure that you are properly vaccinated and take relevant precautions. Visit your doctor before travelling.

Special notes:
Make sure you are fully vaccinated. A yellow fever vaccination certificate is sometimes needed when entering the country. Malaria risk, predominantly in the malignant falciparum form, exists all year throughout the country and is highest in coastal areas. Resistance to chloroquine has been reported. Chikungunya, which is a similar virus to Dengue has hit coastal Madagascar around the area of Tamatave (half way up the east coast) in the past. There is no vaccination against it, and the best way to prevent it is by preventing mosquito bites, even during the day (early morning, late afternoon) when the vector mosquito is especially active.

For advice on how to prevent insect bites:
http://www.nathnac.org/pro/factsheets/iba.htm

Bilharzia (schistosomiasis) is present in fresh water. Although health advice is to avoid swimming and wading in fresh water, during fieldwork it is sometimes unavoidable. Therefore if you have had contact with open fresh water during your visit, you should get an Elisa antibody test together with an antigen test 6 weeks or more after you re- turn home (6 weeks, because if infected, the antibodies need to develop first and won't show on the test otherwise). Dysenteries and diarrhoeal diseases are common. Attention to what you eat, and perhaps more importantly to hygiene (e.g. washing hands) is therefore especially important. Rabies is present in Madagascar. Vaccination before arrival should be considered.

VISAS

Visas are needed by all nationalities and can be obtained at Madagascar consulates prior to travel. Applications can be made to the consulates by post. You can check out this link for further information on visas:

http://www.madagascar-consulate.org/visainfo.html

Equally, for most nationalities it is possible to obtain entry visas for 1 month at the airport on arrival, where often the queue is shorter than for those with visas.

INTERNATIONAL TRAVEL

Getting to Madagascar can be expensive. Please contact us if you are having difficulties, and we can recommend some options for you.

Graphic design: Luke John Paul Barrett