Workshop Proceedings

Event:	**PAGASA River Basin Flood Forecasting & Warning Centers' (RBFFWC) 1st Stream Gauging Workshop**
Date:	**April 1-5, 2019**
Venue:	**Bliss Hotel, City of San Fernando, Pampanga**

Background:

There are 18 major River Basins in the Philippines. Quite a number of these 18 major River Basins have Flood Forecasting & Warning Centers (RBFFWCs) that are already operational. The main function of these centers is to monitor the meteorological and real-time hydrological condition of its basin of concern and as such issue the necessary basin hydrological information and related warnings. Their operational monitoring activities are more important and necessary when hydrometeorological conditions in their basin are likely to cause river flood or is imminent to happen.

The issuance of warnings through flood advisories and flood bulletins to target communities are the foremost concern of these RBFFWCs. To provide adequate and reliable flood information and warnings to the community with sufficient lead time (for communities to take the necessary DRR-related activities against an incoming flood), a river basin center should have a tolerable amount of real-time hydrological data set, a good knowledge of the river basin system, a reliable (?) flood model or flood forecasting tools, and a good and dedicated flood forecaster/s.

Flood forecast are usually formulated using river flow models, or most of the time by trends using present and past hydrological data values, forecast by use of prevailing and previous hydrological conditions, etc. One of the basic requirements in running and calibrating river flow models is an H-Q relationship or a rating curve, or a stage-discharge relationship.

The present state of available hydrological data collected by PAGASA particularly discharge at many of the RBFFWCs is rather pathetic. Although there are a number of discharges and water level values on hand, most of these are not enough to generate a reliable H-Q curve due to either one of the following reasons:

- There are more measurements done during low-flow regime, below 50% of stream gauging station's sectional area;
- A number of the measurements made are rated way below the standards (e.g. worn-out current meters; hastily done measurements, etc.);
- Some of the measurements made have no observed or recorded water level and/or no instrument calibration coefficients used;
- Disorganized data files and missing records particularly during the 1980's;
- Discharge measurement (DM) team's lack of technical knowledge during actual field measurements and lack of familiarity of the stream gauging site conditions.
- Other issues such as lack of equipment and/or river measuring instruments; lack of manpower, knowledge and support from management, etc.

To produce a rating curve would require an organized system composed of dedicated and experienced personnel to do field measurements, come up with a database set, data verification and analyses. Furthermore, and probably the most crucial of all, the availability and use of proper instrument / equipment, knowledge on the appropriate method that would help the DM team in its field measurements particularly at medium to high flows or flows at flooding stage.

Workshop Rationale:

Various RBFFWCs have been doing flood forecasting activities during all these years and issuing flood warnings in the form of flood bulletins to its target areas during inclement weather conditions. It is sad to note, though, that during all those years, there is limited use of flood models or flood forecasting tools and if so being used, are not that reliable. One reason is the lack of discharge (Q) data or more specifically a rating curve. It may seem to appear that the data or the need for such data is not much well taken in many of the RBFFWCs, as there are no definite steps to collect them on a regular period particularly during medium to high river flow situations, mainly due to either lack of manpower and equipment to do the task, or simply not well-versed enough to carry-out such field activities.

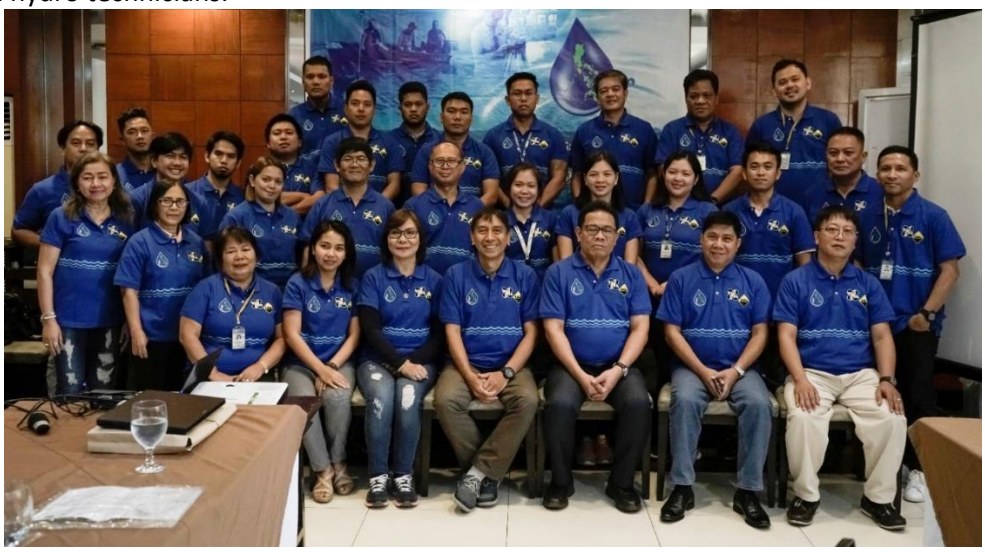
A major aspect of RBFFWCs is to develop flood forecasting tools. To support the development of these would require sufficient and continuous stream gauging activities and related measurements. Hence, it is imperative that RBFFWCs should be capacitated to perform such activities at their own level. **A Stream Gauging Workshop was deemed fitting at this time specifically to engage RBFFWCs in their "river hydrological surveys and measurements" (or more appropriately termed as stream gauging (SG) activities); and in the long-run to conduct an annual workshop for such activity - as a continuing refresher course, to expose and capacitate hydro novice (or "newbies") at the center, and to continuously organize the river hydrological data sets of each RBFFWCs.**

Workshop Objective:

The workshop's objective was mainly to capacitate and engaged RBFFWCs to make Stream Gauging as a regular center activity versus outsourced measurements by an entity or an organization. With such program, center personnel will be more knowledgeable and be familiarized on the dynamics of their river basin system; increase their visibility with their target community while on site measurements, and possibly establish good rapport with local DRRM offices as partners/supporters in their SG activities.

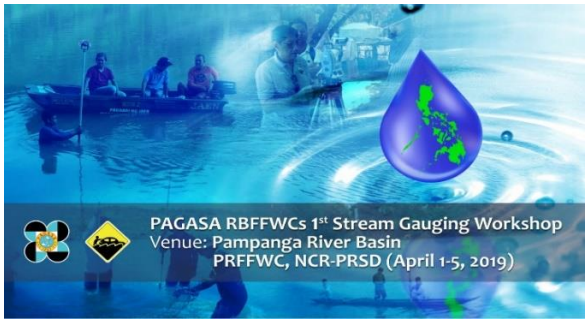
Highlights of the 1st Stream Gauging Workshop:

The 1st Stream Gauging Workshop was mainly intended on a focused group of PAGASA personnel who are manning the RBFFW Centers in the country, particularly the hydrologists / flood forecasters and also even hydro technicians.



The opening day group picture of participants, resource speakers and some key PAGASA officials together with NCR-PRSD staff and the training section personnel of RDTD. (April 01, 2019)

A total of 24 participants from the various PRSD and 1 from HMD attended the conference. While a number of the participants were graduates of the Hydrologist Training Course (HTC) in 2013 and are based in RBFFWCs there were several participants who were not in any way engaged in FFW activities or without any related based knowledge nor background in Stream Gauging.



The following PAGASA key officials who, at one point during the event's duration, graced the workshop were:

- Dr. Vicente B. Malano, Administrator
- Engr. Roy A. Badilla, Weather Services Chief, HMD
- Dr. Bonifacio G. Pajuelas, Weather Services Chief, NCR-PRSD

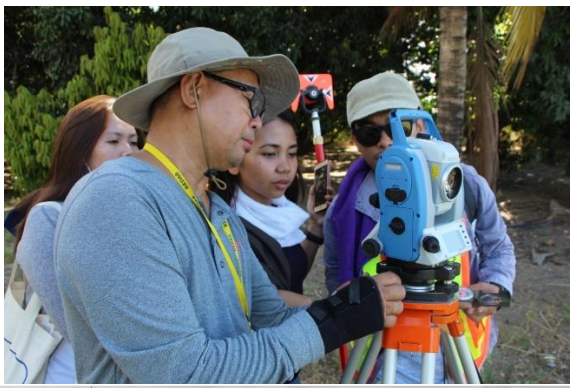
The 5-day event focused mainly on a based outline of "**FIRE**" and "**ICED**":

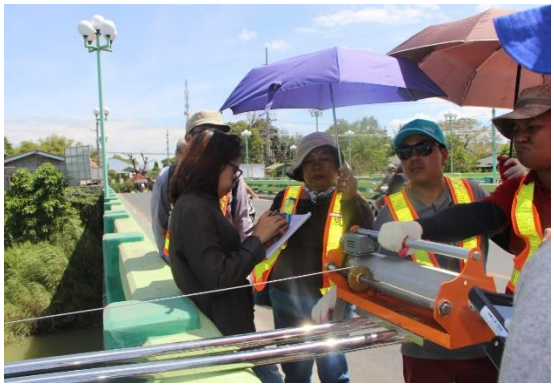
- **F**amiliarize participants on SG activities
- **I**ntroduce new methods on river velocity measurements
- **R**eorient the participants on the regular SG activities
- **E**ngage and empower RBFFWCs to conduct regular SG activities

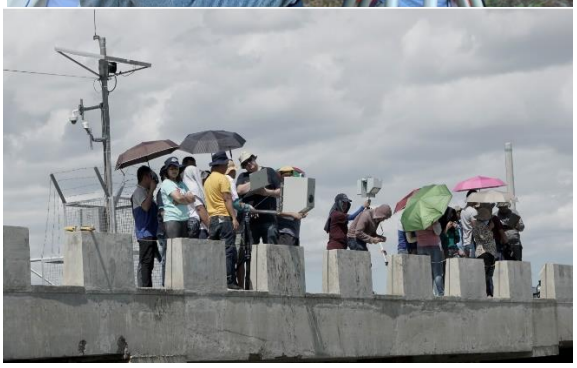
With the hope that after the workshop we (the PRFFWC) can…

- **I**ncrease and **I**nfuse their interest in SG
- **C**hallenge them and bring out in them their **C**ommitment and **C**oncern to such practice
- trigger their **E**nthusiasm on such program of activities
- bring out their **D**edication and **D**esire to work towards the enhancement of their respective RBFFWC

The first day of the workshop was an event backgrounder presentation which stated that the event will be more focused on the methods and practices rather than on the equipment and instruments used in SG activities.



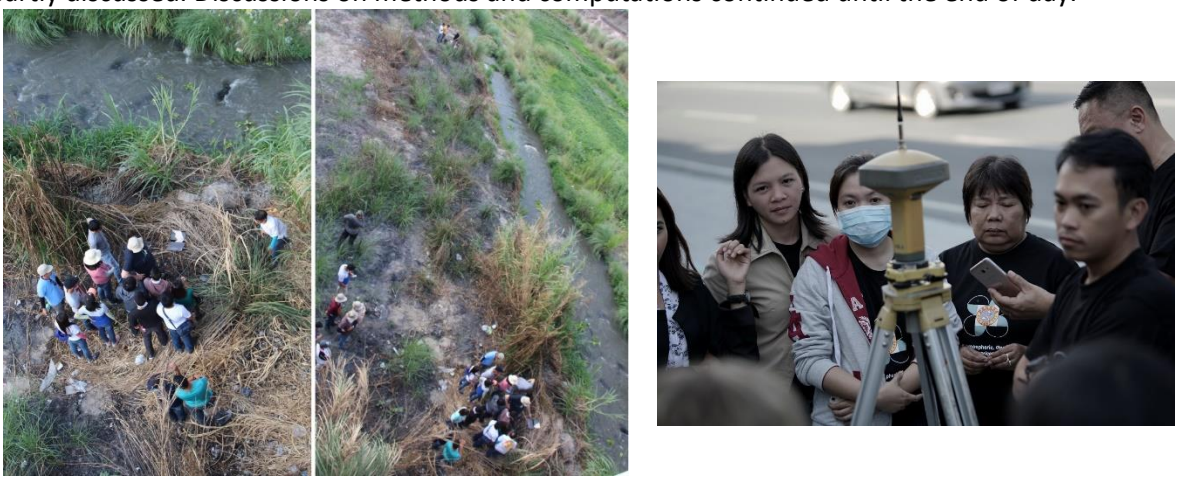




Top Left: The River Cross-sectioning group doing river cross-sectioning at one of the target sites along Pampanga River. Top Right: River velocity measurements of Pampanga River being carried-out by another group atop the San Luis bridge. Left picture: Field demonstration of river velocity measurements using non-contact instruments (RP30 and RQ) atop the bridge adjacent to the Candaba station.

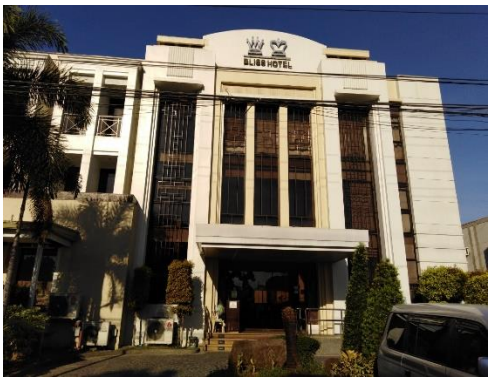
Presentations relating to the concept of River Discharge using various river velocity measurement methods such as by conventional current meter, float method, ADCP, indirect method using slope-area which was developed by USGS, river cross-sectioning, etc. were given on the first day of the workshop. The following 2-days were fieldwork activities applying the methods that were discussed on the first day. The first fieldwork site was along Pampanga River at San Luis Bridge. A special presentation using non-contact river velocity measurements using Radar Profiler and combination of a radar profiler and ultrasonic water level sensor and Tracer method was given by a guest lecturer from Sommer Instruments in the morning of the 3rd day and later in the afternoon fieldwork applications were also carried out. Personnel of Clean World Trading & Supplies Inc., being the main supplier of Sommer instruments in the country, were on hand to provide support and guidance on the usage and operations of these instruments. Target fieldwork sites were at Candaba Station for the non-contact instruments while for the tracer method the activity was at Abacan River at San Jose Malino in Mexico.

The 4th day of the event was more focused on computations of the measurements that were gathered during the fieldwork on the 2nd day. The final presentation dealt more on an initial development of rating curves based on a build-up measurement dataset. Rating equations leading to rating table was partly discussed. Discussions on methods and computations continued until the end of day.



Top left: Workshop participants try the discharge measurements using the tracer method along Abacan River at Mexico, Pampanga. Top Right: Participants were given demonstration on the use of Global Navigation Satellite System (GNSS) surveying instrument outside the workshop venue.

Two workshop activities were also conducted, the first which look into participants' level of knowledge as to SG activities (including river cross-sectioning), and what available SG equipment do they have at their center; and the final workshop on the last day tackled suggestions on their proposed programs and plans with regards to SG being undertaken in their respective RBFFWCs.



Finally, the venue, Bliss Hotel located in a major "food lane" district area in the City of San Fernando, Province of Pampanga has been the activity location for presentations, lectures and discussions of the whole event period. The venue was well apt for an energetic atmosphere for participant interactions and personal mingling especially during the social function activities. The hospitality shown by the hotel personnel were a foremost value that made an indelith mark to many of the participants. Finally, the sumptuous "Kapampangan" cuisine served meal after meal, including the packed snacks and lunch, complemented a worthwhile event.

SG Workshop Participants and Resource Person / Lecturers:

Workshop participants and their respective station and with their e-mail addresses as listed below:

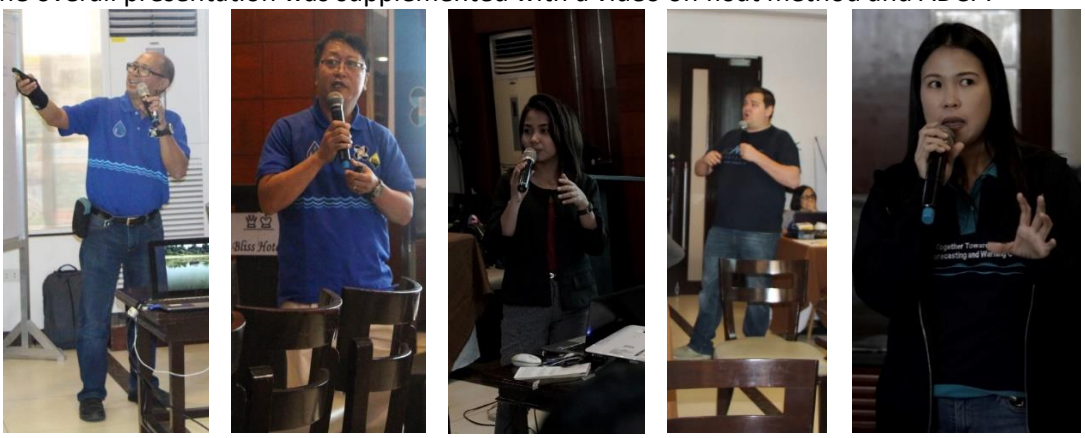
Name	PRSD / RBFFWC / Station	E-mail address
Agbay, Manny John D.	V-PRSD / Busuanga	mjagbay715@gmail.com
Aguirre, Romeo A.	V-PRSD / Mactan	engr.neo.aguirre@gmail.com
Naragdao, Ronaldo C.	V-PRSD / Jalaur Rb / Iloilo	iloiloradar@gmail.com
Puerto, Lorenzo C.	V-PRSD / Quezon, Palawan	renz.puerto@gmail.com
De Vera II, Gregorio B.	NL-PRSD / Agno RBFFWC	gbdevera8@hotmail.com
Lavadia, Loreto M.	NL-PRSD / Cagayan RBFFWC	den2lav@yahoo.com
Lutap, Leo Anghelo A.	NL-PRSD / Sinait	leo_lutap@yahoo.com
Tamondong, Aljon L.	NL-PRSD / Agno	aljonjanjong@gmail.com
Valoria, Karcher A.	NL-PRSD / Aparri	karchervaloria@yahoo.com
Artigas, Jaymar L.	M-PRSD / Tagum-Libuganon RBFFWC	jarts_21@yahoo.com.ph
Behiga, Iveil Mae B.	M-PRSD / Buayan-Malungon RBFFWC	veilabajuyo@gmail.com
Cipriano, Heart M.	M-PRSD / Hinatuan	heartcipriano@gmail.com
Tajones, Bema C.	M-PRSD / Davao RBFFWC	bemacominador@gmail.com
Vinalay, Lolita L.	M-PRSD / Butuan	lolita_vinalay@yahoo.com
Ragodon, Dan R.	SL-PRSD / Bicol RBFFWC	dragodon1961@gmail.com
Clemente, Laurence G.	HMD	larrygc99@yahoo.com
Dabu, John R.	NCR-PRSD / Pampanga RBFFWC	prime_timus19@yahoo.com
Dayao, Romeo F.	NCR-PRSD / Pampanga RBFFWC	romydayao@yahoo.com
Hagad, Pedro T.	NCR-PRSD / Pampanga RBFFWC	petehagad@yahoo.com
Hernandez, Gerald H.	NCR-PRSD / Pampanga RBFFWC	geraldhernandez619@gmail.com
Joson, Jr. Manuel S.	NCR-PRSD / Pampanga RBFFWC	hello.manuel.joson@gmail.com
Lugto, Jermie C.	NCR-PRSD / Pampanga RBFFWC	jermie_03@yahoo.com
Urriza, Larry Andrew D.	NCR-PRSD / Pampanga RBFFWC	larryandrewurriza@gmail.com
Yutuc, Rommel P.	NCR-PRSD / Pampanga RBFFWC	melpyutuc@gmail.com

Conference Resource Persons / Lecturers with corresponding topics discussed and E-mails:

Name	Topic discussed	E-mail address
Mr. Nestor B. Nimes	River Cross-Sectioning presentation / discussions and computations	nbnimes@yahoo.com
Ms. Allen L. Buendia	DM methods using conventional current meter; various other means – by boat, atop a bridge, wading, etc.	allenbuendia@ymail.com
Mr. Socrates F. Paat	Other DM methods – by float, by ADCP, Indirect means	junpaat@gmail.com
Ms. Shiela S. Schneider	Global Navigation Satellite System (GNSS) Surveying	shielasy26@gmail.com
Mr. Hilton T. Hernando supported by PRFFWC personnel	Workshop Backgrounder; Introduction to SG; DM computations using Excel suites & organizing data sets; Development of rating curves, equations, tables, etc.; Fieldwork preparation / activities; and all workshop activities	prffwc_ffb@yahoo.com
Mr. Michael Sommer	Non-contact measurement of river velocity; use of RP30, RQ and Tracer method	Michael.Sommer@sommer.at
Mr. Fauzi Kadir assisted by Clean World Engineers	Fieldwork measurements using RP30, RQ and Tracer	Fauzi.Kadir@sommer.at cleanworldtsinc@gmail.com

Brief summary / contents of Workshop Presentations:

1. **Workshop Backgrounder** (H.T. Hernando, PRFFWC): The rationale behind the need to have a workshop on Stream Gauging; the present situation of PAGASA RBFFWCs with regards to SG activities; and finally the intentions of the workshop, that is, to come-up with an updated rating curve for each RB WL station hopefully by early next year 2020.
2. **Introduction to Stream Gauging** (H.T. Hernando, PRFFWC): Stream Gauging differentiated from Hydrographic survey works; the applications and the need for SG activities; definition of Discharge (Q) measurement; possible error checks in measurements and how to address them; defining the 3 main basic steps in SG.
3. **River Cross-sectioning presentation** (N.B. Nimes, PRFFWC): A brief on the use of a total station – its set-up and positioning; various ways of taking river cross-section; other basic issues to consider when doing surveying activities.
4. **DM method using conventional current meter** (A.L. Buendia, BRFFWC): a walk through on the discharge equation Q=VA; the use of vertical axis current meter as a means of taking river velocity; various means of taking river velocity - via boat, atop a bridge, wading, etc.;
5. **Other DM methods – by float, ADCP, indirect means** (S.F. Paat, HMD) a brief run through on the 3 methods – float method, using Acoustic Doppler Current Profiler, and indirect means using USGS Slope-Area Method; other means such as flumes and weirs was also discussed; the overall presentation was supplemented with a video on float method and ADCP.



Workshop Resource speakers from Left to Right: N.B. Nimes, S.F. Paat, A.L. Buendia, M. Sommer, and S.S. Schneider

6. **Briefing on Fieldwork** (H.T. Hernando, PRFFWC): groupings of participants; instructions on how to carry-out SG activities at the fieldwork site; do's and don'ts in the field, etc.
7. **DM by RP, RQ & Tracer Methods** (M. Sommer, Sommer Instruments) presented the use of non-contact instruments such as the RP30 (Radar Profiler) and the RQ (simultaneous river velocity & water level observations) in taking river velocities; and tracer methods to get immediately the total discharge after measurement proceedings.

Workshop participants together with event resource speakers (April 04, 2019)

8. **Global Navigation Satellite System (GNSS) Surveying** (S.S. Schneider, HMD): presentation on taking location and elevation using satellite technology; method of surveying that is suited for long distances; finally, some applications in several river basins in the country.
9. **X-section computations** (N.B. Nimes, PRFFWC): Hands-on computations of surveyed data during the fieldwork proceedings
10. **DM computations & Organizing data sets** (A.L. Buendia, BRFFWC / H.T. Hernando, PRFFWC): Hands-on computations of DM using fieldwork data; application of simple Excel suites to compute DM and river cross-sections.
11. **Development of Rating Curves** (H.T. Hernando, PRFFWC): A plot of the Q vs. H (stage or WL) from a set of organized measured data sets; using simple Excel suites to get equation of the rating curve and eventually coming-out with a rating table.

Details of the Workshop (in-house) Activities:

1. **Workshop No. 1** which was given on the first day during the workshop's backgrounder presentation was an individual activity looking at the level of knowledge and related capacity of the participant and the RBFFWC altogether.

Name / Nickname	RB of concern	Knowledge level (0, 1, & 2)* in SG	How many activities conducted (estimated)		Tools, instruments, eqpt. at River center		Workshop expectations, needs, etc.
			DM	X-sect	DM	X-sect	
Butch	Jalaur	0	none	none	none	none	*Conduct actual DM & x-sect*
Enzo	Quezon, Palawan Radar stn	1	1	1	none	none	*To refresh the use of DM instruments*
Allen	Bicol RB	1	1	none	none	none	*Learn each method of DM*
Dan	Bicol RB	2	10	10	Current meter, sounding wt.	Total station	*We need tools / instruments that can address our problems in our fieldwork*
Iveil	Malungon	1	1	1	n/a	n/a	*To refresh the knowledge from HTC training*
Heart	Currently at Hinatuan stn	1	1	1	n/a	n/a	*To refresh my knowledge in DM & X-sectioning using different instruments / tools*
Manny	Busuanga	1	1	1	n/a	n/a	*To refresh my knowledge in stream gauging & hydrographic survey / surveying*
Romeo Aguirre	Mactan	1	1	1	n/a	n/a	*To "re-learn" techniques in DM & X-sect; to enhance skills acquired from previous surveys*
Bema "Bemz"	Davao RB	1	1	2		Total station	*Refresh knowledge in DM & X-section*
Aljon Tamondong "Jon"	Baguio stn	0	n/a	n/a	n/a	n/a	*Learn & be able to conduct… acquire skills*
Leo	Sinait Synop	0	none	none	n/a	n/a	*Will be learning how to compute discharge and cross-sectioning*
Karcher A. Valoria "Cher"	Aparri Radar / Synop	0	n/a	n/a	n/a	n/a	*To be able to acquire new knowledge & skills*
Den	Cagayan RB	1	1	1	none	Total station	*Refresher on some DM methods & new learning on others; need manpower focused on CRBFFWC; need DM & X-sect equipment*

Greg	Agno RB	0	none	none	none	none	*To learn how to conduct DM & X-sectioning*
Jaymar (Mac)	Tagum-Libuganon RB	1	none	none	none	none	*To learn further on how to do the stream gauging using tools & instruments*
Larry	HMD	1	2	4	Current meter	Total station	*To refresh my knowledge in fieldworks of FFB*
Lolit	Butuan Synop	0	none	none	none	none	*Gain knowledge & experience in stream gauging*

*note: "0" – Novice (new/inexperienced); "1" – intermediate (knowledgeable w/ no or few experiences); "2" – well-versed (knowledgeable with several experiences; be able to lead a team)

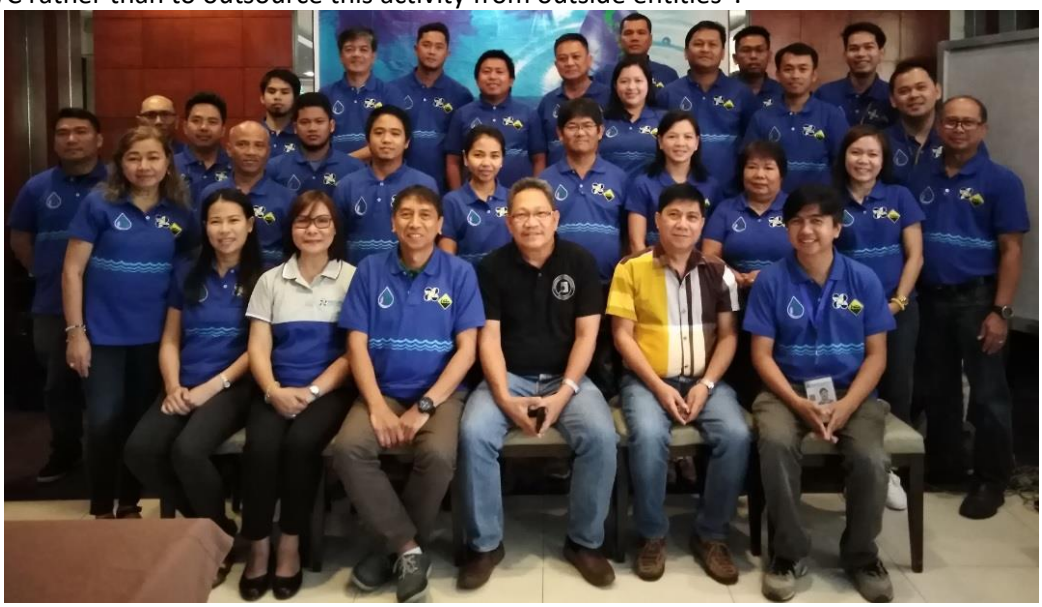
There were 17 participants who responded to this workshop. On the knowledge level, one participant responded with a knowledge level of "2", ten participants with knowledge of "1" and mostly these were those who took the Hydrologist Training Course but unfortunately most of them do not have equipment or instrument to do stream gauging activities. Finally, six ranked their knowledge level as "0" and most of them are not based in river basin centers nor do they have any direct hydrology background. Further, many of the participants expects from this workshop to either learn, refresh and acquire more knowledge on stream gauging activities.

2. **Workshop No. 2** was a culminating activity for the whole event as participants were asked what are the SG limitations and issues in their respective river basin center and how will they address these problems; each river basin group were also asked to write down their activity plans with regards to SG activities in the coming next 4 quarters ending at 1st Q of 2020 as a limit for now. This workshop was carried-out as a River Basin FFWC output.

River Basin FFWC Situation		River Basin FFWC 2019 SG Activity Plan		
SG issues / limitations	How will you address these issues	Month / Quarter	Activity	Remarks
Agusan River Basin FFWC				
Manpower	*Request for additional manpower*	*July / Aug / Sept / Oct*	*SG activities*	*Depends on the availability of manpower & equipment*
No equipment for SG	*Request SG equipment*			
Safety & Security issues	*Request assistance from HMD & experts from other RB centers*			
Davao River Basin FFWC				
Manpower (including driver)	*Request for additional manpower*	*3rd - 4th Q*	*SG activities – update x-sect & DM*	*Depending on the availability of manpower & equipment; available equipment at center: Total station*
Lack of equipment	*Purchase / request additional equipment (Current meter / echo sounder / ADCP)*			
Tagum - Libuganon River Basin FFWC				
Lack of Manpower	*Need support from HMD / MPRSD for additional well-trained personnel*	*The actual operation will be started w/in 3rd Q this year*	*River X-sectioning; discharge measurement*	*It will depend on the support of DOST-PAGASA higher mgt. for primary requested personnel & eqpt; & LGU for safety / security of operation*
Lack of SG equipment (Current meter; boat, sounding)	*Request for purchase of needed particular equipment; need to borrow eqpt in HMD / PRFFWC (if possible); alternative method of doing SG make use of traditional method*			*Available eqpt: total station and prism rod*

Security & safety while doing actual SG operation	*Inform local chief executives (city / municipality) for security / safety support*			
Agno River basin FFWC				
Manpower	*Request to the topmost mgt. / HMD personnel; purchase / request*	*Within the period of 3rd Q*	*DM; X-sect*	*Depends on the availability of the equipment & personnel*
Equipment				
Driver				
Cagayan River Basin FFWC				
Manpower (limited)	*Need support from HMD / PRFFWC & NLPRSD Hydrologist*	*3rd / 4th Q*	*Q measurement & X-section*	*Dependent on the availability of personnel & equipment & sked of installation of RR & WL eqpt purchased from ADCON*
No Q instrument	*Request / purchase equipment; borrow eqpt form HMD / PRFFWC*			*Eqpt at center: Total station & tripod*
Cagayan de Oro River Basin FFWC				
Manpower	*Request for additional personnel*	*3rd-4th Q*	*Discharge measurement*	*Depending on the availability of manpower*
No / lack of eqpt	*Purchase eqpt for SG*			*Eqpt at center: Total station but no echo sounder; DM: current meter profiler type with digital counter*
Jalaur River Basin FFWC				
Manpower	*Recommend to PRSD the need to having additional manpower & instrument(s)*	*As per request*	*Ocular inspection of installed sensors; IEC*	
Instruments				
Pampanga River Basin				
Need to capacitate all (PRFFWC) center personnel on SG activities	*Involvement of all PRFFWC personnel (rotational) on the regular SG activities*	*1st Q – 2nd Q*	*x-sect & DM at all SG stns; at least 1 each per Quarter*	*Conducted 4 x-sect & DM already for 1st Q (still ongoing)*
Additional eqpt (RQ non-contact measuring instruments) for high flows	*Request purchase of RQ non-contact DM instrument – as possible replacement to present WL sensors in the SG stations.*	*3rd Q*	*At least 1 to 2 (or more) DM at medium to high flows*	*Apply all possible methods; seek assistance from Local MDRRM offices for manpower / logistic support*
		4th Q	*At least 1 DM*	*Make additional x-sect if possible*
		1st Q (2020)	*X-sect & DM for the 1st quarter; Develop rating curves*	*Update rating equations*
Bicol River Basin FFWC				
No instruments yet: total stn; current meter; echo sounder	*Request to procure instruments*	*3rd Q of 2019*	*Cross-section survey and DM*	*Cross-section at lowest portion of every station*
Back flow or Tidal effects	*Adopt a hydraulic model to address the tidal effect issues*		*Plotting of the longitudinal profile of the river*	
Lakes – we cannot conduct DM & x-sect	*Bathymetric map – we can produce the change of volume of the lake; adopt lake model, but we still don't have lake model*			

The issues raised by most of the RBFFWC, that is, manpower and instrument needs are all related to their immediate respective PRSDs and can only be addressed if they (respective RBFFWCs) can point-out the importance and need for SG activities in their operational Flood Forecasting & Warning Services. The stand of most operational RBFFWC is to make "Stream Gauging a regular activity of each RBFFWC rather than to outsource this activity from outside entities".



Group picture during the workshop's closing program together with PAGASA Administrator, Dr. Vicente B. Malano (April 05, 2019)

Ways forward: Proposed Program of Support by PRFFWC

As the lead RBFFWC of PAGASA and as proponent to the just concluded Stream Gauging Workshop, the PRFFWC list several proposed actions in supporting SG activities in other RBFFWCs of PAGASA.

1. Immersion training program per basin group – RBFFWC personnel who wants to have a more in-depth hands-on of stream gauging activities will undergo a training at the PRFFWC with actual practical fieldwork at several SG sites within the basin. (PRFFWC-based program)
2. Support SG activities in other RBFFWCs' area – PRFFWC shall proceed to requesting RBFFWC and capacitate personnel of said RBFFWC in actual practical fieldwork in some of their SG sites within their basin. (training at the requesting RBFFWC base area)
3. Personnel limitation issues can be tackled by engaging LDRRM offices or LGUs in supporting them in terms of additional manpower during their SG activities; riding on an issue of data/info sharing between the two entities as what the PRFFWC has been doing now within the PRB.
4. A regular (annually) refresher workshop on Stream Gauging that will move around each river basin and direct SG fieldwork activities are carried-out at the stations of the host RBFFWC.
5. Create an on-line PAGASA RBFFWC Stream Gauging information center as a means of communication and interaction between RBFFWCs (FB, Twitter or e-mail groups) – to be created by PRFFWC soon.
6. Finally, proposal to make Pampanga River Basin Flood Forecasting & Warning Center as PAGASA's Training Center for Stream Gauging Activities.

Related workshop links (video): https://youtu.be/M7lsJ06Zegc

PRFFWC - April2019
E-mail: prffwc_ffb@yahoo.com
Websites: prffwc.webs.com / prffwc.synthasite.com
just search for "PRFFWC"