

the mud

# Earthbag Building

Atulya K. Bingham



[www.themudhome.com](http://www.themudhome.com)

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## How I built my earthbag roundhouse, step by muddy step.

I was completely clueless when I started my earthbag house. I didn't know what a joist was, how to bang in nails without them bending, or what the purpose of a 'stem wall' was. Now, I am marginally less clueless, though I feel zero shame about my greenhorn days. I've learned building a house has a lot less to do with terminology and expertise than it does with getting out there and doing things. It's about imagination, drive, determination and a certain Zen approach to mistakes. And above all else, it's about having a laugh. This short ebook won't offer thousands of different ways of building earthbag. I'm taking you step by step through the method of how I built my house, a house that has survived three big earthquakes, severe floods and hurricanes, because I know it works.



First things first.

### Is Earthbag for you?

(Because it's not for everyone.)

Earthbag is excellent in most climates. It can withstand flooding, earthquakes, extreme temperatures and damp. The only limitation in cold climates is it's not the best idea to build in sub-zero temperatures. The wet earth in the bags freezes, the water expands and then the earth may turn powdery.

Shape

Earthbag is great for cornerless shapes; circles, ellipses, wiggly lines. The technique naturally lends itself to curves. Circles are by far the strongest structures to build, and create near indestructible houses. You simply can't 'lose' a wall with a roundhouse, the entire structure braces itself, which is just one of the reasons I love it.

If you are dead-set against circles and definitely want corners, there are ways of doing this. You can buttress the walls, or create a post-and-beam structure (a solid wooden framework that you 'fill in' with earthbags later). But in my humble opinion, if it's straight walls you want then strawbale is the obvious choice. The bales are easy to lift and when pinned together create a sound square structure.

### **Advantages over Cob**

1. Earthbag can resist flash floods as the bag structure and the barbed wire combined create a solid framework for the mud. (Cob walls have been known to disintegrate in severe flash-flooding).
2. Earthbag is much faster to build.

### **Disadvantages compared to cob**

1. During building, lifting the earthbags to higher levels and tamping require a fair amount of physical strength.
2. It takes longer to finish the interior of an earthbag house than a cob house.

### **Advantages over Strawbale**

1. Earthbag is fantastically convenient for roundhouses.
2. Strength. I'm yet to see a more invincible building method than earthbag.
3. Earthbag creates excellent thermal mass (retains the heat/cold for long periods).
4. Fireproof and bullet-proof.

### **Disadvantages compared to Strawbale**

1. Soil has a poor insulation value compared with straw. This means strawbale houses can be heated quickly, but lose that heat faster. Earth takes longer to heat up, but stays hot for longer.

Strawbales are nice and light to lift. Earthbags are darn heavy!

## What you need.

1. A piece of land to build on.
2. Earth
3. Bags
4. Barbed wire
5. A tamper (Something very heavy and smooth that you drop on the bags to squish the earth in them.)
6. A team.
7. Determination
8. Strength
9. Gravel
10. Rocks or stones.
11. Nails and hammer.
12. A bag holder.
13. Wood for doorways, window frames and slats to anchor these into the wall.
14. Plywood for a bag slider.
15. Dirt measuring containers.
16. A cook

## What you don't need.

1. Naysayers
2. Concrete

OK, let's go through the shopping list in detail.

### **A piece of land to build on.**

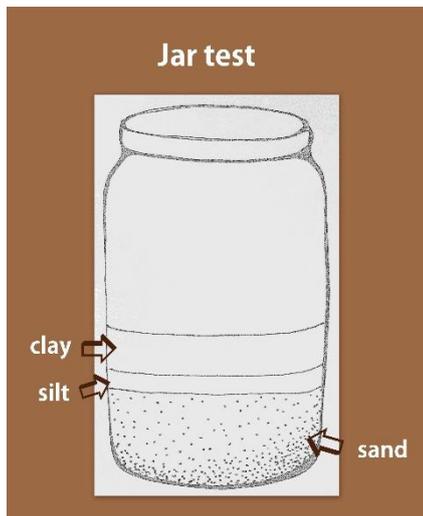
I'm always banging on about it; your land is going to be your closest friend. For me this was the make or break of happy home building. For a host of unforeseen reasons, I wound up spending 8 months alone in a tent on my plot before building. This afforded me a multitude of valuable insights I would otherwise not have had. I learned where the sun rose and set, and its trajectory in every season. I learned where the deluges of water ran when it rained. I noticed which areas were the coldest/hottest. I observed if there was erosion (yes) or subsidence (no). I clocked where plants preferred to grow, and where I felt good hanging out. I built a connection with the place, the neighbourhood and the wildlife within it, so when things went awry (which they tend to in life) I felt supported.



The extent of my belongings back in 2011

## Earth

You can use the earth from your land (assuming there's earth on it and you haven't bought a strip of solid rock). We quarried an amazing amount out of the foundations for starters, and the rest was dug from a future pool (a septic tank would be another option).



The only thing you need to check is whether your earth has enough clay in (minimum 20%). The clay helps bind the earth together so that later, when dampened and stuffed into bags, it sets into adobe-like blocks.

**How do you test your earth?** Fill a jar up with the earth you intend to use mixed with water. Shake it. Leave it overnight. The mixture will separate. Sandy deposits will sink to the bottom, silt and clay will rise to the top.

## Bags

Polypropylene sacks are best. Though not bio-degradable, they provide strength where normal cob, or adobe, can't. This is crucial in earthquake zones or areas with flooding. The size of the bags is important.

**Avoid fat sacks** as they will be a devil to lift. We used 70 cm x 45 cm polypropylene sacks. There are other options, such as tubes and gusseted bags. A friend of mine tried the tubes but found small sacks more manageable.

Polypropylene degrades fast in direct sunlight, so if you are building under the sun you need to cover the bags. We covered ours in shade-cloth, which is light, cheap and easy to throw over.



### **Barbed wire**

Many have aversions to barbed-wire, but it's really the 'glue' holding your house together in the event of an earthquake, or if a truck hits it. Barbed-wire is the 'tensile strength' of the structure. You need the heavy-duty 4 point stuff.

If you really can't abide using it, there are now mesh bags available, though I haven't heard whether or not they are as strong in earthquakes.



## **The Team**

Earthbag is not for the Lone Ranger, which can be a saddening prospect if you're of a go-it-alone disposition, like me. How many people you have on your team will depend on many things, but I found I needed at least four, otherwise it was bicep-crushingly slow. The Mud earthbag roundhouse (diameter 6.5 m) was built over six weeks with a team of four including myself (we were 2 women and 2 men). We worked a maximum of three days a week.

## **Determination**

If you're the giving-up type then it's probably best not to bother with building. Things go wrong. Plans often seem to be no more than vague arrays of numbers and words we string together for our own amusement. Everything always costs twice as much as you hope it will, and for reasons I still can't put my finger on every task takes eons longer than you expect. If you do start building, cultivate a mind-set of obstinacy and stoicism in the face of trouble. I'm not saying I always achieved this, sometimes I sat and cried. But determination did win in the end, so hang in there. You will have a lovely mud house one day if you just keep going.

## **Strength**

The one disadvantage of earthbag is lifting the bags. You need to possess (or hire) some strength to haul earth-filled sacks up, especially on the higher levels.

## **Gravel, Rocks and Stones.**

The gravel is for the foundations and the first two or three layers of bags. Try to get small round stones as opposed to road-surfacing gravel, because you want to avoid sharp corners, as they will rip your bags. Some larger rocks would also be useful for the lower part of the foundation, though I can't see any reason why gravel wouldn't work just as well.

## **Nails and hammer**

You'll need a lot of 8 cm nails for 'sewing' the bags shut at various points in the wall.

## **Bag holder**

I'd suggest tacking one of these together at the beginning. It was worth its weight in gold to us while we built, and I'm indebted to earthbag pioneers Kaki Hunter and Donald Kiffmeyer for this tip. The bag holder keeps the mouth of the bag open while you pour the dirt in.

**Wood** for doorways, window frames and 'anchors'.

**Plywood or OSB - Oriented Strand Board, a cheaper version of ply made of compressed wood flakes (just in case, like me, you didn't know).**

When laying the bags, a 30 cm x 70 cm (approx.) piece of OSB is very useful. More about this in the wall section.

## **Measuring container**

In Turkey folk get through a lot of yoghurt, so much so that they buy it in 2-5 kg plastic paint pots. This is a stroke of luck for the earthbag builder, as they make perfect dirt measurers. If sadly, you live in a yoghurt-starved land, then alternatives include: paint pots, 5 litre water bottles with the top cut off, or large flower pots. Approx. 5 litres seemed to be a goodish size for us.

## A cook

This may seem superfluous, and is entirely subjective, but if I were to change one thing about the entire earthbag building process, it would be the food situation. Earthbag is labour intensive, and everyone gets hungry. After a day of earthbagging, you'll be hard-pressed to find someone willing to slave over a stove. I now whole-heartedly feel, any volunteer who wants to cook is worth three who want to earthbag. If you've already got someone like this on your team, buy them beer, or flowers, or chocolate, massage their ego, sing their praises, generally make them feel valued, because they are a vital component of your team and you'll be dead-sorry when they're gone.

## Building an earthbag house.

Ok. Here it is. From start to finish. How we built our roundhouse.

### Preparation

#### 1. Make the bag-holder

You could use wood or metal. We nailed two half-metre broom handles together for each side of the bag-holder. Then we joined them at top and bottom as shown below. Voila. A bag-holder.



2. You need something to serve as a tamper. This was my only foray into the realm of concrete, and I soon realised I don't get on with the stuff. Our tamper crumbled on hitting the first bag.



The tamper that never was.



Ahmet tamping with the marble bird bath.

## Foundations.

1. We dug a trench half a metre deep, and made sure it was wider than the earthbags.
2. Next we filled the trench with rocks from the surrounding area up to about 20 cm below grade.
3. Finally we covered our rocks with smaller gravel (this prevents polypropylene bags from ripping).
4. Then came the stem wall. Don't know what that is? Neither did I. The lower part of a mud house needs to rid itself of water, fast, otherwise you're going to have damp creeping up your walls faster than Tobey Maguire up a sky-scraper. So, the first couple of layers are not filled with earth, but another material. Some people use concrete, which makes naff all sense to me, as it is notorious for wicking up water. Other possibilities are pumice or lime-crete. I used gravel-filled bags and my house is as dry as a bone, even when it sits in a small lake.
5. So . . . my stem wall was two or three layers of gravel-filled polypropylene bags with thick barbed-wire between the layers for tensile strength. **I double-bagged the stem wall layers to reinforce the sacks**, because unlike super-adobe which sets in the bag to become an earth brick, gravel remains loose. If your sacks were to break, that would be . . . well, I don't want to even *think* how calamitous that would be.
6. We filled in the gaps on either side of the bags with more gravel/rubble. This prevents water wicking up into your earthbag house.



## Earthbag Wall

1. Hitting the earth wall felt like the first milestone for me. Before we got stuck into the earthbagging, we dampened the dirt Celal had already dug for us, so when I took a clump of it and squeezed it in my hand, it stuck together. We allowed small stones (5 cm and under) to stay, but threw larger ones out.
2. Before we filled any of the bags, we gusseted them. If you don't fold the bottom corners of the bags in, when you fill them with earth they will lose their square shape. This isn't the end of the world, but it looks fairly ugly on the wall and is a devil to plaster over.
3. First we threw 2 pots of earth in the bag. Then we packed that dirt into the bag corners. This kept the bag nice and square.
4. Once the lower part of the bag was firm, we added between three and six more pots. (You can vary the amount to create half-size bags to fit in the end of the circle, or window openings).
5. We folded the opening shut like a parcel and stuck a nail through it to hold it in place.



Celal gusseting a sack.



Gusseting keeps the ends of the bags square

6. The only extra detail was, when we laid the first two bags in the ring we made sure the second bag's head touched the first bag's head. This kept the bags from opening.

7. After that all subsequent bags went head to toe in the same direction.

8. Once the circle was complete, Ahmet had the unenviable job of taking the tamper and squashing the earth in each bag, all the way round the circle. This squeezed the earth into a nice, firm brick and filled in all the gaps.



### Next Layer

1. Once our first layer was down and tamped, we laid two rings of barbed wire on the top of the circle.

2. We used stones (bricks would do) to hold the wire in place and stop it pinging up.

3. At the second layer of bags, the plywood runner comes into its own. We laid it over the barbed wire to stop our sack snagging on the wire, and later on our knees from barb-perforation.

3. So, on the second layer we filled up the earthbag as usual. Then we dumped it on the runner. We packed the earth down with our hands, folded the top and pinned it with a nail.

4. Once the bag was shut, we tipped it over on the runner so its head hit the tail of the other bag.

5. Then we pulled the runner out.

6. Finally we slapped, pummelled and whacked the bag into place (which was my favourite bit).



Stones holding barbed wire in place.



Earth-filled sack on the runner.



## Doors and Windows.

I screwed up my windows and doors quite spectacularly. Earthbags exert an enormous pressure on any opening, so it would seem you need nice thick frames, and they have to be very well braced. Another approach involves making a wooden box mold and building around it. People have also used wagon wheels, car tires and bales of straw for a similar effect. As an aside, friends of mine

who used the mold method, couldn't get the mold out without breaking it. What can I say? I wish you luck . . .

This was how we did the windows.

1. We inserted our inadequately braced frames where I wanted the doors and windows to be.
2. When laying earthbags up against the frame, the tail end of the bag needed to be shoved against the frame.
3. Every few layers of earthbag, we nailed a wooden 'anchor' onto the earthbag rammed up to the frame/mold. This created somewhere to attach the actual door/window frame to once we removed the braced frame.



Bag butts rammed against frame, atop two anchors.



Three anchors here

## Lintels

4. Lintels (ours were 30cm x 20cm) were laid over the door and window frames.
5. We nailed the barbed-wire onto the wooden anchors and the lintels.



Esra banging in an anchor to stop the lintel sliding.



The door lintel.

## The Roof

If it's a roundhouse then there are some nice options for roofs. You could try a reciprocal roof, or an earth roof. I went for a slightly sloping flat roof, and part covered it in earth.

1. I didn't insert a bond-beam (a ring of concrete or wood around the top of the structure to lock the bags in place) because, as you now know, I hate concrete. Also, I was advised (apparently correctly because the house has withstood various earthquakes and hurricanes) that it's pretty impossible to fell an earthbag roundhouse. Later, other commentators in the business pointed out that perhaps unwittingly my grid of rafters held the house together☺. So, I may have waxed lucky which, let's face it, wouldn't be the first time.

2. We laid two fat (10 x 20cm) beams east to west across the roof. Then we laid the joists 5 x 15cm at 40cm intervals north to south over them.

3. To prevent the ends of the joists sinking into the bags we laid them over wooden slats (2 x 25 x 40cm).



Two 10 x 20cm whoppers running east to west.



Each rafter was anchored using wooden slats.



6. When you lay earthbags between the rafters and over the slats (filling in the gaps), the roof becomes mighty tricky to lift off.

7. If you are really paranoid, or suffer tornadoes, or for some reason are expecting the hulk to pay a visit, you can tie or cinch the joists down as well.

8. We laid bamboo matting between the joists and the OSB for beauty.



Joists tied down with ropes. (My roof ain't going nowhere).

Bamboo matting under the OSB.



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earthbags between joists.

# Plaster

Oh the plaster. It took 6 weeks to get the entire house up, but almost two years in total to finish the plaster. Earthplaster, as I have learned, is not simply a matter of getting your boots on and stomping about in a trough of clay. If you want it to hang on your wall for longer than a season, it's a finely-honed skill.

**How to make it? Well, here are some basic pointers. But it does seem to depend on the climate and the type of earth you have.**

1. You need to know your dirt before you start. And this is where the trouble begins, because your earth changes everything.
2. Too much clay result in cracking.
3. Too little clay will result in a powdery weak plaster.
4. Run all the earth through a sieve to get the stones out. Sharp edges definitely hinder your plaster.
5. Straw is crucial to bind the mixture and prevents cracking. Different grades of straw help, but having FINE straw in the mix is a must. Don't be stingy with it either.
6. The best results are when you first mix earth, clay and straw (in a trough or pool with your feet) then leave it to stew for a few days. Cover it with plastic to stop it drying out.
7. After the percolation process, add lime to the mixture. This prevents cracking and creates a smooth firm finish.

## Step one

- 1 part clay
- 3 parts earth (topsoil)
- 2 parts straw

Mix it really really REALLY well, and let it percolate for about a week.

## Step two

- Mix 3 parts of the above concoction with
- 3 parts lime
  - 3 parts sand

And use gloves because lime is caustic!

We first made a lath layer (filled in all the deep holes and gaps by lobbing handfuls **gently** at the wall). Once it was dry we started the second layer (I lie, we didn't wait in the beginning, and paid the price).



The lath coat.



Straw and earth mix.

Also, I have a sneaking suspicion trying to plaster the walls of an earthbag house before the walls have set, is a bad idea. I haven't found anyone else who upholds this, but it seemed to me that when the walls dried (and that took a few months) they shrunk, which caused the plaster to bulge out and fall off in places. If I built another one, I'd build the structure in early spring, then let it dry in early summer and plaster it in late summer/autumn.

Pretty much everyone seemed to think it was a great idea to attach chicken wire to the walls before plastering. I thought it was the worst idea in the world. First and foremost, it's unnecessary (Why would you give yourself more work?) If you apply your lath properly, and keep the surface of each plaster layer a little rough, or dimple it with your fingers, then your plaster will hold just fine. Chicken wire has a nasty knack of coming loose too. The bags can shrink when they dry which leaves your wire pulling away from the wall and your plaster on the floor. I pulled all mine off when the first plaster failed, and started again with bare sacks. Much better 😊.



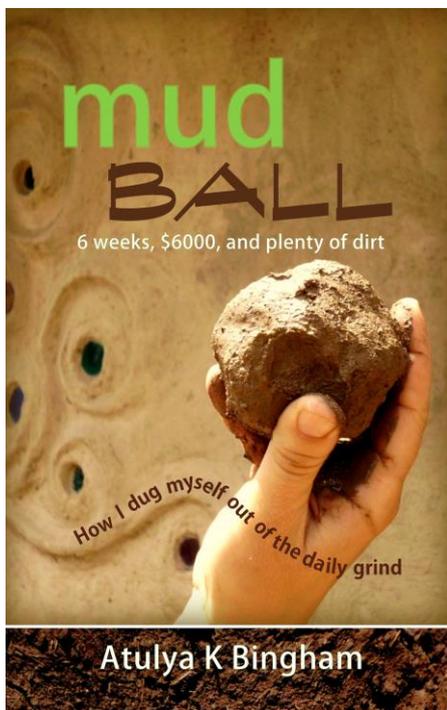
Me blissfully aware of how bad that plaster is.



Plaster going right.



So there you have it. That's the not-so-tech stuff on how I built my house. Now, if you want the *real* story of what happened those frantic six weeks in the winter of 2011 have a browse through my memoir, *Mud Ball*. More true life adventure story than 'how-to', it should convince you that *anything* is possible.



***For all you cob, tiny, off-grid, self-sustaining, earth-renewing dreamers out there, this is a must read!" Amazon Reviewer***

*"Beautifully written and truly inspirational."*

**The Owner Builder Magazine**

***I couldn't teach another lesson. Nor could I tolerate another day with a boss, a punch card and the indigestion I suffered from bolting my muesli. This was why I'd spent the past five months camping in a remote Turkish field...***

*"If you have ever thought seriously about getting away from it all and going off-grid...this book is a must-read."*

**The Fethiye Times**

*"A wonderful, heart tugging story that's very well written."*  
**Dr Owen Geiger, author of Earthbag Building Guide, the Natural Building Blog and Earthbag Building site.**

<http://www.themudhome.com/mud-ball.html>

## Other Resources I Recommend

*Earthbag Building; The Tools and Tricks of the Trade.* By Kaki Hunter and Donald Kiffmeyer is fantastic. My house would probably have collapsed if I hadn't used this book.

Owen Geiger and Kelly Hart's blog on all things earthbag is a super resource too. See [www.thenaturalbuildingblog.com](http://www.thenaturalbuildingblog.com) or [www.earthbagbuilding.com](http://www.earthbagbuilding.com)

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'Kerry! I keep telling you, but you just won't listen. You need to build a house *now!* Winter is coming. A storm's coming. It says so on the telly.' My neighbour Dudu had appeared at my fence only the day before, wisps of hair darting out of her headscarf. 'And don't forget. You can always stay on my sofa...oh but you won't. I *know!*' She was wringing her hands. 'You're so stubborn. It's *English* stubbornness, that's what it is. God knows it'll be the death of you!' She huffed and puffed, popped her false teeth in and out, and shook her fist at me.

From the other side of the fence I looked down at her, not due to superciliousness but because she only reached my shoulder.

'I'll be fine, Dudu. The tent is raised off the ground now. Anyway I'm into storms, they're exciting.'

Dudu screwed up her eyes and turned away in disgust. But she wasn't the only one to fret over my houseless predicament. Celal, my wiry garden help, wandered up to the fence. He leaned on a large pickaxe and looked me up and down quizzically, his face a brown web of wrinkles.

'Aye, you wanna be building yourself a hut to park your bum in before winter, look at mine – didn't cost me a ha'penny but it does the job, eh?'

Celal always spoke using little or no punctuation and I was left squinting as I tried to work out what he said. Once the meaning dawned on me, I swallowed a reply. Well, I could see quite clearly his house hadn't cost a half-penny. It was something of a wonder that shack was still standing. My tent appeared by far the safer option.

'That weather's a comin' in, yer know and it's not all sunshine and cherries after that. Your arse'll be in the mud and you'll be swimmin' in it I tell yer, it'll be a swampahogshit that's what it'll be.

'A swamp of what?'

'Hogshit.'

I remembered that conversation now, and I slid deeper into my sleeping bag. Celal's warning echoed through the sleepless vale of my mind as I listened to sheets of rain break over my tent. I couldn't see it, but knew there was indeed a swampahogshit occurring on the other side of my canvas. As soon as I put a foot out of the tent, I'd step into it.

I'd known a deluge was on its way. My predicament was entirely of my own making. The wind had started its campaign up the slopes in early evening. I'd watched the invisible wheel of air roll

through the forests. It parted the bushes like hair. My tent was perched on a wooden platform I'd hammered together a month before. As the light faded and the wind began howling ominously, I had run around the legs of the platform with pieces of thick rope in my hands. One by one, I tied the corners of the tent to the platform legs. It was a mess of knots a sailor would have cursed at. I placed four large rocks into each corner of the tent for good measure. My lamp and laptop were charged. As darkness fell and I peered inside, I felt a wave of satisfaction. It was a canvas bubble. Everything looked hunky-dory. The wild outside was where it should be (out) and my cosy familiars were in their rightful place (in).

But that had been four hours ago. Now, the sky was as black as Pluto's subconscious. High winds were bending fifty-year-old pine trees like saplings, and rain wasn't falling. It was flying. It was a water-breathing dragon, a dragon that had taken a peculiar dislike to my tent door and was throwing torrents at it as though it needed extinguishing. Credit where credit is due. My fifty-dollar tent from Carrefour was doing its level best. It was a canvas St George, ducking and bending in the face of the crazed beast above. I have bought a number of cheap tents from supermarkets since then, always hoping for the same level of durability. I have been continually disappointed.

Soon, I began to think I was swimming. The awning buckled under the storm, and I felt something wet on my cheek. The side of the tent had flattened under a gust. Then, to my consternation, the top half of my body rose into the air. I realised the rear of the tent had lifted clean off the platform with nothing but the tethers yanking it back down. I remembered a tale (perhaps tall) I'd heard of a hapless camper whose tent had been blown from a cliff-face with him still in it. The tent had sailed down like a parachute. I couldn't recall, as I pulled my sleeping bag up to my chin, what condition the poor fellow had reached the ground in.

It might seem odd, but in a strange sort of a way, I was happy. There was still a fiction in my mind that I was inside (safe) and trouble was outside. And then it happened. The tent membrane gave up. It changed from a separator of worlds into a flimsy strip of permeable tarp, into a point of exchange.

Points of exchange are powerful. They are precious. They are nodes of creation. Building a house of mud was never a dream of mine. The idea sprouted quite suddenly in response to the land and the seasons. It grew out of the point of exchange between me and my environment. If this adventure is about anything at all, it's about that sacred line of connection where the Known meets the Unknown. Because it's there that magic happens. It's there you find the strength and the courage to build real dreams. Books, videos, training manuals, courses and teachers are just dry seeds, atomised particles floating about the air of your mind. It's not until the theory touches the earth, and the earth touches the theory that anything beautiful manifests.

The outside invaded quite subtly considering there was a hurricane going on. I felt one cool drop on my forehead and then another on my chin. Nothing dramatic. Just a little wet. I smiled. It was still fine. I'd probably make it until dawn. Reaching up, I flicked on my solar lamp. Everything was

bathed in an eerie blue glow as the solar lantern, now swinging, cast a ring of pale light above and around. The ring bobbed from left to right like a celestial pendulum.

It was then I noticed small pools of water collecting in the corners of the tent. Teasing my belongings from the edges, I came to terms with the fact I probably wouldn't sleep that night. I maintained a vigilant eye on the tent corners, as if by staring at them, they'd buckle up and become watertight. They didn't. The pools spread. My hair was now seaweed damp. The bottom of my sleeping bag had developed a dark, wet splodge. It spread like black, comfort-munching fungus. *Shit! My laptop! My books!* Gathering everything I valued into the centre of the tent, I huddled over this loot in the foetal position. The rain kept sliding in.

All campers are familiar with this feeling, in particular those resilient wellie-wearing troupers from the British Isles. Such nights are miserable, sleepless swamps. At least in the UK one can usually expect to be able to run for cover. To sleep in the car. Find a hostel. The storms of the Mediterranean in winter are ruthless. I could clearly hear tree branches cracking apart in the forest next door. How had I forgotten what winter was like until this moment? How could I *ever* have conceived the idea of dossing outdoors through December, January and February? The only reason my tent was still on the platform was the tethers and the weight of everything inside it (a suitcase of books makes great tent ballast). Slowly but surely, terror wormed its way into me. The outside was no longer out. The inside was no longer safe. Anything could happen. I was at the mercy of the gods. At any given moment the canvas could be ripped asunder, and it would be over.

I did have a car I potentially could have slept in, but I honestly wasn't sure how to reach it. The same applied for Dudu's house. Finding her door half a kilometre away would have been an outright gauntlet of gulches-turned-rivers, flying branches and hefty gusts. If by some miracle I did arrive at her porch in one piece, I was going to be sodden from head to toe without as much as a change of undies. The dormouse in me reasoned hibernation was the best strategy.

Thus I huddled there. Every now and again, the canvas would flatten onto my face and soak me. The pools in the corners joined forces to become a moat of dirty water. It rippled about a dwindling island upon which was stranded a laptop, a small suitcase and a human. I admit it; I prayed. I prayed to the land. I prayed to the sky. I prayed to the more resilient, sensible parts of myself. I prayed to my inner guides. I prayed to the universe. 'I just want to make it till morning,' I whined.

Then a miracle happened. A warble slid through the churning, huffing night. I recognised it as my saviour. The call to prayer. That morning, it was Ali hoca in the valley below who was the first to arrive at his post, which was a surprise, as he was notorious for oversleeping. I often wondered at the muezzins in weather like this. How had he possibly managed to reach the mosque? Never have I been happier to hear his voice. The call to prayer held practical significance. Although the sky now appeared as deep and lightless as a dungeon, dawn was imminent.

As Ali hoca crooned, he was followed in the round by the indefatigable muezzin of Brook neighbourhood – a half-hamlet comprising half a dozen charming stone houses occupied by artists from Istanbul, hippies and mountaineers. The two voices mingled and danced through the ruckus outside. They had almost finished when, last but not least, the loudspeaker of the village mosque rattled and coughed to life. The village muezzin, no doubt sleepless and with half a mind on his polytunnel of tomatoes, banged out a call to prayer in minutes.

Then it fell silent. Without warning, the wind fell away. The rain thinned to a patter. The sky lightened. The storm gurgled, writhed on the horizon for fifteen minutes, and died.

As my dank canvas world brightened, I tentatively sat up. I rubbed my eyes, flattened my hair back and picked my way gingerly out of the mess of my sleeping bag. Grimacing at the pond that had collected at the front of the tent, I unzipped the front door. I squinted. Then I crawled out, and fell slap bang into a swampahogshit. **(Chapter One of Mud BALL)**