NEW VERSION OF RAINWATER HARVESTING SYSTEM

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After many years applying rain water harvesting system (RWHS) in different projects, difference locations in Vietnam, here some key experiences and new version of this system that will be shared with WASH TWG members to know and if member can apply.

1. Rain water tank:

There are various type of rain water tank (made by brick and cement, plastic, HDPE bag…). Base on specific location that we should chose for appropriated. For example, Mekong delta should be plastic tank (1000 liters to 3000 liters); for mountainous area, the brick and cement should be good because easy building in durable land; For community need big volume, it needs big roof rain catchment (100 - 200 m2), the HDPE bag should be good.

Some key caution with plastic tank containers:

- The container with 1 layer is better than many layers due to some producers want to increase the thick of tank, they add a foam layer in between but after using for some months (with moving and hot water…), particular for containing clean water, the internal layer should be broken and chemical of foam layer should be leaching and entering into water and maybe water should be polluted by material of this layer.
- If the same volume, the container with higher should be more suited with contain rain water because water in high level should be good for following to the tap using.
- Material of plastic: always consider on quality of plastic for contain clean water as safe food that MoH or authority checked.

How calculate volume of rain water tank: base on

- Rain water rate annually.
- The need using of household/ schools…
- Square of roof.

Here is example table for applying in Mekong Delta area.

CALCULATE THE VOLUME OF RAIN HARVESTING SYSTEM

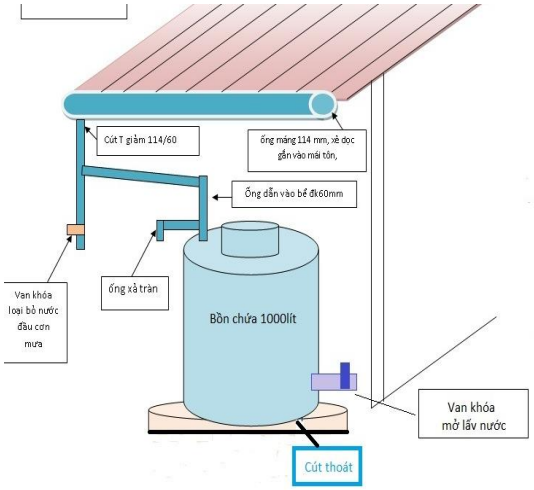
		Month											
Items	**Unit**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**August**	**Sept**	**Oct**	**Nov**	**Dec**
Average quantity rainfall of month (Ca Mau 2000 2012)	**mm**	26	26	24	68	166	257	278	297	270	342	161	52
Number day rain/month in Ca mau	**day**	4	2	3	8	17	21	21	21	22	24	15	10
Volume rain-water from 30 m2 roof /month (Ca Mau)	**m3**	0.6	0.6	0.5	1.6	3.9	6.1	6.6	7.1	6.4	8.2	3.8	1.2
Water using demand/month (a family has 5 people) for drinking and cooking	**m3**	3	3	3	3	3	3	3	3	3	3	3	3
Water using demand/month (a family has 5 people) for drinking		0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
The remaining volume after using/month		-2.4	-2.4	-2.5	-1.4	0.9	3.1	3.6	4.1	3.4	5.2	0.8	-1.8
		-0.02	-0.02	-0.07	0.98	3.34	5.52	6.02	6.48	5.83	7.56	3.22	0.60
Monthly cumulative water volume					0	**0.9**	**4.1**	**7.7**	**11.8**	**15.2**	**20.4**	**21.2**	**19.4**

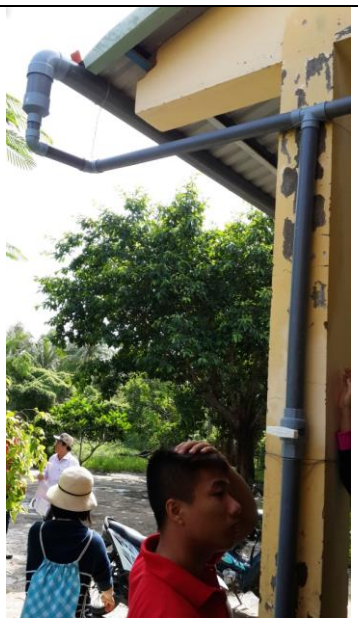
See more at http://www.worldweatheronline.com/Ca-Mau-weather-averages/VN.aspx

2. **Gutter:** with experience applying in Dong Thap, Ca Mau, Quang Ninh, Quang Binh provinces in recent years of Save the Children the gutter now apply the type made by plastic should be more appropriated and proving the advantage of this model. The gutter that made by iron is easy oxidized by rain water (axis) and some places with saline water (Mekong Delta river and areas in island or near the beach). The gutter made by plastic was designed for easy to install with the roofs, to prevent leaves or big materials in the roof flowing into the gutter and then to pipe and water tank. This gutter is also easy to extend if the roof is longer.
3. **The connecting pipes:** The plastic pipes system was designed suited with household in Vietnam house style. The pipe is big enough and van in order to remove the first rain water and big waste. The user can see water in good and then close the van and then clean water will flowing into the tank. The pipe system was design close so the insect or mosquito could not enter into water.

4. **The roofs**: do not get rain water from roofs of fibro – cement, cottage and areas the air polluted by smokes of factories, transportation.

Some pictures:



	
Old version in Dong Thap.	*New version of gutter and connecting pipes in Ca Mau*