

Municipal Resource Recovery Design Committee
Subcommittee and Work Group Plan

Subcommittee/Work Group Title: Models for Operations

Number of Members: 17

Overall Mission: (Define the big picture of why there is a Subcommittee or Work Group. What need are you filling should be stated)

To reduce obstacles hindering model application at wastewater utilities

Goals: Define specific goals for your group, for example:

- Define metrics of successful implementation of models for operations
- Identify model applications where the greatest return on investment and greatest benefit can be had
- Identify software development needs
- Address training needs

Recent Past and On-going Activities: (These should be specific activities that are defined, such as “Fact sheet on Filtration”)

2018 activities:

1. January. Finalized 6 OWWLs on wastewater process modeling
2. March: WRRMod podium presentation “Process Modelling at Resource Recovery Utilities: Lessons Learned and Missing Tools”
3. August: Webcast “Using Wastewater Simulators for Improving Operations”

Communications:

How do you communicate and engage with your members (i.e. wefcom, email blasts, conference calls, face-to-face meetings, etc.) and how often?

Email is the primary model of communication with members of the group. The emails are sent as needed to keep members up to date on work group projects or to schedule conference calls. Maybe 6/year.

If you do not already do so, please try to include the MRRDC Chair, Vice Chair, and WEF Liaison on communications such as cc’d on emails, invited to conference calls, etc., so that we can observe the great activities that your group does! It is not the intent to take over your meetings.

Planned Deliverables/Actions for 2018 - 2019: - The purpose is for new members to understand what is being planned and help them understand what they are getting into if they want to join this group.

Planned 2019 Activities:

1. Explore WEFCOM to develop hub for work group resources, status of ongoing activities and to better communicate with members
2. Have 3 general meetings (2 conference calls/1 at WEFTEC) with work group members to facilitate networking.
3. Develop WEFTEC 2020 workshop proposal on using simulators for training
4. Develop series of OWWLs in collaboration with MEGA YWPs on data quality checks for process control data and model data
5. Develop 1 operator essentials column based on OWWL content
6. Explore other conferences where workshops from our work group would be appropriate

Municipal Resource Recovery Design Committee
Subcommittee and Work Group Plan

Subcommittee/Work Group Title: Leading Edge Outreach Subcommittee (**LEOS**)

Number of Members: 16

Onder Caliskaner	Chair, Kennedy Jenks	Monisha Brown	
Raj Chavan	Vice Chair, Stantec	Kam Law	Greeley & Hanson
Ana Pena-Tijerina	Past Chair, City of Fort Worth	Rene Aguilar	Carollo
Ayman Shawwa	Brown & Caldwell	Andy Shaw	MRRDC Past chair – B&V
Joe Husband	MRRDC Chair _ Arcadis	Morgan Brown	WEF rep.
Scott Schaefer	AE2S	Dylan Christenson	B&V
Aaron Fisher	LIFT	Lance Schideman	Univ. of IL
Mehran Andalib	Stantec	Robert Warden	Garver

Overall LEOS Mission:

LEOS identifies and develops programming focused on the education of leading edge practices in resource recovery design technologies; this programming involves facilitating the compilation and dissemination of technical information developed from within the activities of the MRRDC at large to the broader WEF membership in collaboration with WEF Staff.

LEOS Goals:

1. Disseminate WEF description of leading edge technologies including technology readiness levels. Decision made to adopt WE&RF TDs 3, 4 and 6.
2. Bringing the gap between MRRDC Work Groups, LIFT, WE&RF and WEF Research & Innovation Committee, IWA Leading Edge Technology Conference regarding leading edge technologies. Have a liaison for each organization.
3. Identify ways to communicate with WEF members about leading edge technologies.
 - i. Identify 1 or 2 innovative technologies to disseminate.
 - ii. Prepare white paper, advertisements, workshops, conference sessions, webcast and other educational way to disseminate knowledge.
 - iii. Advocate to include design criteria on each leading-edge technology.
4. Identify leading edge technologies and organize them by work groups.
 - i. Identify innovative technology abstracts during WEFTEC submission.
5. Develop and implement a topic tracking tool

Recent Past and On-going Activities:

- Collaborating with Water Environment & Technology (WE&T)
 - Identify leading edge/innovative technology papers to be highlighted in WE&T
 - Submit an article about advanced primary treatment / primary filtration (planned for April 2019 issue)

- Collaborating with LIFT
 - There have been past communications with LIFT. Both groups share common objectives. LEOS is in the process of refreshing these communications to identify ways for LEOS to assist LIFT.
 - LIFT - LEOS Liaison: TBD. Regular calls/meetings between LEOS and LIFT can be an effective and productive way of continued working relationship between the two groups. LEOS will identify a LIFT liaison to develop meeting agendas and to coordinate these calls.

- LEOS is tackling selected leading edge/innovative technologies. Main activity is to help disseminate design criteria information for unknowns and challenges
 - Identified/selected one leading edge technology in 2018: advanced primary treatment/carbon diversion
 - Another leading technology to be selected in 2019

Communications:

How do you communicate and engage with your members (i.e. wefcom, email blasts, conference calls, face-to-face meetings, etc.) and how often?

Bi-monthly conference calls are being held amongst all LEOS members

Quarterly conference calls are planned for activities to collaborate with WE&T

Quarterly conference calls are planned for activities to collaborate with LIFT

Annual face to face meetings are planned at WEF mid-year meetings

If you do not already do so, please try to include the MRRDC Chair, Vice Chair, and WEF Liaison on communications such as cc'd on emails, invited to conference calls, etc., so that we can observe the great activities that your group does! It is not the intent to take over your meetings.

MRRDC chair and WEF Liaison are invited to conference calls and cc'ed on select communications (i.e., requiring input or reporting LEOS activities and results)

Planned Deliverables/Actions for 2019:

- Submit an article to WE&T about advanced primary treatment / primary filtration
- Group conference meetings every 2 months
- Annual collaboration report with WE&T
- Annual collaboration report with LIFT
- Develop fact sheet on advanced primary treatment/carbon diversion

WEF MRRDC Subcommittee/Work Group Description and Activities

Subcommittee/Work Group Name: Instrumentation and Control Work Group

Description (2-4 sentences on overall mission and goals of the group):

The instrumentation and control work group is a sub-committee within the MRRDC for members interested in process control at WRRFs. Its areas of focus include fundamental knowledge, control system design and operation, research and innovations, and modeling and simulation. Our goals are to disseminate fundamental knowledge and recent innovations concerning process control to the WEF community.

Activities:

Ongoing:

- Quarterly conference calls

Completed:

- Papers presented at ISA WWAC 2017 and 2018 conferences
- Won ISA 2018 Excellence in Technical Presentation Award
 - Process Control Systems at WRRFs: Use of Process Simulation to Assist with Controller Design and Tuning

Planned/Future:

- OWWL and factsheets on basic process control concepts
- Workshop proposal for WEFTEC 2020 on I&C at WWTPs
- Instrumentation and Control webcast in 2019-2020

Municipal Resource Recovery Design Committee
Subcommittee and Work Group Plan

Subcommittee/Work Group Title: Biofilm Interest Group

Number of Members: 36

Overall Mission:

The biofilm interest group is a working group within the MRRDC for members interested in biofilm reactor technologies. Its areas of focus include research, design, modeling, simulation, and cost estimation. Our goals are to disseminate fundamental knowledge and recent innovations concerning biofilm reactors to the WEF community.

Goals:

To disseminate fundamental knowledge and recent innovations concerning biofilm reactors to the WEF community.

Recent Past and On-going Activities:

WEF Biofilm webcasts:

- Fundamentals and Emerging Advancements in Biofilm Reactor Technologies, March 18, 2015.
- An MRRDC Short Course - Biofilms: Principles and Advanced Model-Based Design, February 15, 2017.

WEFTEC 2017 Biofilm Reactor Design and Modeling workshop

IWA WWTmod2016 workshop on Granular Sludge Reactor Modeling

IWA WRRmod 2018 workshop on Simulation of counter diffusional biofilms: How do we take the MABR from research to practice?

Communications:

The BIG work group communicates vis quarterly conference calls and email blasts.

Planned Deliverables/Actions for 2018 - 2019:

Deliverables/Actions can include such items as:

- Annual meetings at WEFTEC
- Specific activities by BIG work group members:
 - Leading a workshop at WEFTEC (submitted for 2019) on Modeling Biofilm Reactor Technologies
 - Collaborate on a paper submission for WRRmod 2020
 - WEF Biofilm webcast
 - Lay ground work for a Biofilm conference

Municipal Resource Recovery Design Committee

Subcommittee and Work Group Plan

Subcommittee/Work Group Title: MEGA

Number of Members: _____

Please send your committee roster if you keep your own list, so that WEF can update our records.

Overall Mission: (Define the big picture of why there is a Subcommittee or Work Group. What need are you filling should be stated)

The Modeling Expert Group of the Americas (MEGA) is an MRRDC sub-committee/Work Group dedicated to modeling topics. The primary goal of the sub-committee is two-fold 1) expand the use of models for municipal and industrial process design and operation; and, 2) education and training. The scope of MEGA's activities places it in a unique position. MEGA transcends the typical sub-committee definition because modeling is now so prevalent in so many MRRDC activities.

MEGA Links with other groups:

- MEGA has strong ties with a number of the MRRDC sub-committees and better coordination between the groups on modeling and simulation related topics is an objective.
- Instrumentation and Process Control is of high interest for MEGA members. MEGA is consulting with its members how to strengthen the coverage of these topics with respect to modeling and simulation. Coordination within MRRDC is on-going.
- In general MEGA should be seen as a method provider to most of the other MRRDC Sub-Committees.

Involvement of YWPs:

- The MEGA YWP committee is very active and has been encouraged to pursue further activities (including webcast involvement, workshop proposals and active recruitment as a means for networking).
- The task of the YWP committee has been the following:
 - Promoting MEGA membership to their fellow YWPs
 - Assembly of two MEGA Newsletters per year
 - Support of the MEGA Steering Committee in their work
 - Development and coordination of mentoring programs for YWPs

Goals: Define specific goals for your group, for example:

- **Education**
- **Coordination with other groups**
- **Identify areas requiring further peer review**

Recent Past and On-going Activities:

MEGA has participated in various activities over the years (MOP31, MEGA TGs, WEF and IWA Task Groups, OWWL writing, WEFTEC workshops,...) and the plan is to continue those types of activities through the following channels:

- WEF Webcasts (annually in January)
- OWWL production (6 published on modelling fundamentals)
- White papers/Fact sheets will replace OWWLs going forward
- Modeling and simulation courses. MEGA plans to set up a series of training courses. This will complement the more interactive workshops by more formal training units.

Communications:

How do you communicate and engage with your members (i.e. wefcom, email blasts, conference calls, face-to-face meetings, etc.) and how often?

- Newsletters (2 per year): This is coordinated by the MEGA YWP committee. Four Newsletters have been produced so far, with another in production. The Newsletter will be the main outlet for updates on MEGA activities
- Workshops: MEGA has a history of highly attended and high ranked WEFTEC workshops. Our aim is to ensure we have at least one workshop at WEFTEC and additional workshops at other WEF conferences.

Planned Deliverables/Actions for 2018 - 2019: - The purpose is for new members to understand what is being planned and help them understand what they are getting into if they want to join this group.

Deliverables/Actions can include such items as:

- Several modelling-related workshops are planned at various conferences including WEFTEC
- Webcast in January 2019 on phosphorus removal
- MEGA will be well-represented at a number of specialty conferences including James' Barnard's Symposium, the WEF Nutrient Removal conference and WEFTEC.

Municipal Resource Recovery Design Committee
Subcommittee and Work Group Plan

Subcommittee/Work Group Title:

Number of Members: 10 active members

Here is the list of active committee members:

Aaron Benzing
Chris Tabor
Dean Shiskowski
Greg Heath
Jay Surti
Jim Fitzpatrick
Tony Margevicius
Sid Sengupta
John Siczka
Mugdha Mathure

John and Tony are officially co-chairs, but there is a core group of four that really guide the group. The core group consists of John Siczka, Tony Margevicius, Jim Fitzpatrick, and Greg Heath. John keeps the work group moving along.

Overall Mission: (Define the big picture of why there is a Subcommittee or Work Group. What need are you filling should be stated)

The Wet Weather Treatment Work Group's mission is to convert research and/or 'knowledge practice gaps' into a peer-reviewed deliverable useful for practitioners. The mission statement was provided by Art as the purpose for all work groups, and it guides what we do. The wet weather treatment work group has thus far focused on identifying 'knowledge practice gaps' and developing initiatives to fill those gaps.

Goals: Define specific goals for your group, for example:

- **Education**
- **Knowledge Gathering**
- **Coordination with other groups**
- **Establishing design criteria**
- **Identify areas requiring further peer review**

The wet weather treatment work group currently consists of mainly experienced engineers. Education of work group members isn't seen as a major need due to the members' experience. The work group is small, and participation isn't high partially due to the lack of activity at the larger group level and that wet weather treatment is more of a niche area than some other work groups. We will be meeting more

frequently in 2019 as the entire work group works on the initiatives. The group's goal is to complete its initiatives to fill 'knowledge practice gaps'.

Recent Past and On-going Activities: (These should be specific activities that are defined, such as "Fact sheet on Filtration")

Past and on-going activities are completing the following initiatives:

1) Collect and publish wet weather treatment performance data

- The benefit of the initiative is to publish meaningful peer-reviewed wet weather treatment performance data where data is presented in a consistent and vetted manner. The data will inform the water industry of real-world treatment performance and operational issues from wet weather treatment technologies.
- Almost all the wet weather treatment performance data and operational knowledge is held by utilities. The data that is available is either from vendor pilot studies or initial full-scale startups or in presentations or papers given by consultants.
- The initiative consists of four parts: developing a utility list and survey questions, contacting utilities, obtaining and analyzing the data, and writing and publishing the report. In 2017 we worked with NACWA and presented the initiative to NACWA's Facility and Collection Systems Committee. Several members expressed reluctance to share information for the reason mentioned later. NACWA then distributed an e-mail we drafted to their members about the data collection effort. The e-mail explained the initiative, its benefits, utilities could remain confidential, and utilities would have the opportunity to review the report prior to publishing. The e-mail asked if the utility had wet weather treatment data they were willing to share – a simple yes/no question. The e-mail continued that a member of the work group would follow up with a phone interview if the utility had data. Utility response was poor. Three utilities responded that they had data and three responded that they did not. In 2018, the core group decided to create a list of utilities we knew had data and then contact them by phone. The list and phone interview survey are complete. It is now time to contact the utilities.
- US EPA's Peak Flows Management Rule rulemaking process and the associated discussion around it make this initiative both timely and incredibly valuable.
- The challenge is many utilities are reluctant to share wet weather treatment performance data in fear of what EPA will do with the data. Utilities may now also fear what environmental groups will do with the data as the groups are opposing blending which may be approved by the Peak Flows Management Rule. Another challenge is treatment performance is highly influenced by operating conditions (e.g. first flush, duration of wet weather event, time since last event, equipment not operating) so a careful review of conditions associated with each event and their impact on performance is necessary.

2) Collect and publish wet weather treatment permit conditions

- The benefit of the initiative is to provide utilities, consultants, and regulators what has been negotiated and approved. The data can be used to show regulators precedent for the permit conditions being negotiated.
- Unlike the wet weather treatment performance data, the permit conditions are publicly available.
- We have developed a draft template for collecting the data.
- This initiative is currently tabled while we complete the first initiative. The work group does not have the capacity for more than one initiative given the number of work group members and their availability.

3) Disinfection of wet weather flows/pathogens

- Disinfection of wet weather flows is a hot topic (particularly with the Peak Flows Management Rule) and an area of continual development.
- The benefit is to provide utilities, consultants, and regulators an update of disinfection technologies and their performance.
- This initiative has been combined with the first initiative.
- Similar to the first initiative, utilities will be reluctant to share disinfection data and especially pathogen data should they have it as pathogens aren't currently regulated. Environmental groups are especially concerned about the impact of pathogens from blended flows on receiving water quality.

Communications:

How do you communicate and engage with your members (i.e. wefcom, email blasts, conference calls, face-to-face meetings, etc.) and how often?

We communicate by e-mail and conference calls. We have met once or twice a year, but the goal is to meet quarterly. We are a small work group of experienced engineers, so the meetings will be focused on our initiatives and keeping abreast of wet weather treatment regulatory developments. The core members (four members) of the work group communicate have met more frequently around four times per year as we were developing the initiatives.

If you do not already do so, please try to include the MRRDC Chair, Vice Chair, and WEF Liaison on communications such as cc'd on emails, invited to conference calls, etc., so that we can observe the great activities that your group does! It is not the intent to take over your meetings.

Will do. Please provide the contact information for these individuals.

Planned Deliverables/Actions for 2018 - 2019: - The purpose is for new members to understand what is being planned and help them understand what they are getting into if they want to join this group.

Deliverables/Actions can include such items as:

- Work products, such as “deliver __ fact sheets, OWWLs, newsletters, etc.”
- Group conference meetings – every __ months
- Actions or specific activities by subcommittee/ work group members such as:
 - Authors or technical reviewers of WEF Publications
 - Leading Sessions/programs/workshops at WEFTEC (such as Mobile Sessions)
 - Program or Steering Committees for Specialty Conferences
 - WRF Research work/LIFT projects
 - Coordination with other WEF Committees or other organizations, such as IWA

The main activities planned for 2019 is collecting wet weather treatment performance data and analyzing the data provided sufficient data is obtained from utilities to publish a meaningful report. Data analysis will take time given the unique conditions around each wet weather event. It's likely the report will not be published this year.

If utility response to providing wet weather treatment performance is low, we will table the initiative and work on the second initiative of collecting and publishing wet weather treatment permit conditions. It's possible to have a draft report written by the end of the year, but it depends on when we start the initiative and work group member availability.

Other activities for 2019 include:

- Quarterly phone calls – People are too busy for anything more frequent.
- Regulatory update on the Peak Flows Management Rule rulemaking
- Continue to provide technical support for the Government Affairs Committee regarding the Peak Flows Management Rule when asked.
- Consider developing a white paper on bacterial and pathogen treatment.

Municipal Resource Recovery Design Committee
Subcommittee and Work Group Plan

Subcommittee/Work Group 3: Resource Recovery (Nutrients-Energy)

Number of Members: 12

Chris Machado (Lead)

Akram Boutros (Co-Lead)

Hank Andres

Deena Davidson

Dean Shiskowski

Malarmagal Perinpanyagam

William Marten

Kam Law

Adrian Romero

Gary Grey

Ralph Schroedel

Robert Sharp

Gary Hickman

Overall Mission: This group is dedicated to support the MRRDC mission when it relates to Resource Recovery topics with focus on nutrient and energy recovery.

MRRDC Mission (From MRRDC Manual)

MRRDC focus on elements of design processes treating municipal wastewaters for public health and environmental protection, and for the recovery of embedded resources for beneficial reclamation and reuse. As such, the objective of MRRDC is to share and transfer knowledge and expertise to WEF membership and beyond on best practices for design, emerging treatment technology and research, regulatory trends and systems sustainability.

Goals: Define specific goals for your group, for example:

Our overarching goal for 2019 is to establish the working group and engage participants specific tactics include:

- 1) Establish and conduct monthly meetings
- 2) Propose and prepare a Webinar with resource recovery topic (Potentially Energy Related)

- 3) Produce a Factsheet (topic – TBD – Potential Phosphorus Recovery)
- 4) Start framework of a news Letter in collaboration with YPs (Outreach Beyond WEF Community)
- 5) Coordinate with other working groups to avoid superposing efforts

Recent Past and On-going Activities:

- 1) 2019 kick off call – November 30th 2018 – Attendees (Chris Machado, Akram Boutros, Hank Andres, Deena Davidson)

Communications:

Internal: Monthly Meetings

Planned Deliverables/Actions for 2018 - 2019: - The purpose is for new members to understand what is being planned and help them understand what they are getting into if they want to join this group.

Deliverables/Actions can include such items as:

- Present News Letter Framework to MRRC (at of before WEFTEC 2019)
- Coordinate Webinar opportunities with WEF tentative Q3 2019
- Coordinate issue Fact Sheet – Q3 2019

Municipal Resource Recovery Design Committee

Subcommittee and Work Group Plan

Subcommittee/Work Group Title:

Number of Members: 33

Overall Mission: (Define the big picture of why there is a Subcommittee or Work Group. What need are you filling should be stated)

The mission of the MEGA YP subcommittee is to support the MEGA subcommittee in developing and conducting programs and information relating to the advancement of wastewater treatment modeling. Furthermore, as a Young Professionals (YP) group, the MEGA YP subcommittee's mission is also directed to provide opportunities for YPs to develop professionally through networking, mentoring programs, and participating in the development of technical deliverables and sharing of knowledge.

Goals: Define specific goals for your group, for example:

- **Education**
- **Knowledge Gathering**
- **Coordination with other groups**
- **Establishing design criteria**
- **Identify areas requiring further peer review**

The goals of the MEGA YP committee are to provide YPs interested in, or already involved in, wastewater process modeling with opportunities to:

- Expand their network, learning not only from their YP peers, but also from volunteer Experienced Professional (EP) wastewater modeling mentors that join during our monthly calls
- Share knowledge through the modeling community through the development of various deliverables including: Webcasts, Conference Workshops, OWWLs, Factsheets, and a dedicated bi-annual MEGA YP newsletter

Recent Past and On-going Activities: (These should be specific activities that are defined, such as "Fact sheet on Filtration")

Networking and outreach; mentoring opportunities with experienced professionals, biannual newsletters; annual WEF webcast; planning and organizing WEFTEC technical sessions and workshops; and writing white papers, fact sheets and OWWLs.

Communications:

How do you communicate and engage with your members (i.e. wefcom, email blasts, conference calls, face-to-face meetings, etc.) and how often?

If you do not already do so, please try to include the MRRDC Chair, Vice Chair, and WEF Liaison on communications such as cc'd on emails, invited to conference calls, etc., so that we can observe the great activities that your group does! It is not the intent to take over your meetings.

The MEGA YP group communicates to its members through monthly conference calls (invites sent via email), and an annual in-person update at WEFTEC. In addition, the bi-annual newsletter is shared with the entire MEGA roster, as well as other WEF members via WEFCOM and LinkedIn.

The MEGA YP Group ccs Morgan Brown (WEF Liaison, John Copp (MEGA Chair) and Leon Downing (MEGA Vice-Chair) on all communications.

Planned Deliverables/Actions for 2018 - 2019: - The purpose is for new members to understand what is being planned and help them understand what they are getting into if they want to join this group.

Deliverables/Actions can include such items as:

- Work products, such as “deliver __fact sheets, OWWLs, newsletters, etc.”
- Group conference meetings – every __ months
- Actions or specific activities by subcommittee/ work group members such as:
 - Authors or technical reviewers of WEF Publications
 - Leading Sessions/programs/workshops at WEFTEC (such as Mobile Sessions)
 - Program or Steering Committees for Specialty Conferences
 - WRF Research work/LIFT projects
 - Coordination with other WEF Committees or other organizations, such as IWA

Planned Deliverables for 2018-2019 Include:

- Developing webcasts for Full Plant Phosphorus and Energy Efficiency
- Two Newsletter updates
- Monthly group conference calls with various Experienced Professional (EP) mentors joining us to share knowledge and guidance
- Further development of a WEFTEC Workshop proposal on game-based learning for modeling
- Publishing an Aerobic Granular Sludge Factsheet

Municipal Resource Recovery Design Committee
Subcommittee and Work Group Plan

Subcommittee/Work Group Title: Fundamentals Outreach Subcommittee

Number of Members: 25

Overall Mission: (Define the big picture of why there is a Subcommittee or Work Group. What need are you filling should be stated)

To promote outreach related to resource recovery fundamentals across the industry.

Goals: Define specific goals for your group, for example:

- Provide opportunities through multiple media and engagement platforms for students, operations and maintenance staff, young engineers, experienced engineers, and administration and management staff to learn or relearn resource recovery fundamentals
- Create fact sheets on fundamental topics as a means to disseminate fundamental information and also provide an avenue for committee members to gain experience in developing technical content
- Collaborate with other WEF committees in the creation of factsheets, workshops, webcasts, and other committee activities
- Provide pathways for young professionals to collaborate with experienced professionals in all committee activities, thus facilitating long-term integration into the broader MRRDC and WEF community

Recent Past and On-going Activities:

- Led Mobile Session at WEFTEC 2018
- Sanitary Sewer Lift Station Factsheet (under final review)
- Pump Selection Guide Factsheet (in progress)
- Membranes Factsheet (in progress)
- Submitted proposal for Solids Stabilization Workshop at WEFTEC 2019

Communications:

How do you communicate and engage with your members (i.e. wefcom, email blasts, conference calls, face-to-face meetings, etc.) and how often?

- We try to hold a conference call about once every quarter with the full subcommittee roster
- Interim email/phone call communications are held as needed related to specific efforts (e.g. Workshop proposal)
- Other communications (e.g. volunteer opportunities) are made via email

If you do not already do so, please try to include the MRRDC Chair, Vice Chair, and WEF Liaison on communications such as cc'd on emails, invited to conference calls, etc., so that we can observe the great activities that your group does! It is not the intent to take over your meetings.

- Done.

Planned Deliverables/Actions for 2018 - 2019: - The purpose is for new members to understand what is being planned and help them understand what they are getting into if they want to join this group.

Deliverables/Actions can include such items as:

- Finalize/publish in-progress Factsheets
- Start new Factsheets
- Lead a mobile session at WEFTEC 2019
- Lead a Workshop at WEFTEC 2019
- Complete proposal for Workshop at WEFTEC 2020
- Hold quarterly subcommittee update calls
- Notify subcommittee members of volunteer opportunities