

**Department of Environmental Management
Maui Wastewater Community Working Group Meeting VI
Thursday, April 1, 2010
Velma McWayne Santos Community Center**

**Meeting Notes
Draft - April 20, 2010**

I. Welcome & Introductions

The group acknowledges Alex de Roode for his contributions to the CWG and welcomes his replacement, Joie Taylor.

II. Agenda Review

Leland Chang: We are at the mid-way point; CWG has received WW 101, adopted its Mission and Guiding Principles, learned about government budgeting and financing, developed scenarios for Maui's wastewater future, and brainstormed strategies for both achieving these scenarios and funding improvements.

Today, the CWG will discuss the results from the last meeting and begin development of evaluation criteria. The next four meetings will involve prioritizing the criteria and shaping recommendations that will become part of the final report. At Robin Knox's request, there is an agenda item today regarding disinfection requirements and practices.

Leland Chang: Regarding the request for education on impacts to coral reefs -- the team has talked about this at various times and discussed it again after the last meeting. The issues would need to be presented in a balanced way. The team is also concerned that a protracted debate might ensue that would take up a lot of time and resources. The team came back to the two goals of phasing out injection and maximizing wastewater recycling. If significant progress can be made towards reaching these goals, then the question of impacts to reefs should become less urgent.

Kuheia Paracuelles: This was a difficult decision because of the interest. It's not due to an inability to grasp that this is an important issue, but more a feeling that balance is very important. An example of why balance is important when we have interest in a controversial issue: the Nature Conservancy's campaign to bring attention to feral pigs and their role in native forest decimation. It raised a lot of awareness and emotion; and included impacts on streams and sedimentation on coral reefs. Pigs were like the injection wells of that time. This caused a lot of controversy and upheaval in the community. It didn't create a balanced view; and she was there at the time. Feral pigs are a major factor but there are other issues -- other ungulates, invasive weeds, development, and climate change -- other things that threaten. Ten scientists in the same room would not agree on what the MOST significant factor is. Discussed holistic management; conservation is an ecosystem approach; and addressing various issues.

This task is to look at the goal of achieving 100% reuse. Three things are needed: public support, political will, and lots of money (to undo damage doesn't come cheap). Rather than debate about weight of the problem, we should keep our eye on the goal. We have limited time and money for this. We have to make the best use of resources here. From the second meeting on, we have had a resource table available for any CWG or public member to share materials. This is an open process. CWG members can do their own research and verify the accuracy of information. Though it would be ideal to explore all the different contributing factors to coral reef decline, we don't have time. Not trying to downplay the urgency. The goal is 100% reuse and by achieving this or close to it, the reefs will be addressed and there will be other benefits. Let's keep moving forward.

Russell Sparks: The main reason for discussing injection wells and reefs would be to better underscore the urgency and time concern. Meetings spent discussing hurdles, process and funding can be discouraging if people are only thinking about that. People need to understand the concern of injection wells and impacts to reefs to appreciate why things should be moving faster. Data are showing coral reefs collapsing in 15 years; 50% decline in coral cover near one of the injection wells.

Robin Knox: There is also urgency in terms of wastewater management, which should take a precautionary approach. As the population grows, there are pollution control and water quality impacts.

Alex de Roode: Appreciates Kuhea's statement that there is scientific debate around environmental issues. A possible recommendation of the group might be for an objective study of the impact of injection wells on coral reefs. There are multiple factors affecting coral reefs, not just injection wells. It would be good for the CWG to understand the economic impacts of coral reef decline on many sectors (e.g., tourism, fisheries, etc.) This might be outside the scope of what CWG is to do.

Kuheha Paracuelles: Informational materials were brought by Darla White at Robin's request. This material is part of Russell's presentation and were provided previously.

Jeff Schwartz: Wants to get to areas of agreement and disagreement. There seems to be agreement that there is a problem with health of the reefs on Maui. If injection wells plays a role, it is not the sole cause because there are many causes. I think people agree with this. If there are people who think injection wells play no role, we should hear that and talk about what's accurate or not. We could spend a lot of time on how much all these different factors affect the reefs. We should work on what we can work on. If protecting the reefs is a goal then reclaiming wastewater is a positive. Coral reefs should be part of the goals and part of the strategy, not the sole goal.

Alex de Roode: Conservation efforts need vast funding as Kuhea mentioned. If we can all agree that everyone is a stakeholder in the health of coral reefs; CWG may be able to provide recommendations on funding. Maybe a coalition of stakeholders can come up with funding to address that issue.

Russell Sparks: Some have said that that reuse is the goal; wants to reinforce that phasing out injection wells is the goal and driving force.

Leland Chang: The mission and guiding principles have been revised to reflect this, along with a new guiding principle on the importance of ongoing active community involvement.

Leland Chang: Informational materials re. reef impacts can be sent electronically to the project team, which will handle posting on the CWG website.

III. CWG IV Meeting Summary

As there were no changes made, the summary will be posted as circulated.

IV. Discussion Brainstorming Results from CWG V

Leland Chang: The brainstorming notes were consolidated into the scenarios and organized into categories. The financing ideas from CWG III will be similarly organized and sent to the CWG.

Question A: Any general comments?

Robin Knox: When first looked at it, these seemed like obvious things; it was progress forward to see these ideas on paper.

Question B: Are the categories of input appropriate?

Dan Clegg: These groupings were good.

Question C: Do any of the identified strategies need to be clarified or explained further?

Robin Knox: All could use some further development; as they are just bullets now.

Pam Daoust: Would have liked the scenarios ahead of time so she could come prepared to respond. She prefers more time to think about these things. Wants to know where CWG is going and what is expected.

Leland Chang: This discussion allows people another chance to input by asking for additional ideas and comments. Members have had a month to think about the scenarios. Re. where CWG is going, all of these discussions are planning inputs that will feed into the recommendations.

Scott Meidel: Points to clarify; Page 4 infrastructure -- "improve segregation of WW excel". Page 6, improve overall ecology (under education).

Robin Knox: improved ecological IQ is what it should be.

Alex de Roode: It might be helpful to see what group came up with what ideas.

Leland Chang: We will send out “raw output” to CWG to refer back to.

Steve Parabolicoli: Think it’s “excess”; meaning where do you put the extra water?

Leland Chang: Edit to “improving segregation of excess WW”.

Question D: Are there additional strategies that have not been identified?

Alex de Roode: Creation of a water trust entity to serve as a financial mechanism for funding for all water related initiatives for the public good. This was brought up during the discussion of funding/budget.

Pam Daoust: Holistic approach; there needs to be more discussion of what this encompasses because in their group, people had different ideas of that. Agreed that it is big, so we must look at it from different angles; integrate water and sewage -- it is too fragmented now; what is County-wide role and what should it be?

Robin Knox: Look at systems approach -- where is stuff coming from and ending up? We can take this out of injection wells and put it on land and cause pollution. It’s the hydrology picture and how water moves around and ends up; assess what if scenarios and mass of pollution.

Alex de Roode: Add sustainability to holistic and look at the triple bottom line; looking at environmental, economic, social-cultural implications of whatever we are trying to address. Conducting material flow analysis and life cycle costing rather than just up front cost (including the cost of doing nothing).

Maury King (audience)/Robin Knox: Create “offsets” -- if developer agrees to move one mgd of WW to somewhere useful, they can use one mgd potable water. Concept with lot of details to be worked out.

Joie Taylor: Has WW composting (composting sewage; use of sewage for energy) been discussed?

Alex de Roode: Idea of linking funding water related initiatives to food and energy security.

Megan Powers (from audience): Tertiary treatment must be taken care of because of phosphorous and nitrogen; solar thermal can accomplish purification, distillation and creation of energy. Happening in Northern California or Nevada.

Question E: Any categories that need further strategy identification?

Jeff Schwartz: Water supply is mentioned but should also emphasize reducing water use, possibly with incentives; utilize the ideas that water department has already come up with; expand implementation of this; there are cost issues. Wastewater did this on Molokai where they included low flow toilets to reduce flow into the treatment plant. Solids portion -- if reduce this, it could serve the same purpose.

Alex de Roode: Reducing solids; has to go somewhere and what are the policies that need to be put in place?; whether it's composting toilets, gray water; looking at policies. Need to expand on the financial side and how to pay for these recommendations.

Robin Knox: Some level of prioritization, e.g., additional treatment for disinfection may be readily doable; other ideas may be good but may be lower priority; look at what can really be done.

Dave Taylor: People own the system and are charged.

Pam Daoust: The weakest in the brainstorming is the financial aspect; need more non traditional thinking; haven't considered things like fluctuating number of tourists and we can tap visitors to help pay for this, e.g., a tourist water tax.

Alex de Roode: Bhutan has limited tourists they allow to visit and you pay a large fee to visit; may not want to take it to that extreme level.

Robin Knox: Creative financing -- ask for congressional set asides (earmarks). Talked about user fees in terms of residents; but can reduce need for treatment by reducing loading; hospitality industry puts out similar waste loads and maybe we should consider user fees for this industry.

Scott Meidel: Resort industry is a huge producer of post consumer food waste; not sure how much of that ends up in WW but the industry could be incentivized to deal with this. Ag waste could go to a bio-digester as a next step.

John Seebart (audience): Bhutan limits tourists; any new development to add tourist rooms should have a plan to deal with all their waste; part of getting permit is to solve where waste is going to go so it doesn't contribute to the county burden.

Question F: Does this input suggest areas for recommendations should be developed?

Scott Meidel: How will this input be looked at?

Leland Chang: Strategies will be looked at through evaluation criteria that the CWG will be developing.

Alex de Roode: One area is political feasibility, e.g., new developments having to deal with all their waste -- developers would protest because existing users didn't have to do this; needs to be an equitable way to look at this.

Leland Chang: The question is what are the logical categories for recommendations? If we were doing an outline of recommendations, what are the major headings?

- a) Legislation
- b) Funding programs
- c) Incentive programs to assist development of injection alternatives

- d) Policy and regulation
- e) Education
- f) Technology
- g) Effective administration of everything. You have to have resources to administer the policy and regulation efficiently and effectively. Might not have the resources to do what you want it to do
- h) Workforce development and technical training; need workforce and if don't have it need to bring in out of state expertise
- i) Coordination of administration of services; how to deal with all issues holistically and interdepartmentally
- j) Users and uses, infrastructure that gets water to them with the water quality that they need
- k) Government reorganization
- l) What to do with water that cannot be used to displace potable water; potable displacement means anywhere we have potable water we can use reclaimed water; can only use so much of lesser quality reclaimed water due to regulations; then what should be done with the rest?
- m) Clarify that not all ag can use R-2 water; need to be careful about expecting this because some ag cannot use R-2
- n) Environmental issues
- o) Science, research and development, along with technology
- p) Coordination -- finding ways to streamline policies, regulations, legislation in way that makes sense and aligns with community values and guiding principles.
- q) Inter-related items, e.g., how food relates to water, how energy relates to water.
- r) Research can be on its own, not just related to environment.; expanding the knowledge base.
- s) Reduction of water inputs into the system; have a basic design flaw in how we handle waste. There may be better ways of doing things.

Question G: Within each category are there certain strategies that stand out in terms of potential benefits?

Robin Knox: Strategies that have multiple benefits or positive aspects. Reduce potable water use; cut WW discharge to reef and allow greater reuse. Disinfections technology. Some things like this may jump to the top of the list.

Scott Meidel: Recurring theme is enhanced ag use; regionally for small investment for South Maui this can be solved if reuse was utilized to a greater degree; ag use should have more discussion

Jeff Schwartz: Three financing strategies to pay attention to that don't come out of rate payers pockets -- Federal grants; bond issues with payment over time; auction of newly created water rights (Prescott Arizona auctioned water rights)

Alex de Roode: Wants to understand from Jeffrey how water rights fits in with water as a public trust resource as recognized in Hawaii; don't know if this is the right moment to get into this. More natural wastewater treatment systems, at a range of different scales.

Question H: should some strategies be emphasized over others; or should there be a balanced approach to making progress in all areas?

Dan Clegg: Don't deemphasize anything yet.

Sean O'Keefe: Agree with balancing strategies and coming up with a range of recommendations; then prioritize; don't eliminate any strategies yet

V. Evaluation Criteria—Initial Discussion

Leland: How should WW alternatives be judged, e.g., consistent with community values and CWG guiding principles; impacts that need to be considered (i.e. cost to taxpayers, aesthetics, etc)? What things should be looked at as strategies are being evaluated?

Sean O'Keefe: Equity; but looking at 30,000 foot level and then detail it later. If a suggestion is going to require legislation or regulatory fix, there should be criteria. Can it be done or are there other things that need to be done first; is it allowed?

Joie Taylor: Length of time to impact the system.

Robin Knox: Criteria to evaluate environmental impact like pollutant load and energy use.

Joie Taylor: Will it require lifestyle changes?

Sean O'Keefe: Cost -- this will be split up into many different things such as cost to taxpayers; who will pay. Another is public acceptability. There are some things public will not accept (like drinking WW).

Alex de Roode: Life cycle costing -- can be under cost or its own category. Cost of inaction. Cultural appropriateness -- whether we are willing to drink our wastewater; host culture appropriateness.

Jeff Schwartz: Will it work? Effectiveness in ending injection and increasing reuse of wastewater.

Bill Frampton: Consistency with general and community plans; consistency with Mission and Guiding Principles.

Alex de Roode: Has it worked elsewhere and is it proven; or are we "piloting"?

Leland: Two sides to this -- comfort of knowing something been done; or is it innovative?

Alex de Roode: Innovation is good with due diligence before expending resources on something that may not be effective.

John Seebart (audience): Reinforcing Alex's comment -- costs of inaction are multifaceted.

Leland Chang: Decentralized or centralized -- is this a criterion?

Jeffrey Schwartz: Not criteria.

Tui Anderson (audience): Potable water displacement.

Alex de Roode: Level of political will.

Robin Knox: Does a strategy support attainment of water quality standards (for drinking/receiving water)?

Pam Daoust: Sustainable over the long haul vs. short term fix.

Scott Meidel: Will the solutions be legal and comply with existing regulations and not contribute to liability/risk?

Tui Anderson: Energy cost.

Jeff Schwartz: Does it adequately address problem of private injection wells?

Alex de Roode: Cultural appropriateness -- is there a traditional knowledge base we can look to for a model (that may or may not exist today) of how Kanaka Maoli treated WW in the past?

Larry Stevens (audience): Scalability -- would solution be applicable elsewhere?

Joie Taylor: Can it be used on other islands?

Leland: If this is a criterion, is this a positive value?

Robin Knox: Maybe part of sustainability. Talking about our next round of WW but haven't talked about how to avoid getting into the same problems. Managing WW on a continuous basis -- are we always planning for future WW?; solutions with potential of going beyond just the existing plant. Going forward -- should be continually examining sustainability of solution.

Joie Taylor: Effect on the current WW system

Robin Knox: Evaluate how a given solution may perform in face of uncertainty over climate. Solutions may be tied to today's hydrology; but might not be the best because don't know how it's going to be tomorrow e.g., sedimentation basins designed for a given flow but not knowing what the flow will be in the future. If the performance of a solution is less susceptible to weather pattern changes, it may rate higher.

Alex de Roode: How will a solution be impacted by sea level rise (location and design of system)?; capacity to handle increased demand.

Gregg Kresge: A solution's potential for negative effects on other systems -- unintended consequences.

VI. Wastewater Disinfection Requirements and Practices

Robin Knox: Re. treatment plant capacity to disinfect with UV light, getting a lot of different answers as to what's happening. Over time, things may have changed. Wants explanation in writing so there is no confusion.

Dave Taylor: Robin is right, because it is different on different days. Water quality is regulated by EPA and DOH requirements established to protect public health and environment. EPA by permit provides flexibility in terms of operations and disinfection. Tim at Kihei knows the permit. Disinfection protocol changes to meet operational needs; and as long as it's in the permit, it is okay. If the public feels that requirements need to be tightened, it can be done through the permit and/or legislation. Some CWG members are pursuing that with the Lahaina permit. Whatever it is, the permits will allow flexibility. We can chlorinate and UV; and as long as we meet the permit requirements, it is okay. There is disinfection capability using chlorine at all three plants. UV is at Kihei for all the water. Lahaina has UV for R-1. No UV at Kahului. WW going down injection wells is done to meet the permit requirements. Sampling is done frequently and the permit criteria must be met one way or the other.

Robin Knox: How do you determine whether/how you chlorinate?

Dave Taylor: It's microbiology based; lab staff takes samples everyday. Do you have a copy of the UIC permit?

Robin Knox: Yes

Dave Taylor: They are all the same.

Robin Knox: Wants to know how disinfection is done.

Dave Taylor: Operations decides how to meet the permit requirements; and there is a legal requirement to comply with the permit or be hit with a fine.

Robin Knox: What does the permit require?

Dave Taylor: Water tests must meet certain criteria.

Robin Knox: You disinfect only to the extent required by the permit?

Dave Taylor: The permit has lists of everything that must be complied with. There are lots of numbers in the permit that must be met. Six lab people do testing every day; 20 operators look at this and tailor modifications to meet the requirements. We have licensed operators.

Steve Parabolicoli: For water that is injected, the UIC permits used to require a 0.1 mg/L chlorine residual. That requirement was waived by Dept. of Health several years ago. BOD (Biochemical Oxygen Demand) and TSS (Total Suspended Solids) can not exceed 30 mg/L for composite samples.

Jeff Schwartz: Permits are safe drinking water, not federal water pollution control.

Dave Taylor: Injection wells are regulated by safe drinking water.

Jeffrey Schwartz: One of the issues is a question of whether or not injection wells are a potential liability for discharging pollutants from point source. This is in dispute because it goes through the ground. One of the issues as we think about opportunity cost -- penalties up to \$25,000 per day.

Dave Taylor: There are 3,000 injection wells in Hawaii and all are regulated under the Safe Drinking Water Act. Original injection wells were built with EPA grant money and have been licensed by DOH. Don't know what will happen tomorrow. County is not alone in this, as every other injection well is regulated by the Safe Drinking Water Act.

Alex de Roode: There are a large percentage of injection wells in Hawaii and these are not all in coastal areas. Are there other treatment plants in coastal areas?

Dave Taylor: Hawaii has 20% of injection wells; other places have lakes, rivers and streams where they discharge directly into, e.g., Mississippi river where wastewater is treated and discharged. Hawaii doesn't have lakes, rivers and streams for discharge. Most are doing injection wells or into lakes, rivers and streams. Hawaii has a UIC line so most are below UIC and near coastal area to protect safe drinking water.

Robin Knox: In most places, most discharge does go to surface water; but most of those are regulated under the Clean Water Act. I was a permit writer. Safe drinking water does not look at aquatic impact. Call any EPA permit writer and they will talk about all the assumptions that makes injection wells okay. What's not true is about injection wells not reaching the ocean; there are two studies that show it reaches ocean. Are water quality based controls needed? Need to understand what's in the effluent. Everyone should look into this bigger context

Joie Taylor: Worked with a few wastewater issues, and one difference that had microfiltration and nanofiltration and UV disinfection which were significant -- this is good priority.

Next Steps: Next Meeting

Leland Chang: Reviews meeting schedule for remainder of year; explains pair wise activity -- a way to compare criteria against every other criterion for weighting purposes. Method of taking attaching values to a large group of items to look at relative importance.

Leland: Regarding the discussion about coral reefs and materials, there will be an area on the website to post coral reef materials you want to share. Send to the team electronically.

VII. Comments from the Public

John Seebart: Disagree with staff recommendations whether or not reef consideration should be introduced. CWG wouldn't be here if it wasn't for DIRE. DIRE contacted EPA and dealt with them and that's why this current process is happening. Knox and Dailer report says that nitrogen in effluent is bad for the reef -- causes algae blooms that smother the reef. If Maui's main business is tourism, reefs are a valuable economic resource. Coral reefs are under threat around the world and not under threat exclusively by injection wells but also from overfishing. EPA letter compelling Maui County to begin testing; possible criminal action and fines facing the County. This is a concern. CWG is doing a great job; but if people don't understand the basis of this then there won't be urgency. Ten years is not going to do it. Has copies of this letter and Dailer report.

Kuheia Paracuelles: Taking nothing away from DIRE but this process was conceived before that. Used to help coordinate with Russell and Steve on presentations about the reefs. This was being done two years ago to raise awareness about this issue. U.H. Manoa was going to do a two-day workshop. In talking with the County and Mayor, we decided to go forward with the CWG even with the legal proceedings pending. This process was not borne out of DIRE. Russell's presentation has been out there for a long time. If Russell and Steve want to continue to do those presentations, they can do that. That would be a continuation of what's occurred during the last two years.

Dave Taylor: This started prior to two years ago. When Cheryl first came to the department, she discussed forming a working group with him.

Maury King: It's a challenging task and important topic. Hope we can take this seriously. In future meetings can more consideration be given to logistics so people can hear. Water tax on tourist industry ("poop tax") -- make it a line item on their hotel bill so they can see what it contributes. Thanks to Alex for his efforts.

Dave Taylor: Re. water tax, there is all ready a wastewater tax and it's built into the current rate structure. We are currently in the budget hearings.

Leland Chang: adjourns the meeting at 4:30