

**Department of Environmental Management  
Maui Wastewater Community Working Group Meeting V  
Thursday, March 4, 2010  
Velma McWayne Santos Community Center**

**Meeting Notes  
Draft - March 29, 2010**

**I. Welcome & Introductions**

A security issue was explained to the group prior to the start of the meeting.

Re. the agenda, the main event is for CWG members to brainstorm strategies to help Maui achieve the five scenarios that the group developed earlier.

Kuheia Paracuelles reads Mayor Charmaine Tavares' message to the CWG, expressing appreciation for the work of the CWG and reinforcing the need for members to not only represent their respective organizations, but also to keep in mind the interests of all Maui residents.

Facilitator Leland Chang offers comments addressing some CWG member's comments outside of the group expressing dissatisfaction with the process. It's been clear from the beginning that the CWG meets as a single collective to provide a level playing field; and that the goal is to find common ground amongst many different points of view. The consensus process takes more time up front, but the benefit will be broader support for the CWG's recommendations. As the facilitator, Leland's concern is how what occurs outside of the CWG affects dynamics within group. Are people going to contribute in positive way, etc.? There are no ground rules for what people do outside CWG. But when CWG meets, the hope is that members come in good faith and support the goal of collaboration. This is the understanding contained in the Mayor's invitation to each of the members and also in the groundrules for the CWG.

Steve Parabolicoli provides information regarding the Water Reuse Conference on Maui on November 18 & 19. It is a technical conference with local and mainland presenters. Generally, there are 100 to 130 participants; and there is a cost. Contact Steve if any questions.

**II. Agenda Review**

The Agenda is all ready posted on the website and was emailed to CWG members

**III. CWG IV Meeting Summary**

Facilitator: The 1995 Brown and Caldwell fee structure study will be posted on the website.

**MAUI WASTEWATER MANAGEMENT COMMUNITY WORKING GROUP**  
**Consolidated Input from March 4, 2010**  
**CWG V Brainstorming Session**

**Scenario A - Maximum Wastewater Recycling**

Planning, Organization, Public Policy, and Regulation

- State Department of Health regulations changed to allow private residential use of reuse water
- Encourage DWS to take charge of water reuse
- Review impediments, i.e. laws, regulations, etc.
- Define ‘old’ and ‘new’ construction
  - Building codes
  - Conversion to ‘new’ (transition, retrofits)
- Improve [toward] holistic approach
  - One water agency
  - Better organization and collaboration
- Ensure continuity of commitment to the improvement process.
  - beyond the terms of office of current officials
  - large problems require effective long-term commitment to solve
- Develop long-term planning and funding
  - these are both lacking now – “one off” individual projects are norm
  - Study current organizational format
  - Find ways to simplify and streamline regulations
  - Coordinate regulations from different levels of government
  - (Federal, State, and County)
  - Designate a specific person to coordinate wastewater at County level
  - Planning and implementation
  - Single contact for easy coordination with other agencies
  - Clear and limited scope (keep focused on WW)
  - Well funded with adequate support staff
  - Too large a task for just a single individual to be able to do it.
- Research what other municipalities have done
  - identify the current “state-of-the-art”
  - look for a unique application niche for Maui

Uses and Users

- private residential greywater use
- Somehow tie in to sugar/large agricultural systems
- Additional uses: agricultural/pastures/forestry
- Tie into existing agriculture
- Develop agricultural parks where (wastewater) water is
- Reuse water customers with other sources of potable water (e.g. wells)

- Explore other means of use
- Good data needed on ‘true’ (real) number of user need
- Encourage growing of biofuels as a good use for R1 water
  - good for fuel crops, but not for food crops
- Incentives for use of recycled water AND disincentives for non-use of available water
- Provide a contractual framework to ensure availability

### Infrastructure, Facilities, and Treatment Approaches

- Need to relocate or reinforce treatment facilities
- Work at improving quality of effluent
- Pretreatment at pump station site (scalping(?) used water)
- Encourage private & decentralized reuse treatment (through policy, financial incentives) subject to thorough enforcement
- Encourage on-site treatment/use, not only centralized or decentralized
  - Incentives?
- Enhance treatment to meet needs **and** distribution to users
- Locating where [treatment] plants are built
- Minimizing wastewater going to [treatment] plant
- Make the wastewater a reliable and valuable resource
  - consistent quality
  - controlled availability over time
- The existing infrastructure needs work
  - Preventive maintenance measures – prevent leaks
  - Repair of existing piping – stop leaks
  - Repair storm water collection piping – keep it separate from WW
- Expansion and extension of new piping
  - New customers will need new piping to their location
- Investigate localized filtration options
  - Clean the water at the source
- Keep the water out of the treatment system
  - Zero storm water run off
  - Absorb the rain where it falls – don’t let it get in the sewer system
- Reduce (potable) water use – incentivize this process
- Capital availability
- Shift thinking to wastewater as an asset

### Financing

- Open Market Sales
  - Auctions
- Look for grant sources

- Federal and State monies
- Casting Maui as a “test bed” for new technologies

## **Scenario B - Phasing Out Use of Injection Wells**

### Planning, Organization, Public Policy, and Regulation

- DWS takes over system/duplicity of sources
- Ban injection wells
- Coordinated plans are better able to attract additional funding
  - Leverage
- Include more interested stakeholders
- Consider creating a Waste Water Authority
  - Similar to the Ohio Water Authority
  - Foster large scale integrated planning
  - Coordinated efforts across the island
  - Overseeing this large scale coordination
  - Make it the sole job of one person
  - Focus the effort – and the responsibility
- Create “Place Based” solutions
  - Ensure each solution is appropriate for the location
  - Be willing to employ various solutions
  - Phase the solution over time
  - Minimize cost impacts
  - Maximize planning and coordination
  - Perhaps different levels of treatment are appropriate in different locations

### Uses and Users

#### Use for aquaculture

- Massive pasture irrigation when oversupply
- Give excess away
- Develop more users (customers) for reclaimed water
  - Golf courses
  - Ranches (watering pastures in time of drought)
  - Low maintenance crops, e.g. switchgrass
- other fuel crops
- Develop dual use
  - Users who can switch between potable and reclaimed water
  - They can use reclaimed water when there is an excess
  - Forego when it is not available
- Incentivizing or regulating water use (conservation & efficiency)

### Infrastructure, Facilities, and Treatment Approaches

- Large onsite or near site storage reservoirs
- Alternative disposal methods need to be developed (e.g. hypersalinity, open ocean outflow, residential greywater, black water)
- Watershed restoration to increase absorption
- [Develop] reservoirs, ponds
- Safer treatments
- Help assure no excess
  - Aquifer recharge
  - Create more wetlands
  - Restore stream flow
- Send excess (treated) to streams, gulches
- Improve segregation of wastewater excel
- Minimize storm water runoff
- Balance the fluctuations of supply and demand
  - Develop effective short-term storage
  - During rainy weather, users will need less reclaimed water.
  - Store excess for later use; help ensure constant supply
  - Fire ponds -- large bodies of water stored for use in fighting fires
  - Effective containment necessary (plastic liners)
  - Expensive
  - Prone to algae growth (but at least it is not in the ocean...)
  - other large fields where excess WW can be spread safely
- Develop the synergy of water and energy
  - The County could invest in renewable energy generation
- Use pumped hydro to store excess reclaimed water and electrical energy
- Develop efficient ways to get reclaimed water up hill
  - Minimize use of fossil fuels
  - Use renewable sources
  - Develop smaller collection sites uphill from treatment
  - Pipe downhill directly to treatment sites - no pumping necessary
  - Same level or only slightly lower - minimize energy used for pumping (less up hill)
- Coordinate infrastructure improvements
  - Is MECO planning some pumped storage now? Coordinate efforts
  - What other utilities could be laid down with new reclaimed water lines
- Create & expand constructed wetlands & living machines

### Financing

- Leverage capital to reduce operating costs and improve reliability
- Partner with private sector companies
  - they can use energy tax credits the County currently cannot
- Establish a power purchase agreement for less than the MECO rate
- Projects with diversified funding sources are more attractive to funders
- Individual funds have more impact (more bang for their buck)

## Public education

- Educate community on safer treatments and better use practices
- Lessen dependence on aquifer

## **Scenario C - Zero Negative Environmental and Ecological Impacts**

### Planning, Organization, Public Policy, and Regulation

- Reef Protection Comprehensive Plan
  - Set measurable goals and [develop] ability to measure progress in quality of ecosystem
  - Study impacts of various treatments and costs, i.e. petroleum
  - Compare cost of current, and continuing treatments
  - Move to ecologically friendly energy mix
- Identify what is “adequate treatment”
  - Get the EPA to specify it
  - This definition is a critical but moving target influenced by ongoing research
- Outlaw the disposal of toxins in the sewer
- Have inspectors to check on effectiveness
- Require proper permits
- Develop a water quality plan
  - Create measures to limit the size of the disposal problem
  - Limit the toxins that can be brought onto the island
- Tax negative impacts
- Usage tax (add it to the purchase price)
- Place a high tax on toxins
- No such thing as ZERO -- reword to lowest reasonably achievable level

### Uses and Users

- Develop crops that can use waste water
- Find (actively search out) beneficial uses

### Infrastructure, Facilities, and Treatment Approaches

- Improved treatment
- Prevent wastewater from entering near shore/coastal environment; somehow keep it on the land longer (“percolate” it)
- Phase out private cesspools & septic systems near coastal waters

- Consistently looking at best practices wherever those are/ stay up to date with leading edge technologies -- 1) proven technologies for widespread use and 2) pilot technologies for other/smaller projects
- If Maui County is to be model then keep up with best practices and be progressive
- Ensure the existing system has adequate funding for operation, maintenance and replacement of current equipment
- Pursue continuous improvement
  - Realize there is no “Silver Bullet” (no single change can solve the problem)
  - Develop a “Tool Box” of situational tactics - like a menu of possible small solutions to pick from
  - Apply multiple appropriate tactics until the solution is reached
- Localized treatment - Better treatment of waste water at the source
  - Treat (or pre-treat) WW at the source
  - Keep it a small problem
  - Keep it away from the ocean
  - Impacts stay on the property of the waste generators
  - Both residential and commercial sized systems
  - Scalping the water to remove solids
- Monitor sewer inputs
  - Reduce inputs to the waste water system
  - Install sewer meters
  - Monitor sewage network for toxins
  - Help identify the source of the problems
- Develop natural filtration process
- Create environmentally leveraged alternatives to the current mechanized and electricity hungry system
  - Investigate viable options
  - Experiment with promising technologies
- Include the handling of storm water run off as part of WW problem
  - Gather and pool storm water as a resource
  - Make sure the ditches are kept clean
  - No dumping of junk
  - Rapidly remove debris from previous storm before the next one hits

### Community Education

- Provide positive environmental, social & ecological impacts
- Acknowledge and consider waste as a resource (paradigm/guiding principle)
- Improve the overall ecology
- Transparency and public reporting
- . Develop more effective recycling systems
  - “Don’t put them in the toilet” – old pills, bleach, etc.
  - Have drugstores accept out of date drugs and dispose properly

## Scenario D - Minimize Financial Burden

### Rates

- Increase rates to users
- Cost should be born by all taxpayers and visitors
- Find ways to fine tune rate structure to reward efficiency & conservation
- Examine and restructure rates more fairly and realistically
  - Via better regulations of use
- User fees that transmit all costs
  - “Pay Realistic Costs”
  - This will inform the public of the actual cost of WW treatment
  - People who under pay tend to over use
  - Create a tiered cost system so not to burden the non-affluent
- Direct use charges will limit use
- Sewer Meters -- similar to water meters
  - Higher charges based on higher volumes
- Monitor toxicity
  - Charge penalties for injecting toxins into the system

### Determining Costs

- Reassess “value” (economic, cultural, social, and environmental) of water moving and treatment (e.g., carbon footprint, CO2 emissions); life cycle costing -- looking beyond economic costs; holistic/systems approach
- Need to examine the costs holistically
- Assess and redefine cost allocations
  - Give credits for onsite
  - Fair between user and provider
  - Diverse and balanced funding
  - Equal [shared/common] benefits paid for by everyone
- Develop methods to justify cost of water
  - Use more, pay more
  - Exemptions based on better use
- Strong (accurate and detailed) cost projections
  - Need to verify we have them now
  - Develop, extend, and verify them
  - Accurate cost projections are required for good decision making
- Identify cost effective solutions
  - Present scaled options
- Know the true cost of not treating to balance it against the cost of treatment

### Revenue Enhancement

- Partner with potential users so they invest in distribution infrastructure

- Extend developer’s impact fees beyond treatment to distribution
- Promote public – private partnerships where infrastructure, etc. is constructed and dedicated to the county and also impact fees (this “dedication” was desired but not in lieu of impact fees - “both and” not “either or”.)
- Create more innovative ways to finance (e.g. tax deductible donations, water trusts, revenue bonds, etc.)
- Look at development costs together with recycling potential
- Federal grants, auction system, etc. [some sources]
- Privatization (not privately owned treatment plants...)
  - Publicly owned utility run by a private company
  - Open contracts
  - Open bidding for the contracts
- Auction reclaimed water rights

### Community Education

- Widespread education to show benefits to the community; explain policies and incentives
- Communicate cost of inaction
- Call it “recycled” water – not “waste” water
- Ensure wastewater problems are visible
- Find ways to limit personal use

## **Scenario E - An Educated Community**

### Organizations and Structures

- Community funded/owned wastewater systems
- Better publicity/outreach by a new holistic water management department
  - Must make this a priority and find funding
- Use existing community organizations
- Social networks
- Priority mayor/council to do this effort
- Use CWG as core for expanded community outreach

### Native Hawaiian Cultural Approaches

- Stronger Hawaiian support to increase understanding of water management/waste practices
- Actively engage the Hawaiian community and putting resources behind this effort

### Schools

- Target youth in education (but also including all generations)

- Create 5<sup>th</sup> or 6<sup>th</sup> grade curriculum w/site excursions -- DOE Standards
- Start in preschool, i.e. water conservation practices
- Create a K -12 curriculum
  - Be sure to keep it well thought out and through
  - Don't repeat educational messages in boring ways between grade levels
- Find ways of financing educational efforts (invest in training existing educators)

### Marketing Campaign

- Get professional group in to aid in developing education/outreach strategy
- EDUCATION CAMPAIGN IS KEY
  - Current outreach needs improvement
  - Incentives to change behavior
  - Contests
- Peer pressure is more effect than regulation
  - An account about South Korea
  - the effectiveness of public peer pressure
  - the public was informed the government was recycling storm run off
  - individual citizens were very self-policing about litter and unsafe dumping
- Cover all levels of education -- schools, voters, decision makers (both elected and County staff)
- Lay out a clear plan with options and incentives to do the right thing

### Messages

- Make it real to daily life
  - Public education campaigns
  - Present today's costs verses the cost of doing nothing
  - Develop "Ecological Literacy"
  - Keep it simple
  - Visual
  - Assume short attention spans
  - "How will this affect my child?"
- Ask for a change of life style
  - No bleach into toilets
- Identify a clear message
  - Use good advertising approaches
  - Keep all the messages well choreographed
  - No stupid or inane messages
  - Some of the anti-drug messages are very compelling -- emulate their style; adopt their sense of urgency
- Show how individual "contributions" accumulate -- the multiplier effect
  - Small inconsequential problems get huge when aggregated
  - Help people value their individual impact
  - Like voting

#### **IV. Mission and Guiding Principles**

Leland Chang: the recent draft of the Mission and Guiding Principles has had two CWG reviews and emailed input from Robin Knox. Robin's suggested revisions are included in the latest draft.

Russell Sparks: The Mayor's statements have focused on phasing out injection wells, not 100% reuse. He suggests that language include phasing out injection wells and making full use of recycled water. The key reason for that is that it may not be possible to make 100% reuse of recycled water; but phasing out injection wells should be a goal.

Alex de Roode: Regarding Mission statement, no reference in terms of CWG and remaining active beyond the year long set of meetings. Is the goal of CWG to remain active until injection wells are phased out or 100% reuse is achieved? If CWG does not achieve goals within the year, what happens? Should there be a continuation of the process? Will CWG just dissolve after the one-year process?

Leland Chang: Sounds like a desire for continued community involvement.

Jeff Pearson: People will be watching what's happening. Maybe there needs to be an organization towards that effort.

Leslie Wilkins: Should this addressed as a recommendation from the CWG rather than something in the guiding principles? We have no authority to direct that the CWG continue.

Alex de Roode: Would like to see this addressed in terms of what happens after 12 months.

Leland Chang: There could be a guiding principle about the importance of ongoing community involvement. Also, phasing out of injection wells will be placed before 100 percent reuse in two places in the document. The group concurred and the Mission and Guiding Principles are adopted with these revisions.

Gregg Kresge: Informs public of website, which includes documents relating to the CWG's work.

#### **V. Scenario Brainstorming -- Small Groups and Reports**

Leland Chang provides instructions for the brainstorming activity, introduces the three neutral facilitators provided by the Maui Economic Development Board, and assigns the members to their groups. He also informs the public that this is a working session of the CWG, so they should hold their comments until the public comment portion of the agenda; or send in their comments by email.

Following the small group session, each group reported back the highlights of their discussions.

The consolidated input from the small groups is attached.

## **VI. Next Steps; Next Meeting**

Leland Chang: For the April 1 meeting, the CWG will discuss the brainstorming results and initiate work on development of evaluation criteria.

## **VII. Public Comments:**

Levi Decker (Brac Systems): Gray water recycling is not an old thing; there's a lack of code. Canadian-based company has products; if anyone is interested in information or system for pilot project to implement working model they can educate the public; and can answer any questions that people have.

Tamara Paltin: address disposal of unused pharmaceuticals as many are flushing these into the toilets. Partnership opportunity with watershed and instead of diverting use R1. Use gray water instead of potable water. Super heavy taxation on commercial water landscaping, water parks, waterfalls, hotels, private uses of swimming pools; some places backwash everyday; pass legislation on permitting new injection wells.

Russell Sparks: there are environmental concerns about the reefs and should be discussion; there's no sense of urgency when you view some of the environmental concerns. Need to understand the urgency of trying to get this done.

Iokepa Naeole: Education on this is a priority; if looking at creating change then need to know what's at stake.

Jeff Pearson: Assumption is that injections wells are bad for the reefs; is it damaging the reefs. Education is good because for every engineering solution, you need to understand the problem. Need to define this in a clearer way.

Jon Miller: There isn't a lot of disagreement on the strategy, but issues are feasibility, overall cost, real environmental damages. Need better data to draw from. Don't know who the major Wastewater users are and the costs.

Jeff Schwartz: Similarity in points of views but there are disagreement areas. It would help to have greater clarity on what we agree on or not. An area of disagreement is centralization versus decentralization and permissibility of private versus public systems. Identify non-alignment of areas to help focus efforts.

Alex de Roode: As follow up maybe project team needs to do some analysis and group these patterns. Maybe further in process of CWG, identify the high priority items and timelines and going back to technical feasibility and have financial and technical experts look at these suggestions. Have this technical overview of what the CWG is doing.

Jon Miller: Good points; localized system. What are the different systems and costs?

Robin Knox: What's the goal; continue to encourage thinking of a tool box. Concerned that the world is not just black and white.

Leland Chang: Evaluation criteria will express CWG values and what's important. Recommendations will have to pass this muster. The team will re-look at framing a CWG education component and discussion on reefs.