Developing Countries Farm Radio Network

Pack 14, Item 15

Type: Script

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**Clean water from a well you dig near a lake or river** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Information on this subject area was requested by DCFRN participants in Bangladesh, Bolivia, Brazil, British Virgin Islands, Chile, Colombia, Ecuador, India, Indonesia, Malawi,Malaysia, Paraguay, Peru, Philippines, Senegal, and Sierra Leone.

Presenter: George Atkins

Interviewee: Professor Robert S. Broughton, Hydrologist, Macdonald Campus, McGill University, Ste. Anne de Bellevue, Quebec, Canada

**Special note**

Before using the information in this item, please read the notes at the end concerning related DCFRN items.

**Suggested introduction**

We at this radio station are part of a worldwide information network that gathers farming information from developing countries all over the world. It's the Developing Countries Farm Radio Network, sponsored by Massey Ferguson and the University of Guelph, and financially supported by the Canadian International Development Agency and by many interested Canadians.

Through this Network, we bring you information on ways to help people stay healthy. Today we'll talk about clean water. Here's George Atkins.

**ATKINS:** You may know that people who drink water that's not clean get sick more often than people who drink clean water. Now I have two questions for you: Do you get water from a river or stream, from a lake or pond? If you do, did you know that, by digging a well close to any of those sources, you could get water from that well that's a lot cleaner than it is in the river, stream, lake or pond?

Professor Bob Broughton is a water specialist who has worked in Africa and the Caribbean island countries. In a village in Nigeria, we talked about how water from a stream or river gets into a well that's been dug not far from the stream.

**BROUGHTON:** The land near the stream will have water in it at a depth about equal to the stream level. And if one digs a well just 3 to 10 metres (10 to 35 feet) from the edge of the stream, water will come to the well by seeping through the soil from the stream. All of the sediment will be filtered out of the water as it soaks slowly from the stream to the well.

**ATKINS:** It's like filtering or straining water through a cloth.

**BROUGHTON:** And in addition to the sediment being removed, most ofthe other things that pollute the water will be removed.

If there was still a problem with the well being polluted, then water could be boiled for drinking, but the well water would be quite good enough for farm animals.

**ATKINS:** The main thing is that much of the dirt and germs in thewater that could make you sick would be removed from the water.

Now Bob Broughton said that the well could be between 3 and 10 metres (10 and 35 feet) from the river. But why that far back?

**BROUGHTON:** I would prefer to dig my well far enough back from theriver that it would not be subject to flooding, to rubbish, chunks of wood and other things smashing into the covering I build around the top of my well—and so it wouldn't be surrounded by flood waters and I could get water from it during the rainy season when the water in the river is high.

However, if the bank is steep, you have to dig deeper to get to the water.

**ATKINS:** That, of course, is because the water in the well will beat the same level as the water in the bigger source that your well is close to.

Now one important thing we need to know is, what's the

best time of year to dig this well?

**BROUGHTON:** It's best to dig the well early in the dry season when the digging is easier because the soil has recently been moistened in the wet season. This is a time when the water level in the river is down near its lowest level.

If you dig during the wet season, the soil in the banks is likely to be soft and you may not be able to dig your well deep enough to have a good supply of water in the well when the next dry season comes. The trouble with digging in the wet season is that you'd probably have to go back and dig it deeper the next dry season.

**ATKINS:** Now tell me, how big should you dig it?

**BROUGHTON:** If you're digging a well by hand, then you need it to be about a metre and a half (4 feet) in diameter in order to have a comfortable digging space and plenty of fresh air down in the well for the persons doing the digging.

**ATKINS:** Of course, one thing you have to think about when you're down there digging a well is the kind of soil you're digging in. If it's sandy soil, be careful that it doesn't cave in on you—always be prepared!

With some types, the soil from the sides will slide down into the hole. When this happens, you have to build a wall, most likely of stone, all around inside the well to hold that soil in place. Bob Broughton calls this stone work "cribbing." Here's what he told me about cribbing.

**BROUGHTON:** If the soil is very stiff as it is in many parts of Africa, no cribbing will be necessary. If you're digging in loosesoil like silt or sand, then you'll have to build a stone cribbing around on the inside of the well to prevent the soil from falling inward. The stone cribbing should also be built above ground level. The cribbing should be higher than the level of the river during the rainy season, so that in times when the river overflows its banks, water from the river can't get in the top of the well. You don't want it to get polluted this way.

**ATKINS:** So you should build a low wall around the top of thewell. Now another very important thing we must know is how deep we should dig our well.

**BROUGHTON:** Normally one would only dig to 1 metre (3 feet) belowwater level—below the river level. That would be deepenough.

**ATKINS:** And you'd know where the river level is, as you're digging, by noticing where the soil is moist or wet. That's because water always seeps through the soil at the same level as the water is in the river.

But Bob says you should dig the well down 1 metre (3 feet) farther into this wet soil—that is 1 metre (3 feet) below the depth where you first came to the wet soil.

And why is this?

**BROUGHTON:** The reason for digging 1 metre (3 feet) below riverlevel is to provide plenty of spare water always in the well.

Water 1 metre (3 feet) deep and 1-1/2 metres (5 feet) in diameter, would give about 1,000 litres (220 gallons) of water available in storage in the well. So if all the water is used up in the morning when people come to get water for themselves, or their animals, it could fill up again through the day or overnight by slow seepage from the river.

**ATKINS:** So there you have it. A good source of water that's alot cleaner than you'll get right out of a river or stream, or from a lake or pond. And the reason is that a lot of the bad things are filtered out of the water as it soaks through the ground to your well from the larger water source.

Our thanks to Bob Broughton, a Canadian water specialist who has seen successful wells like this in many countries in Africa and the Caribbean.

And by the way, it's always a good idea to build a fencearound your well to keep animals away so they won't pollute the water in it.

Serving Agriculture, the Basic Industry, this is George Atkins.

**Notes**

1. This item contains further information on one aspect of another DCFRN item. We strongly urge that you re-use the information in that item in association with this one. It is:

Keep Your Drinking Water Clean - DCFRN Package 13, Item 14.

Another related item is:

Simple Water Purification - DCFRN Package 14, Item 16.

**Information source**

The source of all information in this item was an interview with Professor Bob Broughton.